TOWN OF JEROME

POST OFFICE BOX 335, JEROME, ARIZONA 86331
(928) 634-7943
www.jerome.az.gov

AGENDA

SPECIAL COUNCIL MEETING - WATER METER PROPOSALS OF THE TOWN OF JEROME COUNCIL CHAMBERS, JEROME TOWN HALL 600 CLARK STREET, JEROME, ARIZONA

MONDAY, DECEMBER 15, 2025, AT 3:00 PM

Due to the length of this meeting, Council may recess and reconvene at the time and date announced.

Pursuant to A.R.S. 38-431.02 notice is hereby given to the members of the Council and to the General Public that the Jerome Town Council plans to hold the above meeting. Persons with a disability may request an accommodation such as a sign language interpreter by contacting Kristen Muenz, Deputy Clerk, at 928-634-7943. Requests should be made early enough to allow time to arrange the accommodation. For TYY access, call the Arizona Relay Service at 800-367-8939 and ask for the Town of Jerome at 928-634-7943.

Notice is hereby given that pursuant to A.R.S. 1-602.A.9, subject to certain specified statutory exceptions, parents have a right to consent before the State or any of its political subdivisions make a video or audio recording of a minor child. Meetings of the Town Council are audio and/or video recorded, and, as a result, proceedings in which children are present may be subject to such recording. Parents in order to exercise their rights may either file written consent with the Town Clerk to such recording, or take personal action to ensure that their child or children are not present when a recording may be made. If a child is present at the time a recording is made, the Town will assume that the rights afforded parents pursuant to A.R.S. 1-602.A.9 have been waived.

We acknowledge we are on the traditional lands of the Yavapai and Apache People and we, the Town of Jerome, pay respect to the elders both past and present.

1. CALL TO ORDER/ROLL CALL

Mayor/Chairperson to call meeting to order
Town Clerk to call and record the roll.

2. PETITIONS FROM THE PUBLIC

Pursuant to A.R.S. § 38-431.01(H), public comment is permitted on matters not listed on the agenda, but the subject matter must be within the jurisdiction of the Council. All comments are subject to reasonable time, place and manner restrictions. All petitioners must fill out a request form with their name and subject matter. When recognized by the chair, please step to the podium, state your name and please observe the three (3) minute time limit. No petitioners will be recognized without a request. The Council's response to public comments is limited to asking staff to review a matter commented upon, asking that a matter be put on a future agenda, or responding to criticism.

3. NEW BUSINESS

Discussion/Possible Action

A. Consideration of Proposals Received in Response to the RFP for an Advanced Metering Infrastructure System, and Selecting One Vendor to Complete the Project, With or Without Modifications to Their Proposal

Selected vendors will provide a 35-minute presentation / question and answer session and Council may approve a vendor to engage in discussions for an agreement and possibly completing the project.

3:15-3:50 - Western Environmental; 3:55-4:30 - Aquaflow; 4:35-5:10 - Metron; 5:10-5:45 - Fortiline

4. ADJOURNMENT

The Town Council may recess the public meeting and convene in Executive Session for the purpose of discussion or consultation for legal advice with the Town Attorney, who may participate telephonically, regarding any item listed on this agenda pursuant to A.R.S. § 38-431.03 (A)(3). The Chair reserves the right, with the consent of Council, to take items on the agenda out of order.

CERTIFICATION OF POSTING OF NOTICE

The undersigned hereby certifies that this notice and agenda was posted at the following locations on or before 7 p.m. on _____ in accordance with the statement filed by the Jerome Town Council with the Jerome Town Clerk: (1) 970 Gulch Road, side of Gulch Fire Station, exterior posting case; (2) 600 Clark Street, Jerome Town Hall, exterior posting case; (3) 120 Main Street, Jerome Post office, interior posting case.

_____

Kristen Muenz, Deputy Town Clerk

File Attachments for Item:

A. Consideration of Proposals Received in Response to the RFP for an Advanced Metering Infrastructure System, and Selecting One Vendor to Complete the Project, With or Without Modifications to Their Proposal

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(928) 634-7943 FAX (928) 634-0715

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STAFF SUMMARY REPORT

FROM: Brett Klein, Town Manager/Clerk

ITEM: **Item: Consideration of Bids in Response to the Town's Issuance of a RFP for Water Meters**

MEETING DATE: December 15, 2025

Summary:

In June, 2025, the Town received a grant from the Water Infrastructure Finance Authority (WIFA) for water meters with the overarching goals of conserving water and having real-time accurate data. The grant was highly competitive with none of our neighboring jurisdictions being approved, but our grant application was based on the significant need the Town has to upgrade its meters and attempt to account for infrastructure leaks.

The Town subsequently issued a RFP to receive proposals from eligible vendors and to obtain more information regarding the automated meters. The Town received seven (7) bids, all of which could be purchased utilizing the Town's FY 2026 budgeted funds and the WIFA grant. At the December 9th regular meeting the Town Council narrowed it down to four that would be invited to attend a special meeting in order to learn more about their product and process and determine if there is a good match for the Town.

There will be vendors providing a presentation at the special meeting on December 15th. Staff highly recommend that Council chose a viable option to utilize the grant funding. If not done now, it will likely need to be completed in the next ten years with higher prices and no guarantee of a funding partner. Plus, we are or could / should be replacing ten meters a year anyway and to continue replacing them with the older style meters seems an unwise financial investment in the Town.

Staff have researched extensively and not identified a single private or public water utility; water conservation organization; water engineer or public grant authority that would choose the old-style meter over the contemporary "smart" meters. I'm sure there are some opponents but considerably fewer than the many proponents who extol its virtue of conservation through leak detection.

Jerome has other considerations. Beyond the real-time data and leak detection, we place our staff in peril every month by having to utilize outdated practices for reading meters, which require climbing and balancing just to access. At the meeting we will show a video and photographs of a couple of the more difficult to access meters and an actual hike to a more difficult meter read location through body cam footage.

Moreover, staff are against any type of meter replacement opt out as there is no scientific argument for remaining with the old style meters, but understand that is a Council prerogative and are happy to oblige should the Council vote for this as a stipulation.

Fiscal Impact:

The Town has received an 80% grant from WIFA for $206,000~. The impact to the Town would be the remaining 20% which was budgeted for in line item 20-50-6230 that with 42% of the budget year elapsed has expended only $7,860 out of $175,000.

Recommendation:

Staff highly recommend Council identify a vendor they feel most comfortable with fitting our needs for full-scale meter replacement and authorizing staff pursue a contract with the specified vendor.

TOWN OF JEROME, ARIZONA
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REQUEST FOR PROPOSAL

FOR

ADVANCED METERING INFRASTRUCTURE SYSTEM

PROJECT NO.

Submission Deadline: WEDNESDAY, NOVEMBER 5, 2025
No later than 12:00 PM – Arizona Time

Town of Jerome
Attn: Town Clerk
PO Box 335
600 Clark St.
Jerome, AZ 86331

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NOTICE TO RESPONDENTS

REQUIRED PROPOSAL PACKAGE FORMS

THE FOLLOWING ITEMS MUST BE COMPLETED AND SUBMITTED WITH THIS COMPLETE AND INTACT PROPOSAL PACKAGE FOR A PROPOSAL TO BE CONSIDERED RESPONSIVE. ANY AND ALL DEFICIENCIES OF ITEMS LISTED BELOW WILL BE CONSIDERED AN ADEQUATE REASON TO REJECT THE PROPOSAL IN ITS ENTIRETY.

- Complete Proposal Package
- Acknowledgement of Addenda
- Executed Proposal Documents
  - Proposal
  - Fee Proposal
  - Non-Collusion Certificate
  - Certificate of Ownership
  - Respondent Qualifications, Representations, and Warranties
- Signatures, Seals, & Notaries (wherever necessary)

This information is provided for your use in preparing all documents as required for a complete proposal. Please double-check all requirements. If you have any questions regarding what is required with a submittal, please call and ask.

REQUEST FOR PROPOSAL

Town of Jerome
Advanced Metering Infrastructure System

Notice is hereby given that the Town of Jerome, Arizona, is requesting proposals from qualified person(s) or vendors (collectively, "respondents") to replace the Town's outdated water meters with an advanced metering infrastructure (AMI) system.

The Town of Jerome intends to implement a water meter replacement program and system-wide conversion of the Town's current water meters to an AMI. Existing meters will be replaced with equivalent-sized AMI meters that can capture and transmit water meter data to centralized software to streamline operations, improve subsequent billing processes, and enhance customer satisfaction.

The scope of work for this project includes, but is not limited to, providing the following:

- Water meters.
- RF-enabled (radio frequency) endpoints.
- Network software and infrastructure, including base stations and repeaters, where necessary and applicable.
- Software and equipment training.

The procurement time to complete the project is 180 calendar days from the date of the Notice to Proceed.

The Town of Jerome will receive and accept proposals until 12:00 p.m. On November 5, 2025, at Jerome Town Hall, 600 Clark St, Jerome, Arizona 86331. Proposals received after that time will not be accepted. The Town of Jerome reserves the right to reject any or all proposals and to award all or part of the proposal. Nevertheless, except when rejections of proposals are required by law, the Town reserves the right to waive any informality of the proposal. The Town intends to award the contract contemplated in this RFP to the responsible and responsive respondent whose proposal is determined, in writing, to be the most advantageous to the Town and best meets the overall needs of the Town, taking into consideration the evaluation criteria set forth in this RFP.

Brett Klein
Town Manager/Town Clerk

Posting Date:

Publishing Dates:

GENERAL PROJECT INFORMATION

The Town of Jerome is located on the side of Cleopatra Hill in the Black Hills of Arizona. The Town is the sole provider of metered water services within Town limits, as well as specific locations outside of Town limits. The Town, which has stretches of exposed water utility lines, experiences "four seasons," with some nights reaching freezing or below-freezing temperatures, typically from December to March.

The Town's existing water meter system comprises a variety of meter sizes (5/8" to 4"), some of which are more than 20 years old, to serve the community's roughly 450 residents and many tourists. Current metering practices include public works employees manually reading all meters, then supplying the reads to the finance department, which uploads and checks all information before running monthly statements.

Project Description
The Town of Jerome hereby requests proposals from experienced individuals or companies capable of implementing a system-wide conversion to an advanced metering infrastructure (AMI) system, comprising 332 new equivalent-sized AMI meters. The project will involve replacing all existing meters; however, it's anticipated that the Town Council may allow users to opt out at their request. Therefore, it is preferable for proposed AMI systems to be compatible with the Town's current Sensus meters. Installation guidelines will be provided by the awarded supplier to the installation company. The Town anticipates that this project will move forward as quickly as possible, with all meters to be installed within six months. Each respondent is requested to provide as much relevant information as possible within the scope of this RFP, including but not limited to the respondent's capabilities with respect to project management, the products and components proposed, service, maintenance, warranties, and post-installation support and service.

The purpose of this RFP is to invite cost proposals for services related to implementing a fixed-base AMI system and its management and maintenance as described in this RFP.

The Town of Jerome wishes to procure an AMI system that:

1. Provides integrated time interval data daily.
2. Replaces existing water meters (a majority are in utility easements or Town rights-of-way) and increases the accuracy of the reads associated with the system through the use of modern technology-based products.
3. Increases the efficiency of the water system, lowers operating costs, and enhances customer service.
4. Provides water meter reading redundancy.
5. Provides an option that enables the meters to be read using a drive-by method, utilizing a mobile reading device capable of reading the same transmitter as the fixed base transmitter, or some other method that equals or exceeds those described.
6. Provides that while in fixed base mode, the system has two-way communication capability, which allows the system to poll the transmitter at each meter location for a current read, and which also allows for upgrades of the fixed base transmitter firmware to incorporate technological advances and/or as deemed useful and necessary by the Town of Jerome.

7. Provides real-time meter leak detection on the distribution and customer sides of the meter.
8. Provides component pricing and after-sales service costs following project completion. Includes warranty information and system specifications.
9. Provides a system backhaul that interfaces with radio or cellular components, as fiber is not available.
10. Interfaces with the Town's billing software, Caselle.

Include any specifications and pricing pertaining to any additional costs, regardless of payment cycle, monthly, quarterly, annually, or otherwise, over and above the costs of installation.

Proposal Guidelines:
As part of this RFP, each respondent shall submit pricing for the water meters, necessary components for operation, software and hardware, battery life and replacement specifications, if boosters/repeaters would be needed, a minimum and maximum price for every meter type listed, the maximum escalation for the percentage of increase after the first five years, and training. Thereafter, if the Town of Jerome determines to proceed with selecting a respondent, the Town 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 Town of Jerome will reach an agreement on provisions for securing the metering system.

The Town of Jerome is looking for longevity from this project. It is expected that the new system will have a 20-year lifespan, with warranties to ensure product life begins at the time of installation of the unit. Battery life, as well as instructions for replacing batteries in the system, must be specified in the proposal, along with the associated price. All meter sizes must be compatible with our current system, which will be provided. The system must also allow for the future development and growth of the Town. Any upgrades/changes to the system and/or meters must be agreed to in writing by the Town Manager before proceeding.

Smart Utility Network Respondent References
Respondents must provide three references for utility systems with sizes (or larger), customer counts, and service areas (i.e., weather/location) similar to those of Jerome that are successfully using the proposed system version. Respondent must demonstrate a minimum of five years of experience in the field.

Project Objectives – Short Term
The Town of Jerome wishes to acquire and implement an AMI system to satisfy the needs of the community. The following are short-term goals for Jerome:

- Reduce water loss.
- Improve water conservation/water accountability.
- Replace all meters in the system with an AMI system.
- Reduce the current labor required by the Public Works and Utility departments in completing monthly billing.
- Improve customer service.
- Install all system components within six months.
- A system that supports direct communication to meters in the field.

Project Objectives – Long Term
Future objectives are as follows:

- Reduction in time spent reading meters to allow more time for infrastructure projects.
- Improve response times to potential problems.
- Asset management.
- Availability of information for emergency preparedness.
- Real-time leak detection.

Proprietary Information
All materials submitted in response to this solicitation, including samples, shall become the property of the Town and are therefore subject to public release, upon request. Respondents shall clearly mark any proprietary information contained in their submittal with the words "Proprietary Information." Respondents shall not mark any Solicitation Form as proprietary. Marking all or nearly all of a submittal as proprietary may result in rejection of the submittal.

Respondents should be aware that the Town is required by law to make its records available for public inspection. All respondents, by submission of material marked proprietary, acknowledge and agree that the Town will have no obligation to advocate for nondisclosure in any form, nor will the Town assume any liability to the respondents in the event that the Town must legally disclose these materials.

Minimum Qualifications
Respondents shall possess the qualifications and Arizona licenses as required by law, in addition to having extensive knowledge, expertise, and experience for the products they are recommending. Selected respondents will be required to supply, execute, and meet the terms of a standard General Services Contract, including insurance requirements, in a form acceptable to the Town Attorney. Approval of the Town Council will be required for the award of a contract. A sample agreement has not been provided with this request; however, respondents are encouraged to include a sample agreement with their proposal package, if available.

Proposal Submittal Delivery
Submit proposals to: Town of Jerome
Attn: Brett Klein, Town Clerk
PO Box 335
Jerome, AZ 86331
928-634-7943

Proposals may also be sent to the following email: b.klein@jerome.az.gov

Proposals may be hand-delivered, but must be received by 12:00 p.m. on November 5, 2025, at 600 Clark St., Jerome, AZ 86331, and **must** specify attention to Brett Klein, Town Clerk.

EVALUATION CRITERIA

The Town reserves the right to and will likely reject any proposals that do NOT meet the minimum criteria described in this RFP. For proposals meeting or exceeding the minimum criteria, the Town will review each proposal based on the criteria shown below. The Town intends to select the most highly qualified respondent based on demonstrated competence and qualifications to negotiate a contract.

A. General Information

a. Brief overview of the respondent and legal organization of the company.
b. Submission requirements met.
c. SAM.gov Unique Entity ID number (UEI) as required by grant funding.
d. Description of at least three but no more than five similar projects in which the respondent participated for each applied service category. Describe the respondent's role in the project and the scope of work that demonstrates the respondent's expertise. Provide the name and contact information for each project. It is preferred that similar projects have been conducted in a similar topography to the Town of Jerome.

B. AMI Information Requirements

a. Communication Propagation Study with a "Fixed Base" Communication system for the AMI system.
b. Explain if the AMI system will include any cellular network.
c. Explain if the AMI includes a free or paid customer engagement web portal.
d. Explain if the AMI provides top-of-the-hour time-synchronized readings across the entire system with at least an update every hour.
e. Explain if the meters, endpoints, and AMI infrastructure are manufactured by the same company.
f. Explain if the current meters and endpoints will be able to integrate with the AMI system.
g. Describe if the system can identify unauthorized usage on marketed accounts.
h. Describe if the system can configure high or low usage parameters and identify accounts in violation.
i. Explain how many users the system can support at one time.
j. Explain if the software enhancements, upgrades, updates, and patches are included in the pricing structure or if it will be an annual cost for these items.

C. Endpoint Information and Requirements.

a. Describe the endpoint collection process and if it collects at the top of the hour and is synchronized with 15-minute reads from the water meter.
b. Describe if the endpoint has two-way communication.
c. Describe the temperatures the endpoint can withstand during storage and operations.
d. Describe if the endpoint can be installed via pit or remote.
e. Describe the network firmware updates.
   (i) Describe whether they can be done remotely, with infrared, or local updates.
f. Explain the environmental conditions the endpoints can withstand, including flooding or submerged pit application.

g. Describe the warranty for the endpoints and whether it is included.

D. Customer Portal Information and Requirements

a. Explain if the customer portal is owned and developed by the AMI manufacturer.
b. Explain if the web portal will be accessible through a standard internet browser.
c. Explain if the customer portal will allow the customer to set up a leak notification through the portal and let the customer be notified via email.
d. Explain if the utility customer service representative will be able to see the same view as the customer or if the web portal will be different for the customer and the utility staff.
e. Explain if the customer will be able to export consumption data in Comma Separated Value (CSV) format.

E. Training Information and Requirements

a. Describe who will be providing the training (e.g., Manufacturer Certified Trainers).
b. Describe if there will be web-based training for future head-end system updates and upgrades, and if there will be any cost that may be associated with the training.
c. Describe if training materials for end users will be available online or in electronic form.

F. Other

a. Describe if you can replace a current meter in need of replacement with a non-AMI meter for an opt-out member and invoice separately from the project.

INSTRUCTIONS TO RESPONDENTS

General
No clarification as to the meaning of the plans, specifications, or other pre-bid documents will be made to any respondent orally. Should conflicts occur between drawings and/or specifications, the respondent shall be deemed to have estimated the most expensive interpretation of the conflict, unless the respondent asks for written clarification before submission of the proposal. All requests for such clarification shall be in writing to:

Questions: Brett Klein
Town of Jerome
PO Box 335
Jerome, AZ 86331
b.klein@jerome.az.gov

To be given consideration, a request for written clarification must be received at least four (4) days prior to the proposal opening. All such clarifications and any supplemental instructions will be in the form of a written addendum to the specifications. All such addenda will be transmitted to all respondents two days prior to the proposal opening. All addenda so issued shall become part of the Contract Documents.

Attention is called to the sheets in this RFP that include the words "**REQUIRED FOR SUBMITTAL**" at the bottom of the page. These sheets should be used and submitted with the proposal that is sent to the Town of Jerome, or pages with similar formatting containing all the same information should be included with the proposal.

Proposals shall be made upon the Proposal Documents contained in and submitted with this RFP. All papers bound with or attached to the proposal are necessary parts and must not be detached.

Each Proposal must be submitted in an envelope, addressed to Brett Klein, Town Manager, at Town of Jerome, 600 Clark St., PO Box 335, Jerome, Arizona 86331. Proposals will be returned unopened if not properly sealed when submitted.

Each envelope containing a proposal must be plainly marked on the outside as "TOWN OF JEROME ADVANCED METERING INFRASTRUCTURE SYSTEM." The envelope should bear on the outside the name of the respondent and their address. If forwarded by mail, the envelope containing the proposal must be enclosed in another envelope addressed to Brett Klein, Town Manager, at Town of Jerome, 600 Clark St., PO Box 335, Jerome, Arizona 86331.

Acknowledgement of Addenda
If any addenda are published prior to the proposal due date, the acknowledgement page must be signed by the contractor and returned with the proposal documents. If they are not included, the proposal will be disqualified.

PROPOSAL TIMELINE

TOWN OF JEROME – ADVANCED METERING INFRASTRUCTURE SYSTEM

PROPOSAL PACKAGE AVAILABLE	October 6, 2025 Electronically from Brett Klein, at: b.klein@jerome.az.gov Or on the Town website, at: www.jerome.az.gov Town of Jerome Phone: (928) 634-7943
PROPOSALS DUE	November 5, 2025, 4:00 PM Office of the Town Clerk Town of Jerome 600 Clark St. PO Box 335 Jerome, AZ 86331
ANTICIPATED CONTRACT AWARD	December 9, 2025
ANTICIPATED NOTICE TO PROCEED	To be agreed upon (No later than December 31, 2025)

Questions regarding the project specifications should be directed in writing to Brett Klein at the Town of Jerome (email: b.klein@jerome.az.gov).

PROPOSAL DOCUMENTS

The following documents and information requested thereon are required to be submitted with your proposal.

Town of Jerome

Proposal Document A – Proposal

To: Honorable Mayor & Council
600 Clark St.
Jerome, AZ 86331

In compliance with the Town of Jerome's Request for Proposals for an Advanced Metering Infrastructure System and the Notice to Respondents by the Town Manager, the undersigned respondent:

Having carefully examined the proposal documents and being familiar with the conditions to be met, hereby submits the following proposal for furnishing the material, equipment, labor and everything necessary for the completion of the work listed and agrees to execute contract documents and furnish the required Bonds and Certificates of Insurance for the completion of said work, at the locations and for the prices set forth on the Fee Proposal.

Understands that procurement of this project shall be in accordance with all applicable Standard Specifications and as otherwise required by the General Provisions and Special Provisions.

Understands that this proposal shall be submitted with a proposal guarantee of cash, certified check, cashier's check, or surety bond (in accordance with Title 34, A.R.S.) for an amount not less than ten percent of the total amount proposal.

Agrees that upon receipt of Notice of Award from the Town of Jerome, they will enter into contract negotiations and execute the contract documents.

Work shall commence no later than 30 days, after the Notice to Proceed and shall be completed within 180 calendar days, beginning with the day following the starting date specified in the Notice to Proceed. The time allowed for completing the work includes lead time for obtaining the necessary materials and/or equipment. Respondent agrees to pay, as liquidated damages, two times the sum as stated in the latest revision of the MAG Specifications. Liquidated Damages shall be based upon the final contract amount.

The respondent hereby acknowledges receipt of and agrees that this proposal is based on the following Addenda (if there are no addenda, write NONE below).

_____

_____

_____

REQUIRED FOR SUBMITTAL

The Town of Jerome retains the right to reject any or all proposals and to waive minor defects and technicalities or withhold the award, as may be deemed best for the interest of the Town.

This proposal shall be valid for a period of 30 days after the proposal deadline.

THIS PROPOSAL is submitted by _____,

a corporation organized under the laws of the State of Arizona, a partnership consisting of _____

_____, or an individual trading as _____ of the

City of _____, and holder of Arizona State Contractor's License(s):

Classification(s) _____

No.(s) _____

Respectfully Submitted,

_____
Respondent

_____
Address

_____
By (Officer & Title)

_____
Date

ATTEST:

_____
(Officer and Title)

_____
Witness (if respondent is an individual)

Town of Jerome

Proposal Document B – Fee Proposal

Respondent _____

Mailing Address _____

City _____ State _____ Zip _____

Telephone _____

PURSUANT to, and in compliance with, the Town of Jerome's Request for Proposals for an Advanced Metering Infrastructure System, the Notice to Respondents, Instructions to Respondents, and the Proposal Documents relating to the:

TOWN OF JEROME
ADVANCED METERING INFRASTRUCTURE SYSTEM

This is to certify that the above documents, as well as the site upon which work is to be performed and any and all conditions affecting the work, have been carefully examined, that the amount and nature of work to be accomplished is thoroughly understood and that at no time will misunderstanding of the drawings, specifications or conditions to be overcome be alleged or pled as a basis for change orders, damages or non-performances.

I (We) acknowledge that the following Fee Proposal and table are for the convenience of the Town of Jerome to analyze the individual components of the proposal and to provide a means for partial payments during the project. The sum of the extended unit prices shall be the final price for the product procurement in accordance with the technical specifications. The total price listed on the Fee Proposal shall be the same as listed on the proposal to the Town of Jerome.

FEE PROPOSAL INSTRUCTIONS:

1. All items will be paid for as lump sums. The Fee Proposal's estimated quantity and unit price will be used as a means of computing progress payments and as a basis for any Change Orders incurred.

2. The owner reserves the right to recalculate the following Fee Proposal if they appear malapportioned.

3. The lump sum amounts indicated below are to include the respondent's cost of administration, mobilization, bonds, insurance, and any other miscellaneous items required for the project.

REQUIRED FOR SUBMITTAL

FEE PROPOSAL Town of Jerome Advanced Metering Infrastructure System					
		Est. Qty.	**Units**	**Unit Price**	**Total Price**
CIVIL BASE PROPOSAL					
1	¾ x 5/8” AMI Meter	299			
2	1” threaded AMI Meter	17			
3	1 ½” flanged AMI Meter	13			
4	2” AMI Meter	2			
5	4” AMI Meter	1			
6	AMI System Software	1			
7	AMI System Training	1			
8	AMI Data Collection Hardware/Software	1			
9	FCC Registration	1			
SUBTOTAL COSTS – BASE PROPOSAL					
GRAND TOTAL, BASE PROPOSAL					

GRAND TOTAL – BASE PROPOSAL (in words):_____

_____

NOTE: All Quantities Shown are approximate and are furnished solely for the contractor’s convenience. The quantities provided will be the lump sum that payment will be made on. The individual items are for use by the Town to analyze proposals, use as a basis for any supplemental agreements, and for partial progress payments.

Proposal Document C – Non-Collusion Certificate

ADVANCED METERING INFRASTRUCTURE SYSTEM

Respondent: _____

The undersigned respondent hereby certifies as follows:

To the best of his/her knowledge, the person, vendor, association, partnership, or corporation herein has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive pricing in the preparation and submission of a proposal to the Town of Jerome for consideration in the award of this solicitation.

Dated this _____ day of _____ 2025.

_____ _____

Signature Phone Number

_____ _____

Written Name Email Address

Proposal Document D – Certificate of Ownership

ADVANCED METERING INFRASTRUCTURE SYSTEM

Respondent: _____

The undersigned respondent hereby certifies as follows:

To the best of his/her knowledge, the person, vendor, association, partnership, or corporation herein, are the only person, vendors, corporations, partnerships, or other associations having any direct or indirect financial interest in the respondent's business as legal or equitable owner, creditor (except current bills for operating expenses), or holder of any security or other evidence of indebtedness.

Dated this _____ day of _____ 2025.

_____ _____

Signature Phone Number

_____ _____

Written Name Email Address

Proposal Document E – Respondent Qualifications, Representations, and Warranties

ADVANCED METERING INFRASTRUCTURE SYSTEM

Respondent: _____

The undersigned respondent hereby certifies as follows:

X1 Taxes and Leins – Respondent has no unsatisfied tax or judgment lien on record.

X2 Respondent's Examination – Respondent has made its own examination, investigation, and research regarding the requirements of the solicitation, including but not limited to the work to be done, services to be performed, any conditions affecting the work and services, the type and quantity of labor, equipment, and facilities necessary to perform. Respondent fully understands the character of the work and services, the manner in which payment is to be made, and the terms and conditions of the solicitation. Respondent acknowledges and agrees that it has satisfied itself by its own examination, investigation, and research, and that it will make no claim against the Town because of erroneous estimates, statements, or interpretations made by the Town. Respondent hereby proposes to furnish all materials, equipment, and facilities and to perform all labor which may be required to do the work within the time required and upon the terms and conditions provided in the solicitation, and at the prices as proposed.

Dated this _____ day of _____ 2025.

_____ _____

Signature Phone Number

_____ _____

Written Name Email Address

Town of Jerome

Western Environmental Utility Co.

Proposal Document A – Proposal

To: Honorable Mayor & Council
600 Clark St.
Jerome, AZ 86331

In compliance with the Town of Jerome's Request for Proposals for an Advanced Metering Infrastructure System and the Notice to Respondents by the Town Manager, the undersigned respondent:

Having carefully examined the proposal documents and being familiar with the conditions to be met, hereby submits the following proposal for furnishing the material, equipment, labor and everything necessary for the completion of the work listed and agrees to execute contract documents and furnish the required Bonds and Certificates of Insurance for the completion of said work, at the locations and for the prices set forth on the Fee Proposal.

Understands that procurement of this project shall be in accordance with all applicable Standard Specifications and as otherwise required by the General Provisions and Special Provisions.

Understands that this proposal shall be submitted with a proposal guarantee of cash, certified check, cashier's check, or surety bond (in accordance with Title 34, A.R.S.) for an amount not less than ten percent of the total amount proposal.

Agrees that upon receipt of Notice of Award from the Town of Jerome, they will enter into contract negotiations and execute the contract documents.

Work shall commence no later than 30 days, after the Notice to Proceed and shall be completed within 180 calendar days, beginning with the day following the starting date specified in the Notice to Proceed. The time allowed for completing the work includes lead time for obtaining the necessary materials and/or equipment. Respondent agrees to pay, as liquidated damages, two times the sum as stated in the latest revision of the MAG Specifications. Liquidated Damages shall be based upon the final contract amount.

The respondent hereby acknowledges receipt of and agrees that this proposal is based on the following Addenda (if there are no addenda, write NONE below).

NONE

The Town of Jerome retains the right to reject any or all proposals and to waive minor defects and technicalities or withhold the award, as may be deemed best for the interest of the Town.

This proposal shall be valid for a period of 30 days after the proposal deadline.

THIS PROPOSAL is submitted by Western Environmental Utility Company

_____, a corporation organized under the laws of the State of Arizona, a partnership consisting of _____, or an individual trading as _____ _____ of the City of TEMPE, and holder of Arizona State Contractor's License(s):

Classification(s) _____

No.(s) _____

Respectfully Submitted,

_____
Respondent

8240 S. Kyrene Road Suite 111, Tempe AZ 85284
Address

Amy Gamache, President
By (Officer & Title)

11/24/25
Date

ATTEST:

_____, OWNER.
(Officer and Title)

_____ Witness (if respondent is an individual)

Town of Jerome

Proposal Document B – Fee Proposal

Respondent Western Environmental Utility Company

Mailing Address 8240 S. Kyrene Road Suite 111

City Tempe State AZ Zip 85284

Telephone 480.607.2884

PURSUANT to, and in compliance with, the Town of Jerome's Request for Proposals for an Advanced Metering Infrastructure System, the Notice to Respondents, Instructions to Respondents, and the Proposal Documents relating to the:

TOWN OF JEROME
ADVANCED METERING INFRASTRUCTURE SYSTEM

This is to certify that the above documents, as well as the site upon which work is to be performed and any and all conditions affecting the work, have been carefully examined, that the amount and nature of work to be accomplished is thoroughly understood and that at no time will misunderstanding of the drawings, specifications or conditions to be overcome be alleged or pled as a basis for change orders, damages or non-performances.

I (We) acknowledge that the following Fee Proposal and table are for the convenience of the Town of Jerome to analyze the individual components of the proposal and to provide a means for partial payments during the project. The sum of the extended unit prices shall be the final price for the product procurement in accordance with the technical specifications. The total price listed on the Fee Proposal shall be the same as listed on the proposal to the Town of Jerome.

FEE PROPOSAL INSTRUCTIONS:

1. All items will be paid for as lump sums. The Fee Proposal's estimated quantity and unit price will be used as a means of computing progress payments and as a basis for any Change Orders incurred.

2. The owner reserves the right to recalculate the following Fee Proposal if they appear malapportioned.

3. The lump sum amounts indicated below are to include the respondent's cost of administration, mobilization, bonds, insurance, and any other miscellaneous items required for the project.

FEE PROPOSAL Town of Jerome Advanced Metering Infrastructure System					
		Est. Qty.	**Units**	**Unit Price**	**Total Price**
CIVIL BASE PROPOSAL					
1	¾ x 5/8" AMI Meter	299	Each	311.53	93,147.47
2	1" threaded AMI Meter	17	Each	418.63	7,116.71
3	1 ½" flanged AMI Meter	13	Each	731.00	9,503.00
4	2" AMI Meter	2	Each	964.75	1929.50
5	4" AMI Meter	1	Each	3145.43	3,145.43
6	AMI System Software/Billing Interface	1	Each	5739.00	5,739.00
7	AMI System Training	1	Each	3500.00	3,500.00
8	AMI Data Collection Hardware/Software	1	Each	10,150.00	10,150.00
9	Connectors, gaskets, lids, HLFX (20).	1	Set	25,880.00	25,880.00
SUBTOTAL COSTS – BASE PROPOSAL					160,110.64
GRAND TOTAL, BASE PROPOSAL – Including freight, taxes, installation (by others).				**$279,849.73**	

GRAND TOTAL – BASE PROPOSAL (in words): Two Hundred Seventy Nine Thousand Eight Hundred Forty Nine Dollars and Seventy Three Cents.

NOTE: All Quantities Shown are approximate and are furnished solely for the contractor's convenience. The quantities provided will be the lump sum that payment will be made on. The individual items are for use by the Town to analyze proposals, use as a basis for any supplemental agreements, and for partial progress payments.

Proposal Document C – Non-Collusion Certificate

ADVANCED METERING INFRASTRUCTURE SYSTEM

Respondent: Western Environmental Utility Company

The undersigned respondent hereby certifies as follows:

To the best of his/her knowledge, the person, vendor, association, partnership, or corporation herein has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive pricing in the preparation and submission of a proposal to the Town of Jerome for consideration in the award of this solicitation.

Dated this 24th day of November 2025.

Signature

480.607.2884
Phone Number

Amy Gamache
Written Name

argmache@weeci.com
Email Address

Proposal Document D – Certificate of Ownership

ADVANCED METERING INFRASTRUCTURE SYSTEM

Respondent: Western Environmental Utility Company

The undersigned respondent hereby certifies as follows:

To the best of his/her knowledge, the person, vendor, association, partnership, or corporation herein, are the only person, vendors, corporations, partnerships, or other associations having any direct or indirect financial interest in the respondent's business as legal or equitable owner, creditor (except current bills for operating expenses), or holder of any security or other evidence of indebtedness.

Dated this 24th day of November 2025.

Signature

480.607.2884
Phone Number

Amy Gamache
Written Name

argmache@weeci.com
Email Address

Proposal Document E – Respondent Qualifications, Representations, and Warranties

ADVANCED METERING INFRASTRUCTURE SYSTEM

Respondent: Western Environmental Utility Company

The undersigned respondent hereby certifies as follows:

X1 Taxes and Leins – Respondent has no unsatisfied tax or judgment lien on record.

X2 Respondent's Examination – Respondent has made its own examination, investigation, and research regarding the requirements of the solicitation, including but not limited to the work to be done, services to be performed, any conditions affecting the work and services, the type and quantity of labor, equipment, and facilities necessary to perform. Respondent fully understands the character of the work and services, the manner in which payment is to be made, and the terms and conditions of the solicitation. Respondent acknowledges and agrees that it has satisfied itself by its own examination, investigation, and research, and that it will make no claim against the Town because of erroneous estimates, statements, or interpretations made by the Town. Respondent hereby proposes to furnish all materials, equipment, and facilities and to perform all labor which may be required to do the work within the time required and upon the terms and conditions provided in the solicitation, and at the prices as proposed.

Dated this 24th day of November 2025.

Signature

Amy Gamache

Written Name

480.607.2884

Phone Number

argamache@weeci.com

Email Address

Please see enclosed cover letter, technical briefs, and warranties.

Western Environmental Utilities Co.
8240 S Kyrene Rd, Suite 111
Tempe, AZ 85284

November 24, 2025

Town of Jerome

Attention: Town Clerk

600 Clark Street

Jerome, AZ 86331

Dear Town Clerk:

Please find enclosed our response to the RFP for Advanced Metering Infrastructure System, due December 1, 2025.

You will see that we, Western Environmental Utility Company (WEUC), are quoting the Badger Meter water meters, both mechanical and electronic, and the Beacon Orion cellular AMI system. Tech briefs are enclosed along with warranty information. Please note that Badger Meter Inc. was founded in 1905 and is traded on the NYSE: symbol BMI.

Badger Meter cellular endpoints are compatible with the town's existing Sensus meters with encoders. Also, we have enclosed a quotation from Metering Services Inc. with whom we have partnered on many meter projects. They are an experienced and solid meter installation contractor and will contract directly with the town.

Our RFP quote meets all requirements outlined on Pages 3 and 4, except for item #7 – "provides real-time meter leak detection". Our Beacon Orion system reports to the cloud

every six hours, or four times daily, with the meter read and potential alarms including leaks. Data is provided in fifteen (15) minute increments. Alarm leak thresholds may be set by the town, and individually by the customer, that will notify both when those water volume levels are reached. We provide an app called Eye-On-Water for consumer use that is included in the monthly service fee*.

Interface billing work with Caselle software is included in our proposal.

Pricing is good for six months. Badger Meter has occasional price increases, primarily based upon the PPI, at least once per year.

Batteries for the cellular endpoint are warranted for 20 years. They are potted within the housing and are non-replaceable. Electronic meter batteries likewise are potted and non-replaceable.

Beacon Orion system customers may be added at any time by simply installing a cellular endpoint, plus the monthly service unit fee ($1.03**). No other charges apply.** The town will own the Beacon website and all the data which is stored on AWS. Badger Meter covers three years of data storage, also included in the monthly service fee. There are NO annual software fees or licenses.

References:

1. Town of Clarkdale – Virginia Smith O: 928.639.2550
2. Les Springs HOA (Sedona AZ) – Russ Colbath C: 704.226.6080
3. City of Prescott – Nathan Graham O: 928.777.1617

Western Environmental Utility Company has been in business since 1994, with vast experience in water quality, wastewater treatment, industrial process control, and electronic communication equipment including cellular. WEUC has two technical support employees, in addition to Badger Meter's three in-state technical advisors. Helpdesk support, 24/7, is also included through Badger Meter.

WEUC's SAM.gov UEI # VH3GLXA5SWE5/3ZHD9

Propagation Study (attached) shows excellent cell coverage. Beacon Orion system is 100% cellular based. No collectors or repeaters required. Maintaining the cellular system is provided by Verizon and included in the monthly service fee.

Customer facing portal is also included, plus the Eye-On-Water app. This portal and related Beacon products and software are developed and produced by Badger Meter Inc. The

customer portal is also visible to the utility's customer service reps, enabling for quick and efficient problem resolution. All data is available in CSV format for emailing purposes.

Beacon Orion website will accommodate thousands of users, as there are over 10 million cellular customers in the USA right now. We have very small utilities to very large (Chicago) installing Orion cellular endpoints at this time.

Once the town's website is created and the billing interface work completed, there are no ongoing fees or licenses. **Only the monthly service user fee of $1.03 per meter.**

Endpoints can be installed in pit environments or remotely, up to 75' from the meter. The units operate in a two-way mode, enabling software updates and interrogation to be handled by cellular communications. Product is designed to handle submersion in meter pits for long periods of time. It may affect communication, but the endpoint will remain intact and operational. As a backup for the endpoints, the units can be read with a drive-by meter reading device, which is included in our quotation should the cellular system be unavailable.

Two days of onsite training are included in the proposal by a factory-certified trainer. In addition, there are web-based FAQ's on the Beacon homepage and software updates are announced by banner.

Should a customer "opt out" of the AMI system, a meter without the endpoint will be made available.



Amy Gamache

Owner

Western Environmental Utility Company

Metering Services, Inc.

Metering Services Inc.

Quote for Meter Replacement Project

Submitted to: Western Environmental Utilities

Project Location: Town of Jerome, Arizona

Date: 11/22/2025

Project Overview

Metering Services Inc. (MSI) is pleased to present this quote for water meter replacement services for the Town of Jerome. This proposal includes a full pre-installation survey for each meter, lid drilling for endpoint installation, and labor-only replacement of all identified meters. All labor is assuming normal business hours (7 am – 3 pm).

1. Pre-Installation Survey – Includes:

- Locating the meter and verifying the meter number and size and material of the lid.
- Cleaning the meter box
- Inspecting pipe integrity
- Verifying meter size

Cost: $80.00 per meter

Total Meters: 332

Survey Total: $26,560.00

2. Lid Drilling for Endpoint Installation

Cost: $40.00 per lid drilled

Total Lids: 332

Lid Drilling Total: $13,280.00

3. Meter Replacement – Labor Only

5/8" × 3/4" & 3/4": 299 @ $150.00 = $44,850.00

1": 17 @ $175.00 = $2,975.00

1 ½" & 2": 15 @ $650.00 = $9,750.00

4": 1 @ $6,500.00 = $6,500.00

Meter Replacement Labor Total: $64,075.00

Combined Project Cost Summary

Pre-Installation Surveys: $26,560.00

Lid Drilling: $13,280.00

Meter Replacement Labor: $64,075.00

Grand Total Project Cost: $103,915.00

Responsibilities & Exclusions

Town of Jerome: MSI is not responsible for upstream/downstream line breaks. Town of Jerome can repair line breaks or hire an outside contractor.

Western Environmental Utilities: Must supply all gaskets, fittings, lids, and materials.

Data Management

MSI will utilize its work order management system. A final Excel data export is required.

This quote is valid for 60 days from the date of issuance.

We appreciate the opportunity to support Western Environmental Utilities and the Town of Jerome.

Thank you,

Chase Frampton

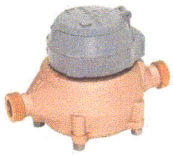
Recordall®
RCDL | Mechanical Flow Meters

Recordall® Disc Meters

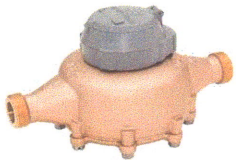
Lead-Free Bronze Alloy, Sizes 5/8, 5/8 x 3/4, 3/4 & 1 inch
NSF/ANSI/CAN Standards 61 and 372 Certified



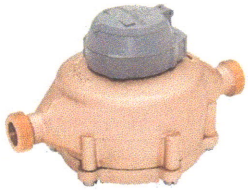
Model 25—5/8 in., 5/8 × 3/4 in.



Model 35—3/4 in.



Model 55—1 in.



Model 70—1 in.

DESCRIPTION

The Recordall Disc Series meters meet or exceed the most recent revision of AWWA Standard C700 and are available in a lead-free bronze alloy. The meters comply with the lead-free provisions of the Safe Drinking Water Act, are certified to NSF/ANSI/CAN Standards 61 and 372 (Trade Designations: M25-LL, M35-LL, M55-LL, M70-LL) and carry the NSF-61 mark on the housing. All components of the lead-free bronze alloy meter (housing, measuring element, seals, and so on) comprise the certified system.

Applications: For use in measurement of potable cold water in residential, commercial and industrial services where flow is in one direction only.

Operation: Water flows through the meter's strainer and into the measuring chamber where it causes the disc to nutate. The disc, which moves freely, nutates on its own ball, guided by a thrust roller. A drive magnet transmits the motion of the disc to a follower magnet located within the permanently sealed register. The follower magnet is connected to the register gear train. The gear train reduces the disc nutations into volume totalization units displayed on the register or encoder face.

Operating Performance: The Recordall Disc Series meters meet or exceed registration accuracy for the low flow rates (95%), normal operating flow rates (100 ±1.5%), and maximum continuous operation flow rates as specifically stated in AWWA Standard C700.

Tamper-Proof Features: Unauthorized removal of the register or encoder is inhibited by the option of a tamper detection seal wire screw, TORX® tamper-resistant seal screw or the proprietary tamper-resistant keyed seal screw. Each can be installed at the meter site or at the factory.

Maintenance: Badger Meter Recordall Disc Series meters are designed and manufactured to provide long-term service with minimal maintenance. When maintenance is required, it can be performed easily either at the meter installation or at any other convenient location.

To simplify maintenance, the register, measuring chamber, and strainer can be replaced without removing the meter housing from the installation. No change gears are required for accuracy calibration. Interchangeability of parts among like-sized meters and meter models also minimizes spare parts inventory investment. The built-in strainer has an effective straining area of twice the inlet size.

Connections: Tailpieces/Unions for installations of meters on various pipe types and sizes, including misaligned pipes, are available as an option.

Meter Spud and Connection Sizes

Model	Size Designation ×	"L" Laying Length	"B" Bore Dia.	Coupling Nut and Spud Thread	Tailpiece Pipe Thread

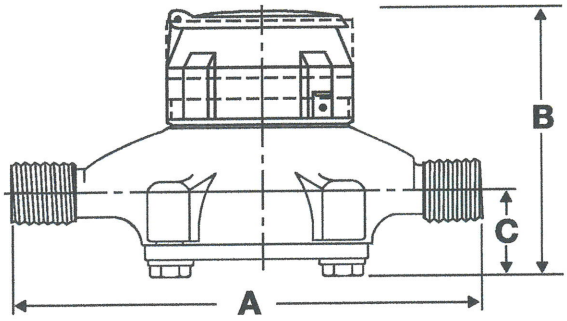
SPECIFICATIONS

	Model 25 (5/8 in. & 5/8 × 3/4 in.)	Model 35 (3/4 in.)	Model 55 (1 in.)	Model 70 (1 in.)
Typical Operating Range (100% ±1.5%)	0.5…25 gpm (0.11…5.7 m^3/hr)	0.75…35 gpm (0.17…7.9 m^3/hr)	1…55 gpm (0.23…12.5 m^3/hr)	1.25…70 gpm (0.28…16 m^3/hr)
Low Flow	0.25 gpm (0.057 m^3/hr) Min. 98.5%	0.375 gpm (0.085 m^3/hr) Min. 97%	0.5 gpm (0.11 m^3/hr) Min. 95%	0.75 gpm (0.17 m^3/hr) Min. 95%
Maximum Continuous Operation	15 gpm (3.4 m^3/hr)	25 gpm (5.7 m^3/hr)	40 gpm (9.1 m^3/hr)	50 gpm (11.3 m^3/hr)
Pressure Loss at Maximum Continuous Operation	**5/8 in. size:** 3.5 psi @ 15 gpm (0.24 bar @ 3.4 m^3/hr) **5/8 × 3/4 in. size:** 2.8 psi @ 15 gpm (0.19 bar @ 3.4 m^3/hr)	5 psi @ 25 gpm (0.37 bar @ 5.7 m^3/hr)	3.4 psi @ 40 gpm (0.23 bar @ 9.1 m^3/hr)	6.5 psi @ 50 gpm (0.45 bar @ 11.3 m^3/hr)
Maximum Operating Temperature	80° F (26° C)			
Maximum Operating Pressure	150 psi (10 bar)			
Measuring Element	Nutating disc, positive displacement			
Meter Connections	*Available in NL bronze and engineered polymer to fit spud thread bore diameter sizes:*			
	5/8 in. size: 5/8 in. (DN 15 mm) **5/8 × 3/4 in. size:** 3/4 in. (DN 15 mm)	3/4 in. (DN 20 mm)	1 in. (DN 25 mm)	1 in. (DN 25 mm)

MATERIALS

	Model 25 (5/8 in. & 5/8 × 3/4 in.)	Model 35 (3/4 in.)	Model 55 (1 in.)	Model 70 (1 in.)
Meter Housing	Lead-free bronze alloy			
Housing Bottom Plates	Cast iron, lead-free bronze alloy, engineered polymer	Cast iron, lead-free bronze alloy		
Measuring Chamber	Engineered polymer			
Disc	Engineered polymer			
Trim	Stainless steel			
Strainer	Engineered polymer			
Disc Spindle	Stainless steel	Stainless steel	Engineered polymer	Stainless steel
Magnet	Ceramic	Ceramic	Ceramic	Ceramic
Magnet Spindle	Engineered polymer	Engineered polymer	Engineered polymer	Stainless steel
Register Lid and Shroud	Engineered polymer, bronze			

DIMENSIONS



Meter Size	Model	A Laying Length	B Height Reg.	C Centerline Base	Width	Approx. Shipping Weight
5/8 in. (15 mm)	25	7-1/2 in. (190 mm)	4-15/16 in. (125 mm)	1-11/16 in. (42 mm)	4-1/4 in. (108 mm)	4-1/2 lb (2 kg)
5/8 in. × 3/4 in. (15 mm)		7-1/2 in. (190 mm)	4-15/16 in. (125 mm)	1-11/16 in. (42 mm)	4-1/4 in. (108 mm)	4-1/2 lb (2 kg)
3/4 in. (20 mm)	35	7-1/2 in. (190 mm)	5-1/4 in. (133 mm)	1-5/8 in. (41 mm)	5 in. (127 mm)	5-1/2 lb (2.5 kg)
3/4 in. (20 mm)		9 in. (229 mm)	5-1/4 in. (133 mm)	1-5/8 in. (41 mm)	5 in. (127 mm)	5-3/4 lb (2.6 kg)
3/4 in. × 1 in. (20 mm)		9 in. (229 mm)	5-1/4 in. (133 mm)	1-5/8 in. (41 mm)	5 in. (127 mm)	6 lb (2.7 kg)
1 in. (25 mm)	55	10-3/4 in. (273 mm)	6 in. (152 mm)	2-1/32 in. (52 mm)	6-1/4 in. (159 mm)	8-3/4 lb (3.9 kg)
1 in. (25 mm)	70	10-3/4 in. (273 mm)	6-1/2 in. (165 mm)	2-5/16 in. (59 mm)	7-3/4 in. (197 mm)	11-1/2 lb (5.2 kg)

ENCODER / REGISTER

High Resolution Encoders (HR-E®, HR-E® LCD) for AMR/AMI Reading Solutions

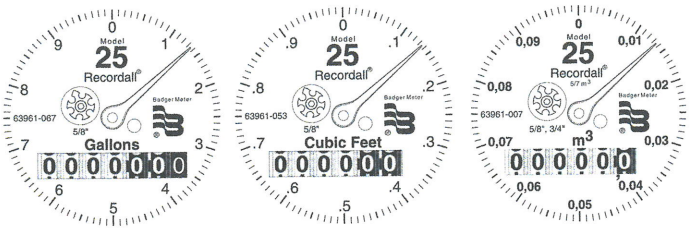
High resolution encoder solutions are available for all Recordall Disc Series meters. Badger Meter high resolution encoders provide years of reliable, accurate readings for a variety of applications. See details at ***badgermeter.com***.

Local Register—Mechanical Sweep-Hand Registration

The local register is a straight-reading, permanently sealed magnetic drive register. The register is permanently sealed to eliminate the intrusion of moisture, dirt or other contaminants. The register achieves true water resistance due the unique adhesive technology used to seal the glass dome to the corrosion-resistant metal bottom. Due to this sealing process, the register exceeds all applicable requirements of AWWA Standard C707 and is suitable for installation in all environments, including meter pits subject to continuous submergence.

The local register has a six-odometer wheel totalization display, 360° test circle with center sweep hand, and flow finder to detect leaks. Register gearing is made of self-lubricating engineered polymer, which minimizes friction and provides long life. The multi-position register simplifies meter installation and reading. The register capacity is 10,000,000 gallons (1,000,000 ft^3, 100,000 m^3).

A Model 25 register is used in the following example:

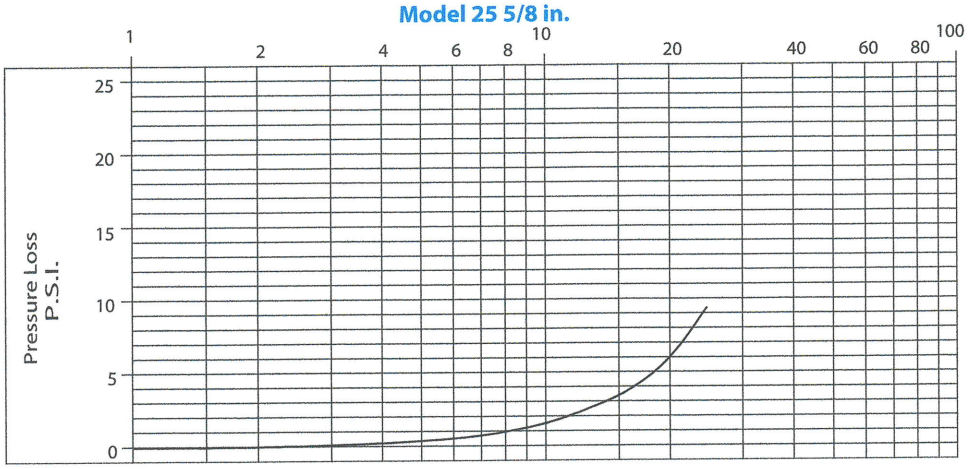


Model	Gallon	Cubic Feet	Cubic Meter
25 (5/8 in.)	10	1	0.1/0.01
25 (5/8 × 3/4 in.)	10	1	0.1/0.01
35	10	1	0.1
55	10	1	0.1
70	10	1	0.1

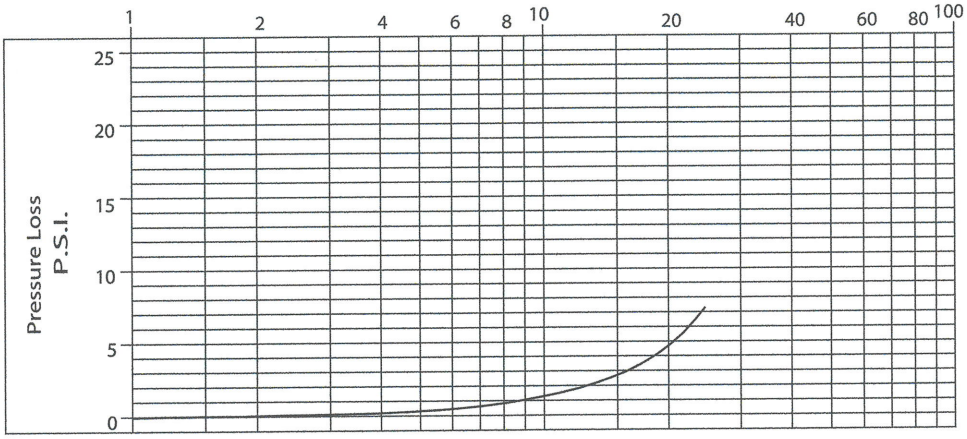
PRESSURE LOSS CHARTS

ate of Flow in Gallons per Minute

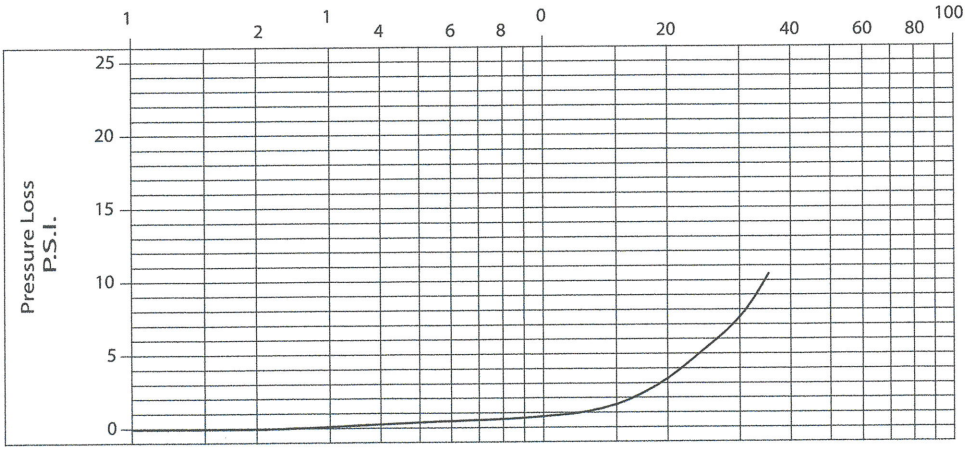
Model 25 5/8 in.



Model 25 5/8 × 3/4 in.



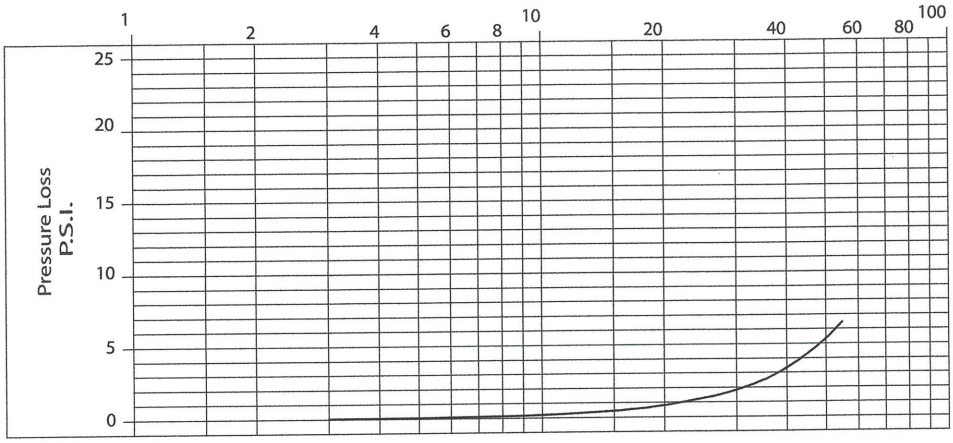
Model 35 3/4 in.



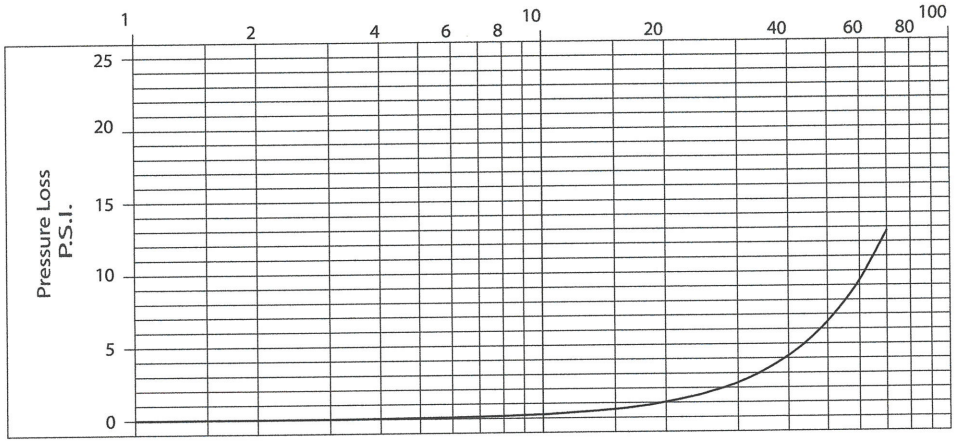
PRESSURE LOSS CHARTS (CONTINUED)

Rate of Flow in Gallons per Minute

Model 55 1 in.

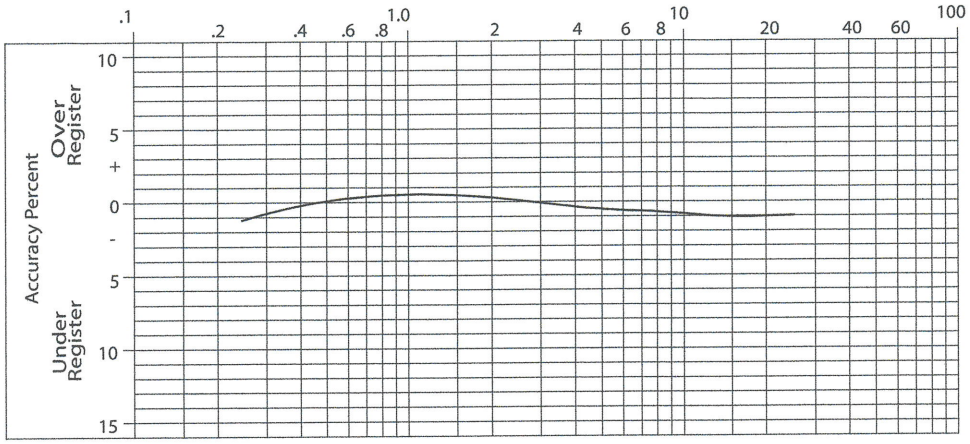


Model 70 1 in.

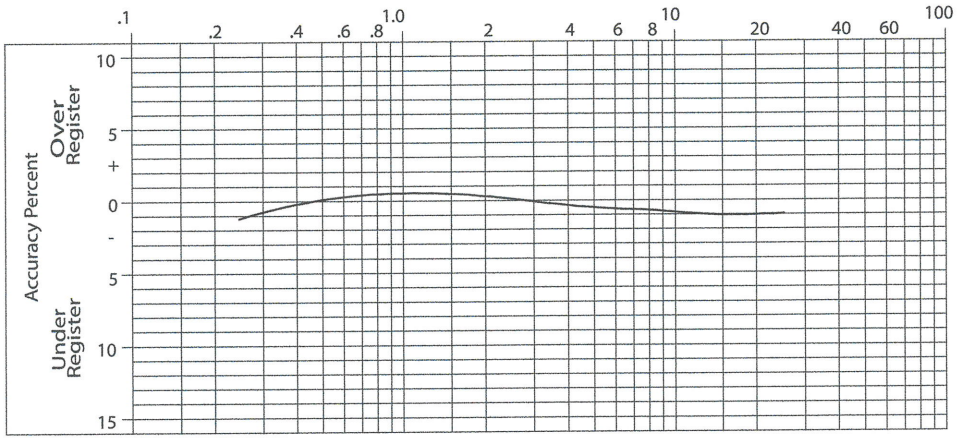


ACCURACY CHARTS

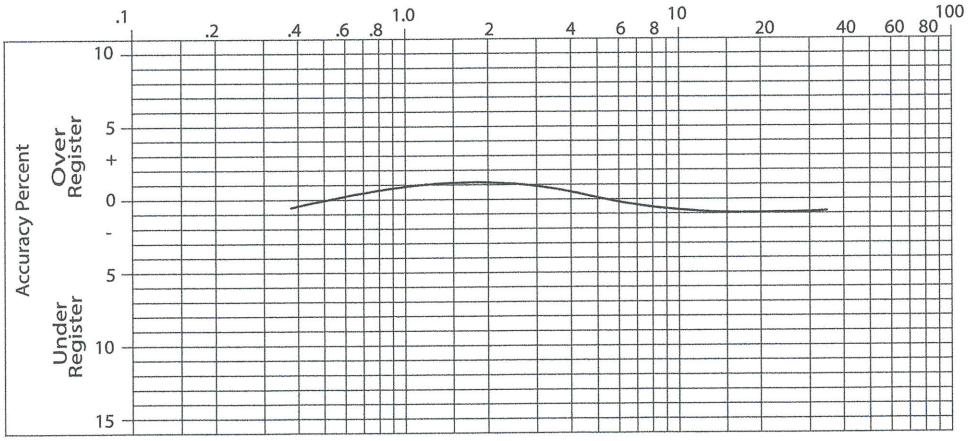
Model 25 5/8 in.



Model 25 5/8 x 3/4 in.

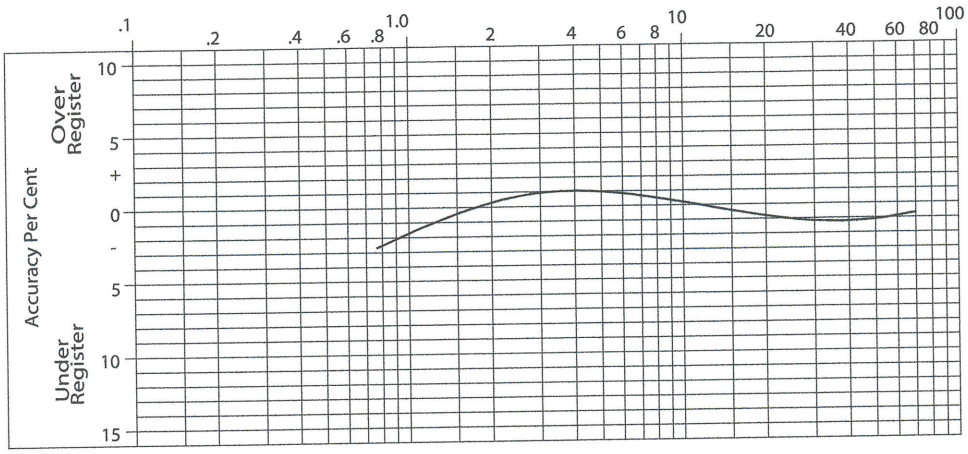


Model 35 3/4 in.

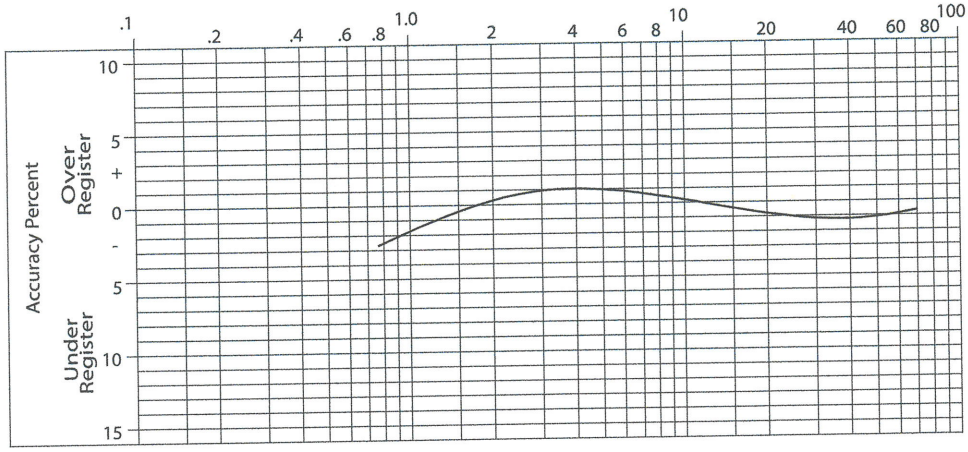


ACCURACY CHARTS (CONTINUED)

Model 55 1 in.



Model 70 1 in.



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Recordall®
RCDL | Mechanical Flow Meters

Recordall® Disc Meters

Lead-Free Bronze Alloy 120 & 170, Sizes 1-1/2 in. (40 mm) & 2 in. (50 mm), NSF/ANSI/CAN Standards 61 and 372 Certified

DESCRIPTION

Recordall Models 120 and 170 Disc Series meters meet or exceed the most recent revision of AWWA Standard C700 and are available in a lead-free bronze alloy. Both meters comply with the lead-free provisions of the Safe Drinking Water Act, are certified to NSF/ANSI/CAN Standards 61 and 372 (Trade Designations: M120-LL and M170LL) and carry the NSF-61 mark on the housing. All components of the lead-free bronze alloy meter (housing, measuring element, seals, and so on) comprise the certified system.

Applications: For use in measurement of potable cold water in residential, commercial and industrial services where flow is in one direction only.

Operation: Water flows through the meter's strainer and into the measuring chamber where it causes the disc to nutate. The disc, which moves freely, nutates on its own ball, guided by a thrust roller. A drive magnet transmits the motion of the disc to a follower magnet located within the permanently sealed register. The follower magnet is connected to the register gear train. The gear train reduces the disc nutations into volume totalization units displayed on the register or encoder face.

Operating Performance: The Recordall Disc Series meters meet or exceed registration accuracy for the low flow rates (95%), normal operating flow rates (100 ± 1.5%), and maximum continuous operation flow rates as specifically stated in AWWA Standard C700.

Construction: Recordall Disc meter construction, which complies with ANSI/AWWA standard C700, consists of three basic components: meter housing, measuring chamber, and permanently sealed register or encoder. The water meter is available in a lead-free bronze alloy. A corrosion-resistant engineered polymer material is used for the measuring chamber.

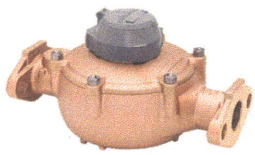
Magnetic Drive: Direct magnetic drive, through the use of high-strength magnets, provides positive, reliable and dependable register coupling for straight-reading or AMR/AMI meter reading options.

Tamper-Proof Features: Unauthorized removal of the register or encoder is inhibited by the option of a tamper detection seal wire screw, TORX® tamper-resistant seal screw or the proprietary tamper-resistant keyed seal screw. Each can be installed at the meter site or at the factory.

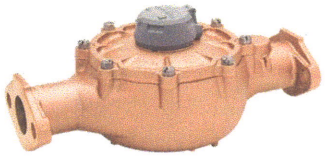
Maintenance: Badger Meter Recordall Disc Series meters are designed and manufactured to provide long-term service with minimal maintenance. When maintenance is required, it can be performed easily either at the meter installation or at any other convenient location.

To simplify maintenance, the register, measuring chamber, and strainer can be replaced without removing the meter housing from the installation. No change gears are required for accuracy calibration. Interchangeability of parts among like-sized meters minimizes spare parts inventory investment. The built-in strainer has an effective straining area of twice the inlet size.

Connections: Companion flanges in cast iron or NL bronze are available as options. Straight connection sets are available in NL bronze.



M120



M170

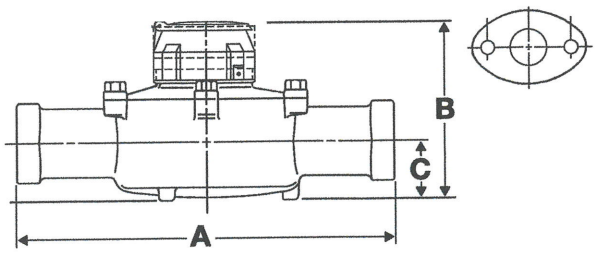
SPECIFICATIONS

Meter Model	M120	M170
Typical Operating Range (100% ± 1.5%)	2.5…120 gpm (0.57…27 m³/hr)	2.5…170 gpm (0.57…39 m³/hr)
Low Flow (Min. 95%)	1.25 gpm (0.28 m³/hr)	1.5 gpm (0.34 m³/hr)
Maximum Continuous Operation	80 gpm (18 m³/hr)	100 gpm (23 m³/hr)
Pressure Loss at Maximum Continuous Operation	4.8 psi at 80 gpm (0.33 bar at 18 m³/hr)	3.3 psi at 100 gpm (0.23 bar at 23 m³/hr)
Maximum Operating Temperature	80° F (26° C)	80° F (26° C)
Maximum Operating Pressure	150 psi (10 bar)	150 psi (10 bar)
Measuring Element	Nutating disc, positive displacement	Nutating disc, positive displacement
Meter Connections	1-1/2 in. AWWA two-bolt elliptical flange, drilled or 1-1/2…11-1/2 NPT internal pipe threads	2 in. AWWA two-bolt elliptical flange, drilled or 2…11-1/2 NPT internal pipe threads
Test Plugs	Optional 1 in. NPT test plug (TP)	Optional 1 in. NPT test plug (TP)

Materials

Meter Housing	Lead-free bronze alloy
Housing Top Plates	Lead-free bronze alloy
Measuring Chamber	Engineered polymer
Disc	Engineered polymer
Trim	Stainless steel
Strainer	Engineered polymer
Disc Spindle	Stainless steel
Magnet	Ceramic
Magnet Spindle	Stainless steel
Register Lid and Shroud	Engineered polymer, bronze

DIMENSIONS



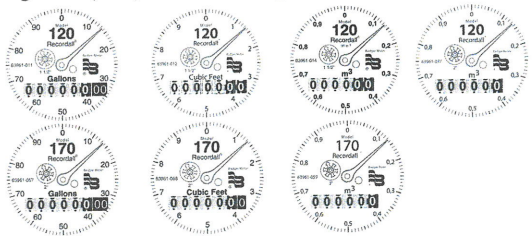
Meter Size	Meter Model	A Laying Length	B Height Reg./RTR	C Centerline Base	Width	Approx. Shipping Weight
1-1/2 in. (40 mm)	120 EL, Hex 120 EL, TP	12-5/8 in. (321 mm)	7 in. (178 mm)	2-3/8 in. (60 mm)	8-3/4 in. (222 mm)	19 lb (8.6 kg)
1-1/2 in. (40 mm)	120 ELL 120 ELL, TP	13 in. (330 mm)	7 in. (178 mm)	2-3/8 in. (60 mm)	8-3/4 in. (222 mm)	19 lb (8.6 kg)
2 in. (50 mm)	170 EL, Hex 170 EL, TP	15-1/4 in. (387 mm)	8 in. (203 mm)	2-7/8 in. (73 mm)	9-1/2 in. (241 mm)	30 lb (13.6 kg)
2 in. (50 mm)	170 ELL 170 ELL, TP	17 in. (432 mm)	8 in. (203 mm)	2-7/8 in. (73 mm)	9-1/2 in. (241 mm)	30 lb (13.6 kg)

EL = Elliptical | ELL = Elliptical Long | Hex = Hexagon, 1-1/2…11-1/2 in. NPT Thread | TP=Test Plug 1 in.

REGISTERS / ENCODERS

Standard—Sweep-Hand Registration

The standard register is a straight-reading, permanently sealed magnetic drive register. Dirt, moisture, tampering and lens fogging problems are eliminated. The register has a six-odometer wheel totalization display, 360° test circle with center sweep hand, and flow finder to detect leaks. Register gearing is made of self-lubricating engineered polymer, which minimizes friction and provides long life. The multi-position register simplifies meter installation and reading. The register capacity is 100,000,000 gallons (10,000,000 ft³, 1,000,000 m³).



Meter Model	Gallon	Cubic Feet	Cubic Meter
120	100	10	1/0.1
170	100	10	1

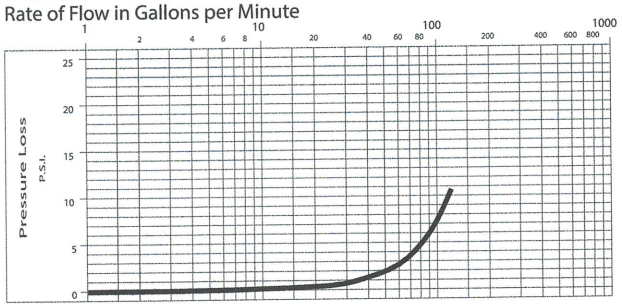
Optional—Encoders for AMR/AMI Reading Solutions

AMR/AMI solutions are available for all Recordall Disc Series meters. All reading options can be removed from the meter without disrupting water service. Badger Meter encoders provide years of reliable, accurate readings for a variety of applications and are also available pre-wired to Badger Meter approved AMR/AMI solutions. See details at *badgermeter.com*.

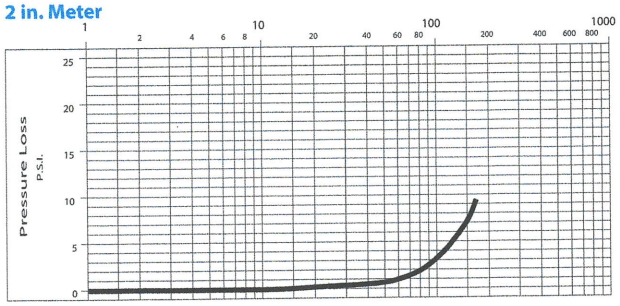
PRESSURE LOSS CHARTS

1-1/2 in. Meter

Rate of Flow in Gallons per Minute



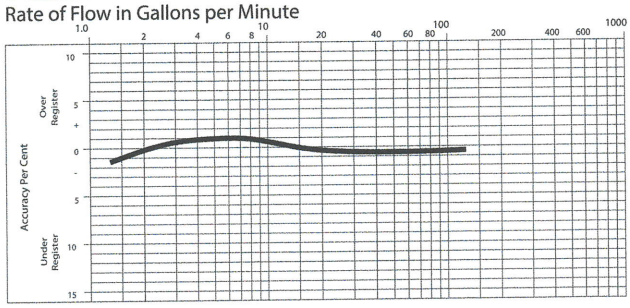
2 in. Meter



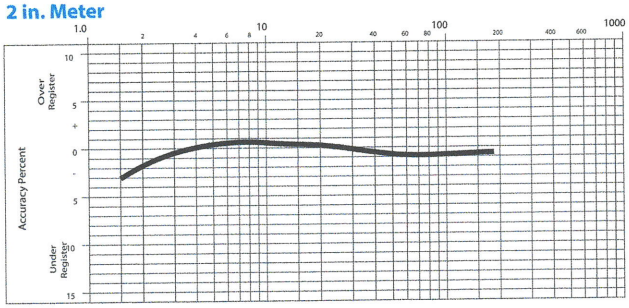
ACCURACY CHARTS

1-1/2 in. Meter

Rate of Flow in Gallons per Minute



2 in. Meter



SMART WATER IS *BADGER METER*

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Legacy Document Numbers: RDM-DS-00071-EN and RDM-DS-00072-EN

Badger Meter | Lead-Free Bronze Disc Meters

PRODUCTS COVERED

This warranty shall apply to all Recordall® Lead-Free Bronze Disc Meters, models 25 through 170, when used to measure potable water, including the registers used with these meters (collectively "Product") sold on or after January 25, 2019. This warranty is extended only to utilities, municipalities, other commercial users and authorized Badger Meter, Inc. distributors, hereafter referred to as "Customer" and does NOT apply to consumers or any person or entity who is not an original customer of Badger Meter or its authorized distributors.

MATERIALS AND WORKMANSHIP

Badger Meter warrants Product to be free from defects in materials and workmanship appearing within the following time frames and those listed in the table below:

Housings
Twenty-five (25) years and six (6) months after shipment from Badger Meter.

Local Registers Supplied with the Meters Listed Herein
Twenty-five (25) years and six (6) months after shipment from Badger Meter.

	AWWA New Meter Accuracy	AWWA Repaired Meter Accuracy (AWWA M6 Manual)	Badger Meter Extended Low Flow Meter Accuracy
Recordall Meter Model, Size	*The meter product will meet or exceed new meter accuracy standards set forth in AWWA Standard C700 for the following periods:*	*The meter product will meet or exceed repaired meter accuracy standards set forth in AWWA Manual M-6, Chapter 5, Table 5.3 for the following periods:*	*Badger Meter further warrants the meter product to meet or exceed the following extended low flow accuracies in excess of AWWA standard:*
Model 25, 5/8 in. and 5/8 x 3/4 in.	Five (5) years from date of shipment or registration of 750,000 gallons, whichever occurs first.	Fifteen (15) years from date of shipment or registration of 2,500,000 gallons, whichever occurs first, with a 25 gpm safe maximum operating capacity and a 15 gpm maximum rate for continuous operation.	Badger Meter warrants Product low flow accuracy of 98.5% at a rate of 1/4 gpm and low flow accuracy of 95.0% at a rate of 1/8 gpm for five (5) years from date of shipment or registration of 675,000 gallons, whichever occurs first.
Model 35, 3/4 in.	Five (5) years from date of shipment or registration of 750,000 gallons, whichever occurs first.	Fifteen (15) years from date of shipment or registration of 2,500,000 gallons, whichever occurs first, with a 35 gpm safe maximum operating capacity and a 25 gpm maximum rate for continuous operation.	Badger Meter warrants Product low flow accuracy of 97% at a rate of 3/8 gpm for five (5) years from date of shipment or registration of 675,000 gallons, whichever occurs first.
Model 55, 1 in.	Five (5) years from date of shipment or registration of 1,000,000 gallons, whichever occurs first.	Fifteen (15) years from date of shipment or registration of 3,000,000 gallons, whichever occurs first, with a 55 gpm safe maximum operating capacity and a 40 gpm maximum rate for continuous operation.	Badger Meter warrants Product low flow accuracy of 95% at a rate of 1/2 gpm for three (3) years from date of shipment or registration of 575,000 gallons, whichever occurs first.
Model 70, 1 in.	Five (5) years from date of shipment or registration of 1,100,000 gallons, whichever occurs first.	Fifteen (15) years from date of shipment or registration of 3,250,000 gallons, whichever occurs first, with a 70 gpm safe maximum operating capacity and a 50 gpm maximum rate for continuous operation.	Badger Meter warrants Product low flow accuracy of 95% at a rate of 3/4 gpm for three (3) years from date of shipment or registration of 1,100,000 gallons, whichever occurs first.
Model 120, 1-1/2 in.	Two (2) years from date of shipment or registration of 1,600,000 gallons, whichever occurs first.	Fifteen (15) years from date of shipment or registration of 5,600,000 gallons, whichever occurs first, with a 120 gpm safe maximum operating capacity and a 80 gpm maximum rate for continuous operation.	Badger Meter warrants Product low flow accuracy of 95% at a rate of 1-1/4 gpm for two (2) years from date of shipment or registration of 1,440,000 gallons, whichever occurs first.
Model 170, 2 in.	Two (2) years from date of shipment or registration of 2,100,000 gallons, whichever occurs first.	Fifteen (15) years from date of shipment or registration of 10,400,000 gallons, whichever occurs first, with a 170 gpm safe maximum operating capacity and a 100 gpm maximum rate for continuous operation.	Badger Meter warrants Product low flow accuracy of 95% at a rate of 1-1/2 gpm for two (2) years from date of shipment or registration of 1,890,000 gallons, whichever occurs first.

PRODUCT RETURNS

Any Product proved to the satisfaction of Badger Meter to have failed the foregoing warranties will, at the option of Badger Meter, be repaired or replaced without charge to the Customer. Any eligible Product repaired or replaced by Badger Meter will retain the original Product's warranty based on the original Product purchase date, at Badger Meter's sole discretion. The Badger Meter obligation hereunder shall be limited to such repair and replacement and shall be conditioned upon Badger Meter receiving written notice of any alleged defect within ten (10) days after its discovery. This exclusive remedy shall not be deemed to have failed its essential purpose so long as Badger Meter is willing and able to replace defective products or issue a credit to purchaser within a reasonable time of proof to Badger Meter that a defect is involved. Product returns must be shipped by the Customer prepaid F.O.B. to the nearest Badger Meter factory or distribution center. The Customer shall be responsible for all direct and indirect costs associated with removing the original Product and reinstalling the repaired or replacement Product.

LIMITS OF LIABILITY

This warranty shall not apply to Product repaired or altered by parties other than Badger Meter. The foregoing warranty applies only to the extent that the Product is installed, serviced and operated strictly in accordance with AWWA Standard C700 and AWWA M6 Manual, as applicable. The warranty shall not apply and shall be void with respect to Product exposed to conditions other than those detailed in the Badger Meter Product technical and/or operational literature, or which have been exposed to adverse installation conditions, damaged by any water conditions and/or water quality, including but not limited to foreign matter in the water such as dirt, sand, minerals, debris, deposits, biofilms, extreme corrosivity, or other impurities, or which have been subject to passage of high-speed air slugs, vandalism, negligence, accident, acts of God, alteration, improper installation, operation or repair, or other circumstances which are beyond the reasonable control of Badger Meter. With respect to Product not manufactured by Badger Meter, the warranty obligations of Badger Meter shall in all respects conform and be limited to the warranty extended to Badger Meter by the supplier.

THE FOREGOING WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER EXPRESS AND IMPLIED WARRANTIES WHATSOEVER, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE (except warranties of Title).

Any description of Product, whether in writing or made orally by Badger Meter or its agents, specifications, samples, models, bulletins, drawings, diagrams, engineering sheets, or similar materials used in connection with any Customer's order are for the sole purpose of identifying Product and shall not be construed as an express warranty. Any suggestions by Badger Meter or its agents regarding use, application or suitability of Product shall not be construed as an express warranty unless confirmed to be such in writing by Badger Meter.

Exclusion of Consequential Damages and Disclaimer of Other Liability

Badger Meter liability with respect to breaches of the foregoing warranty shall be limited as stated therein. Badger Meter liability shall in no event exceed the contract price.
BADGER METER SHALL NOT BE SUBJECT TO AND DISCLAIMS: (1) ANY OTHER OBLIGATIONS OR LIABILITIES ARISING OUT OF BREACH OF CONTRACT OR OF WARRANTY (2) ANY OBLIGATIONS WHATSOEVER ARISING FROM TORT CLAIMS (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR ARISING UNDER OTHER THEORIES OF LAW WITH RESPECT TO PRODUCTS SOLD OR SERVICES RENDERED BY BADGER METER, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATING THERETO, AND (3) ALL CONSEQUENTIAL, INCIDENTAL AND CONTINGENT DAMAGES WHATSOEVER.

Making Water Visible®

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The Americas | Badger Meter | 4545 West Brown Deer Rd | PO Box 245036 | Milwaukee, WI 53224-9536 | 800-876-3837 | 414-355-0400
México | Badger Meter de las Americas, S.A. de C.V. | Pedro Luis Ogazón N°32 | Esq. Angelina N°24 | Colonia Guadalupe Inn | CP 01050 | México, DF | México | +52-55-5662-0882
Europe, Eastern Europe Branch Office (for Poland, Latvia, Lithuania, Estonia, Ukraine, Belarus) | Badger Meter Europe | ul. Korfantego 6 | 44-193 Knurów | Poland | +48-32-236-8787
Europe, Middle East and Africa | Badger Meter Europa GmbH | Nurtinger Str 76 | 72639 Neuffen | Germany | +49-7025-9208-0
Europe, Middle East Branch Office | Badger Meter Europe | PO Box 341442 | Dubai Silicon Oasis, Head Quarter Building, Wing C, Office #C209 | Dubai / UAE | +971-4-371 2503
Slovakia | Badger Meter Slovakia s.r.o. | Racianska 109/B | 831 02 Bratislava, Slovakia | +421-2-44 63 83 01
Asia Pacific | Badger Meter | 80 Marine Parade Rd | 19-07 Parkway Parade | Singapore 449269 | +65-63464836
Switzerland | Badger Meter Swiss AG | Mittelholzerstrasse 8 | 3006 Bern | Switzerland | +41-31-932 01 11

Legacy Document Number: RD-W-4-AWWA-EN

E-Series®
Ultrasonic Flow Meters

E-Series G2® Ultrasonic Meter

Lead-Free Bronze Alloy, 3, 4, 6 and 8 inch

DESCRIPTION

The next generation E-Series G2® Ultrasonic meter uses solid-state technology in a compact, tamper protected, weatherproof and UV-resistant housing, suitable for commercial applications. Electronic metering provides information—such as rate of flow and status and alarm indication—and data not typically available through traditional, mechanical meters and registers. Electronic metering minimizes measurement errors due to sand, suspended particles and pressure fluctuations.

Ultrasonic 3, 4, 6 and 8 inch Meter Features

- Open flow tube design prevents flow obstruction to reduce pressure loss
- Greater turn-down ratio for extended flow ranges and increased revenue
- Easy-to-read, 9-digit LCD display, which presents consumption, rate of flow, unit of measure, pressure, temperature, alarm conditions and firmware version
- Pressure alarm and pressure and temperature data reported through ORION Cellular endpoints and BEACON®
- Field programmable registration and maintains an hourly internal logging capacity of 160 days of data
- Single and dual outputs include high resolution industry standard ASCII encoder protocol, scaled/unscaled and 4-20 mA

The meter is available with an inline connector for easy connection and installation to ORION endpoints. It is also available with a flying lead for field splice connection.

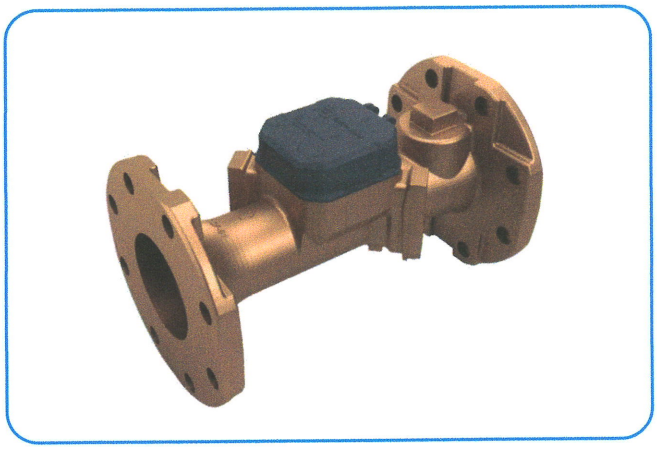
APPLICATIONS

Use the E-Series Ultrasonic meter for measuring potable cold water in commercial and industrial services. The meter is also ideal for non-potable, reclaimed irrigation water applications or less than optimum water conditions where small particles exist. Additionally, the meters are available for commercial fire-service applications. The intended water application must be specified at time of order.

E-Series Ultrasonic meters meet and exceed the most recent version of AWWA C715 Standards. The lead-free bronze alloy meters comply with the lead-free provisions of the Safe Drinking Water Act and NSF/ANSI/CAN Standards 61 and 372. E-Series Ultrasonic meters also conform to UL 327B and FM 1044 for fire service applications.

OPERATION & PERFORMANCE

As water flows into the measuring tube, ultrasonic signals are sent consecutively in forward and reverse directions of flow. Velocity is then determined by measuring the time difference between the measurement in the forward and reverse directions. Total volume is calculated from the measured flow velocity using water temperature and pipe diameter. The LCD shows total volume, unit of measure, rate of flow, pressure, temperature, firmware and alarm conditions (reverse-flow, no usage, empty pipe, exceeding max flow, suspected leak, pressure, temperature, end of life and measurement error).



In normal temperature range of 45…122° F (7…50° C), the Ultrasonic "new meter" consumption measurement is accurate to:

- ±1.5% over the normal flow range
- ±3.0% from the extended low flow range to the minimum flow value

CONSTRUCTION

The E-Series Ultrasonic meter features lead-free bronze alloy meter housing, ultrasonic transducers, a meter-control circuit board with associated wiring, LCD and battery. Wetted elements are limited to the pressure vessel and transducers. The electronic components are housed and fully potted within a molded, engineered polymer enclosure, which is attached to the meter housing. The transducers extend through the housing and are sealed by O-rings, enabling turbulence-free water flow through the tube. The open flow tube design prevents obstruction of flow to reduce pressure loss and provide long-term accuracy.

METER INSTALLATION

For long-term performance the meter is weatherproof, UV-resistant, fully submersible and can be installed using horizontal or vertical piping. The registration electronics and battery are encapsulated to withstand harsh environments and protect the electronics in flooded or submerged pit applications. The meter will not measure flow when an "empty pipe" condition is experienced. An empty pipe is defined as a condition that occurs when the flow sensors are not fully submerged.

FM APPROVED

UL LISTED

Badger Meter

ESM-DS-02781-EN-21 (September 2025)

Product Data Sheet

SPECIFICATIONS

E-Series G2 Ultrasonic Meter Size	3 in.		4 in.		6 in.		8 in.
	3 × 12 in. (76 × 305 mm)	3 × 17 in. (76 × 432 mm)	4 × 14 in. (102 × 356 mm)	4 × 20 in. (102 × 508 mm)	6 × 18 in. (152 × 457 mm)	6 × 24 in. (152 × 610 mm)	8 × 20 in. (203 × 508 mm)
Normal Test Flow Limits	0.75…560 gpm		1.5…1100 gpm		2.2…2000 gpm		4…3500 gpm
Minimum Test Flow Limits	0.37 gpm		0.75 gpm		1.1 gpm		2.0 gpm
Safe Maximum Operating Condition (SMOC)	560 gpm		1100 gpm		2000 gpm		3500 gpm
Typical Pressure Loss	2.6 psi @ 350 gpm		2.1 psi @ 630 gpm		1.5 psi @ 1400 gpm	1.8 psi @ 1400 gpm	2.4 psi @ 2800 gpm
Totalization Display Resolution	*3 inch and 4 inch meters* • Gallons: 0.1 • Cubic feet: 0.01 • Cubic meters: 0.001				*6 inch and 8 inch meters* • Gallons: 1.0 • Cubic feet: 0.1 • Cubic meters: 0.01		
Operating Performance	In normal temperature range of 45…122° F (7…50° C), new meter consumption measurement is accurate to: • 100% ±1.5% over the normal test flow limits • 100% ±3.0% for the minimum test flow limits						
Storage Temperature	– 40…140° F (– 40…60° C)						
Maximum Ambient Storage (Storage for One Hour)	150° F (66° C)						
Measured Fluid Temperature Range	34…140° F (1…60° C) .						
Humidity	0…100% condensing; meter is capable of operating in fully submerged environments						
Maximum Working Pressure of Meter Housing	175 psi (12 bar)						
Maximum Operating Pressure of Pressure Sensor	175 psi (12 bar)						
Pressure Sensor Accuracy	±2% of full scale pressure, up to 175 psi (12 bar)						
Register Type	Straight reading, permanently sealed electronic LCD; digits are 0.28 in. (7 mm) high						
Register Display	• Consumption (up to nine digits) • Rate of flow • Alarms • Pressure				• Temperature • Firmware version • Unit of measure factory programmed for gallons, cubic feet and cubic meters		
Scaled/Unscaled Output*	Solid-state relay with 4-20mA output; open drain MOSFET with encoder output						
Max. Voltage	30V DC						
Current	100 mA						
Pulse Width	50 ms (programmable 25…100 ms)						
Analog 4-20 mA Output*	Two-wire/passive						
Input Voltage Range	9…50V DC supply						
Current	4…20 mA						
Max. Load Resistance (Ohms)	50 Ohms + 50 Ohms (supply voltage - 9V)						
Battery	3.6-volt lithium thionyl chloride battery is fully encapsulated within the register housing and is not replaceable. 20-year battery life; 15-year battery life for dual output meters						

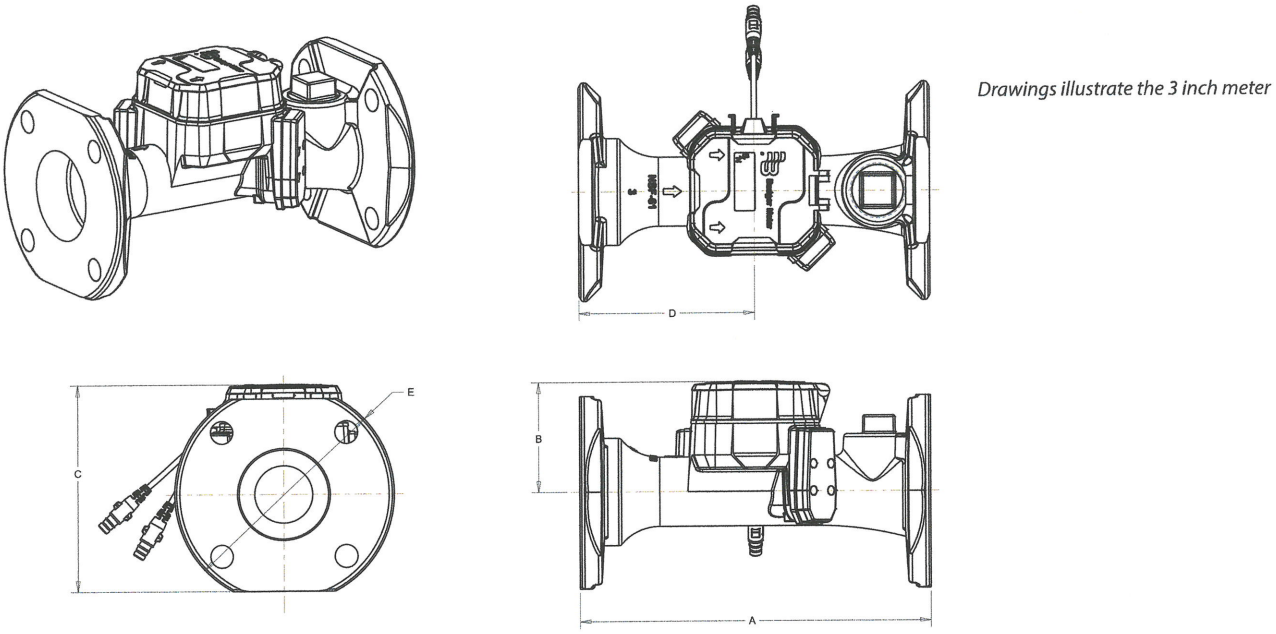
NOTE: See Pressure Loss Chart on *page 4* for typical pressure loss over complete UL 327B flow range.

* Applicable to meters with dual output options

PHYSICAL DIMENSIONS

E-Series G2 Ultrasonic Meter Size	3 in.		4 in.		6 in.		8 in.
Housing	Round	Round	Round	Round	Round	Round	Round
Size Designation X Lay Length	3 × 12 in. (76 × 305 mm)	3 × 17 in. (76 × 432 mm)	4 × 14 in. (102 × 356 mm)	4 × 20 in. (102 × 508 mm)	6 × 18 in. (152 × 457 mm)	6 × 24 in. (152 × 610 mm)	8 × 20 in. (203 × 508 mm)
Weight (without AMR)	26 lb (11.8 kg)	28.5 lb (12.9 kg)	38 lb (17.2 kg)	42 lb (19.1 kg)	59 lb (26.8 kg)	66 lb (29.9 kg)	96 lb (43.5 kg)
See illustration below for Measurement Designations							
Length (A)	12 in. (305 mm)	17 in. (432 mm)	14 in. (356 mm)	20 in. (508 mm)	18 in. (457 mm)	24 in. (610 mm)	20 in. (508 mm)
Height (B)	3.76 in. (95 mm)	3.76 in. (95 mm)	3.99 in. (101 mm)	3.99 in. (101 mm)	5.15 in. (131 mm)	5.15 in. (131 mm)	6.49 in. (165 mm)
Height (C)	7.08 in. (180 mm)	7.08 in. (180 mm)	8.5 in. (216 mm)	8.5 in. (216 mm)	10.36 in. (263 mm)	10.36 in. (263 mm)	13.05 in. (331 mm)
Height with Lifting Ring	NA	NA	NA	NA	12.96 in. (329 mm)	12.96 in. (329 mm)	15.65 in. (398 mm)
Length (D)	6 in. (152 mm)	8.5 in. (216 mm)	7 in. (178 mm)	10 in. (254 mm)	8 in. (203 mm)	8 in. (203 mm)	9 in. (229 mm)
Width (E)	7.5 in. (191 mm)	7.5 in. (191 mm)	9 in. (229 mm)	9 in. (229 mm)	11 in. (279 mm)	11 in. (279 mm)	13.50 in. (343 mm)
Number of Bolts	4	4	8	8	8	8	8
Bolt Hole Diameter	0.781 in. (19.84 mm)						
Companion Flange	3 in. (76 mm)	3 in. (76 mm)	4 in. (102 mm)	4 in. (102 mm)	6 in. (152 mm)	6 in. (152 mm)	8 in. (203 mm)
NPT Test Port	1.5 in. (38 mm)	1.5 in. (38 mm)	2 in. (51 mm)	2 in. (51 mm)	2 in. (51 mm)	2 in. (51 mm)	2 in. (51 mm)

Measurement Designations



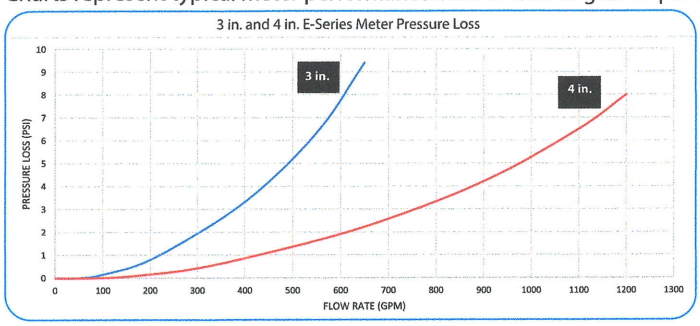
Drawings illustrate the 3 inch meter

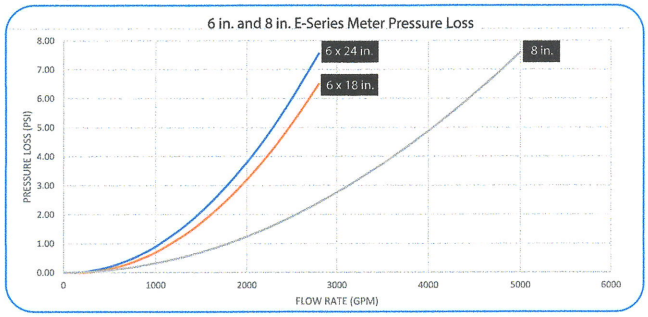
MATERIALS

Meter Housing	Lead-free bronze alloy
Measuring Section	Ultrasonic sensors located in the flow tube
Register Housing & Lid	Engineered polymer
Transducer Port Covers 3 in., 4 in.	Lead-free bronze alloy
Transducer Port Covers 6 in., 8 in.	Engineered polymer

PRESSURE LOSS CHARTS

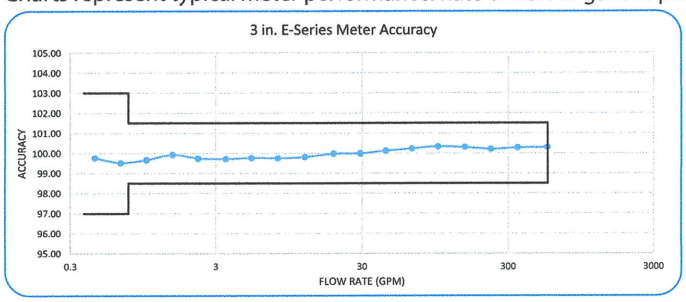
Charts represent typical meter performance. Rate of flow in gallons per minute (gpm).

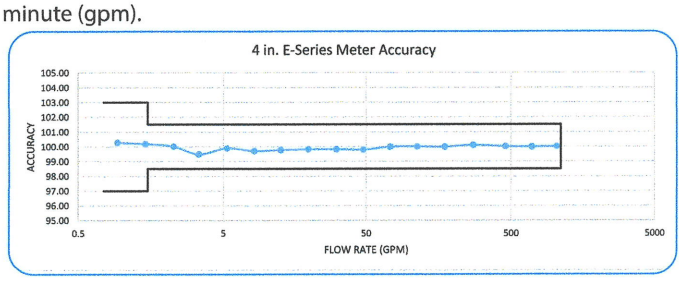


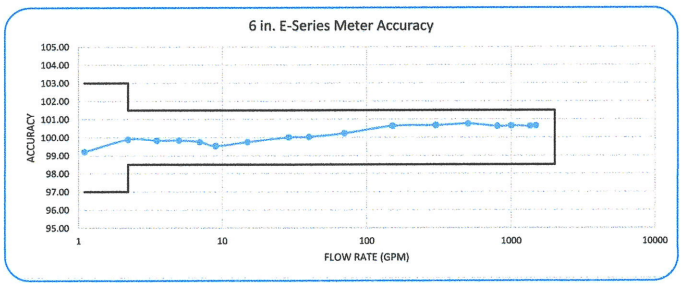


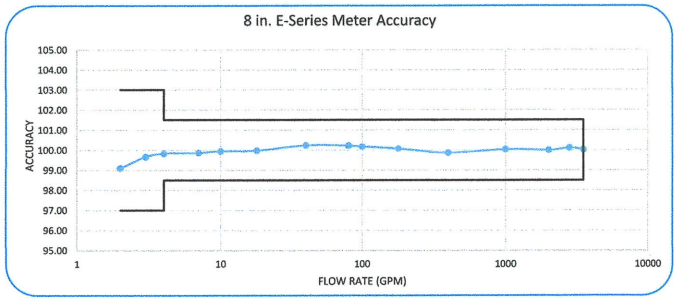
ACCURACY CHARTS

Charts represent typical meter performance. Rate of flow in gallons per minute (gpm).









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www.badgermeter.com

Badger Meter

E-Series® Ultrasonic Meter

Cold Water Meters in Raw and Reclaimed Water Applications

PRODUCTS

This warranty shall apply to all Badger Meter E-Series® Ultrasonic lead-free meters (bronze or stainless steel) and meter components when used to measure raw water (sizes 3/4 and 1 inch) and reclaimed water (sizes 5/8, 5/8 x 3/4, 3/4, 1, 1-1/2, 2, 3, 4, 6, 8 inch), and the internal register/encoder and battery used with these meters (collectively "Product"), sold on or after September 9, 2024.

This warranty is not transferable and is extended only to utilities, municipalities, other commercial users and authorized distributors, hereafter referred to as "Customer," and does NOT apply to consumers or any person or entity who is not an original customer of Badger Meter or its authorized distributors.

MATERIALS AND WORKMANSHIP

Badger Meter warrants Product to be free from defects in materials and workmanship appearing within one (1) year and six (6) months after shipment from Badger Meter.

PRODUCT RETURNS

Any Product proved to the satisfaction of Badger Meter to have failed the foregoing warranties will, at the option of Badger Meter, be repaired or replaced without charge to the Customer. Any eligible Product repaired or replaced by Badger Meter will retain the original Product's warranty based on the original Product purchase date, at Badger Meter's sole discretion. The Badger Meter obligation hereunder shall be limited to such repair and replacement and shall be conditioned upon Badger Meter receiving written notice of any alleged defect within ten (10) days after its discovery. This exclusive remedy shall not be deemed to have failed its essential purpose so long as Badger Meter is willing and able to replace defective products or issue a credit to purchaser within a reasonable time of proof to Badger Meter that a defect is involved. Product returns must be shipped by the Customer prepaid F.O.B. to the nearest Badger Meter factory or distribution center. The Customer shall be responsible for all direct and indirect costs associated with removing the original Product and reinstalling the repaired or replacement Product.

LIMITS OF LIABILITY

This warranty shall not apply to Product repaired or altered by parties other than Badger Meter, or read by equipment not explicitly approved or licensed by Badger Meter. The foregoing warranty applies only to the extent that the Product is installed, serviced and operated strictly in accordance with AWWA Standard C715 and AWWA M6 Manual, as applicable. The warranty shall not apply and shall be void with respect to Product exposed to conditions other than those detailed in the Badger Meter Product technical and/or operational literature, or which, as determined at Badger Meter's sole discretion, have affected the ability of the Product to perform, including, but not limited to: exposure to adverse installation conditions; misuse; vandalism; negligence; accident; acts of God; alteration; improper installation, operation or repair; damage from passage of high-speed air slugs; damage by water quality conditions, including but not limited to: aggressive water, foreign matter, biofilms, or extreme corrosivity; damage caused by actions not in accordance with the intended use; or other circumstances which are beyond the reasonable control of Badger Meter, as determined at Badger Meter's sole discretion. Additionally, for raw water applications, these quality conditions must be met: the meters shall be used for raw water as source from ground or surface bodies of water not to exceed the following limits: Average Total Suspended Solids, 30 mg/L but not to exceed 45 mg/L; Average Iron, 0.5 mg/L; Average Manganese, 0.055 mg/L; Langelier Index, +/–1.0; Synthetic Organic Chemicals and Volatile Organic Compounds, MCL limits as defined by national primary drinking water standards. Water to be tested and from a representative number of samples with respect to the sources on a monthly basis. Badger Meter reserves the right to conduct sampling of its own when a meter is returned under a warranty claim. In the event the above conditions are not met or prior water tests or other documentation show improper conditions, the warranty is voided and Badger Meter is not responsible for replacement. With respect to product not manufactured by Badger Meter, the warranty obligations of Badger Meter shall in all respects conform and be limited to the warranty extended to Badger Meter by the supplier of product.

THE FOREGOING WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER EXPRESS AND IMPLIED WARRANTIES WHATSOEVER, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE (except warranties of Title).

Any description of Product, whether in writing or made orally by Badger Meter or its agents, specifications, samples, models, bulletins, drawings, diagrams, engineering sheets, or similar materials used in connection with any Customer's order are for the sole purpose of identifying Product and shall not be construed as an express warranty. Any suggestions by Badger Meter or its agents regarding use, application or suitability of Product shall not be construed as an express warranty unless confirmed to be such in writing by Badger Meter.

Exclusion of Consequential Damages and Disclaimer of Other Liability

Badger Meter liability with respect to breaches of the foregoing warranty shall be limited as stated therein. Badger Meter liability shall in no event exceed the contract price. BADGER METER SHALL NOT BE SUBJECT TO AND DISCLAIMS: (1) ANY OTHER OBLIGATIONS OR LIABILITIES ARISING OUT OF BREACH OF CONTRACT OR OF WARRANTY (2) ANY OBLIGATIONS WHATSOEVER ARISING FROM TORT CLAIMS (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR ARISING UNDER OTHER THEORIES OF LAW WITH RESPECT TO PRODUCTS SOLD OR SERVICES RENDERED BY BADGER METER, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATING THERETO, AND (3) ALL CONSEQUENTIAL, INCIDENTAL AND CONTINGENT DAMAGES WHATSOEVER.

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ORION®
Cellular/Fixed Network Solutions

ORION® Cellular Water Endpoints

DESCRIPTION

ORION® Cellular water endpoints are innovative, two-way endpoints for smart water applications. The endpoints utilize existing IoT (Internet of Things) cellular infrastructure to efficiently and securely deliver meter reading data to the utility in a Network as a Service (NaaS) approach. Leveraging existing cellular infrastructure, the NaaS solution offers all the performance benefits of AMI, while eliminating network-related maintenance and technology concerns and enhancing deployment flexibility.

Cellular endpoints are members of the time-tested ORION family of products from Badger Meter, designed for maximum flexibility. Since 2002, the ORION product family has provided comprehensive Advanced Metering Analytics (AMA) for interval meter reading and data capture using both one-way and two-way communications.

FUNCTIONALITY

Operation: ORION Cellular water endpoints communicate with the encoder and capture 15-minute interval read data and meter status information. The endpoints then automatically broadcast the information, including endpoint status information, via the cellular network to BEACON® Software as a Service (SaaS). ORION NaaS is powered by the proven ORION system for interval data capture and two-way communication. The solution employs cellular endpoints which, as they leverage the public cellular network and require no proprietary gateways to operate, dramatically reduce infrastructure requirements compared to a traditional fixed network. This speeds installations and simplifies expansion as a system evolves.

The endpoints are designed to call in four times each workday and feature a configurable schedule that enables utility customers to select call-in times that best support their processes.

Activation: ORION Cellular water endpoints are shipped in an inactive, non-transmitting state. The Badger Meter IR Communication Device can be used to activate the endpoints and verify the encoder connection. Successful endpoint function can be confirmed through a web app demonstrating that communication has been verified to both the encoder and the network.

Alternatively, the endpoints offer a Smart Activation feature. After installation, the endpoints begin broadcasting data when the encoder senses the first usage of water. No field programming or special tools are required.

Broadcast Mode: ORION Cellular water endpoints broadcast fixed network reading data through the secure cellular network within the service area.

Specific configurations also transmit a radio frequency (RF) message to facilitate troubleshooting in the field. See *"Configurations" on page 2.*

Data Storage: The endpoints store 42 days of 15-minute data.



ORION Cellular HLD endpoint (pictured)

Output Message: ORION Cellular water endpoints broadcast a unique serial number, meter reading data, and applicable status indicators. As an advanced data security measure, each message is securely transported to BEACON SaaS only via private network and never over the public internet.

APPLICATION

Configurations: ORION Cellular water endpoints are multi-purpose endpoints that can be deployed in indoor, outdoor and pit (non-metal pit lid) applications. The electronics and battery assembly are fully encapsulated in epoxy for environmental integrity. The endpoint is available with a connector assembly for ease of installation.

Meter Compatibility: When attached to a Badger Meter High Resolution Encoder, the ORION Cellular water endpoint is compatible with all current Badger Meter Recordall® Disc, Turbo Series, Compound Series, Combo Series and Fire Service meters and assemblies, and with E-Series G2® Ultrasonic, E-Series® Ultrasonic, E-Series® Ultrasonic Plus, and ModMAG® electromagnetic flow meters.

Encoder Compatibility: The ORION Cellular water endpoint is suitable for use with a Badger Meter High Resolution Encoder as well as the following Badger Meter approved three-wire encoder registers that have a manufacture date within 10 years of the current date as long as the encoder has three wires connected to it and is programmed into the three-wire output mode for AMR/AMI: Honeywell® (Elster/ABB) ScanCoder, evoQ4 meter with Sensus® protocol module; Master Meter® Octave® Ultrasonic meter encoder output; Metron-Farnier Hawkeye; Mueller Systems 420 Solid State Register (SSR) LCD; Neptune® ProRead, E-Coder®, ARB-V®, and ProCoder; and Sensus iPerl®.

SPECIFICATIONS

Dimensions	5.125 in. (130 mm) (H) 1.75 in. (44 mm) Diameter at top 2.625 in. (W) x 2.875 in. (D) at base (67 mm (W) x 73 mm (D) at base)
Broadcast Network	LTE-M cellular network (primary communication technology)
	NB-IoT (secondary communication technology for certain variants)
RF Message for Troubleshooting	Where available (see table below) frequency is FCC-regulated 902…928 MHz frequency hopping modulation
Operating Temperature Range • Storage, Meter Reading and RF Message (for troubleshooting) • Cellular Communications	 –40…60° C (–40…140° F) –20…60° C (–4…140° F)
Humidity	0%…100% condensing
Battery	One (1) lithium thionyl chloride D cell (nonreplaceable)

Construction: All ORION Cellular water endpoints are housed in an engineered polymer enclosure with an ORION RF board, battery and antenna. For long-term performance, the enclosure is fully potted to withstand harsh environments and to protect the electronics in flooded or submerged pit applications.

Wire Connections: ORION Cellular water endpoints are available with inline connectors (Twist Tight® or Nicor®) for easy installation and connection to compatible encoders/meters. The endpoints are also available with flying leads for field splice connections. Other wire connection configurations may be available upon request.

FEATURES

Smart City Ready	Future-proof technology
Communication Type	Two-way
Application Type	Control/Monitor
Endpoint Communication	Configurable call-in schedule, up to four times each workday
Reading Interval Type	15-minute
Encoder Compatibility	Absolute
Fixed Network Reading	✓
Cut-Wire Indication	✓
Encoder Error	✓
Low Battery Indication	✓
Remote Clock Synchronization	✓
Firmware Upgrades	✓

CONFIGURATIONS

Endpoint	Notes
ORION Cellular C	Includes RF and IR messages for troubleshooting
ORION Cellular HLD	Includes RF and IR messages for troubleshooting
ORION Cellular LTE-M	Includes RF and IR messages for troubleshooting

NOTE: For the ORION Cellular LTE-MP endpoint, see the *ORION Cellular LTE-MP Endpoint product data sheet*, available at www.badgermeter.com.

ORION® Cellular endpoints are IoT Network Certified for Smart Connected Infrastructure™ by CTIA, an association representing the U.S. wireless communications industry and companies throughout the mobile ecosystem. The certification signifies that the endpoints meet global 4G and 5G, 3GPP, NIST, and CTIA certification standards for cybersecurity and network performance, and are suitable to support critical infrastructure operations.

License Requirements: ORION Cellular water endpoints comply with Part 15, Part 22, Part 24, and Part 27 of the FCC Rules. No license is required by the utility to operate an ORION meter reading system. This device complies with Industry Canada license-exempt RSS standard(s). The device shall be used in such a manner that the potential for human contact in normal operation is minimized. This equipment complies with RSS-102 radiation exposure limits. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body. This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

Transportation: **WARNING**: The operation of transmitters and receivers on airlines is strictly prohibited by the Federal Aviation Administration. As such, the shipping of radios and endpoints via air is prohibited. Please follow all Badger Meter return and/or shipping procedures to prevent exposure to liability.

Warning: To reduce the possibility of electrical fire and shock hazards, never connect the cable from the endpoint to any electrical supply source. The endpoint cable provides SELV low voltage limited energy power to the load and should only be connected to passive elements of a water meter register.

Caution: Endpoint batteries are *not* replaceable. Users should make no attempt to replace the batteries.
Changes or modifications to the equipment that are not expressly approved by Badger Meter could void the user's authority to operate the equipment.

E-Series G2, E-Series, ModMAG, ORION and Recordall are registered trademarks of Badger Meter, Inc. Other trademarks appearing in this document are the property of their respective entities. Due to continuous research, product improvements and enhancements, Badger Meter reserves the right to change product or system specifications without notice, except to the extent an outstanding contractual obligation exists. © 2025 Badger Meter, Inc. All rights reserved.

ORION®
Cellular/Fixed Network Solutions

ORION® Cellular Lens Endpoints

DESCRIPTION

For deployment in meter pits, Badger Meter recommends installing standard ORION® Cellular endpoints through non-metallic pit lids. If metal lids must be used, ORION Cellular Lens endpoints may be installed **through** the lid to improve cellular signal and endpoint performance.

ORION Cellular Lens endpoints are innovative, two-way endpoints for smart water applications. The endpoints utilize existing IoT (Internet of Things) cellular infrastructure to efficiently and securely deliver meter reading data to the utility in a Network as a Service (NaaS) approach. Leveraging existing cellular infrastructure, the NaaS solution offers all the performance benefits of AMI, while eliminating network-related maintenance and technology concerns and enhancing deployment flexibility. These improvements maximize utility investment and reduce premature hardware replacements.

FUNCTIONALITY

Operation: ORION Cellular Lens endpoints communicate with the encoder and capture 15-minute interval read data and meter status information. The endpoints then broadcast a unique serial number, meter reading data, and applicable status indicators via the cellular network to BEACON® Software as a Service (SaaS). As an advanced data security measure, each message is securely transported to BEACON SaaS via private network only and never over the public internet. The ORION Cellular NaaS solution requires no proprietary gateways to operate, dramatically reducing infrastructure requirements compared to a traditional fixed network. This speeds installations and simplifies expansion as a system evolves.

The endpoints are designed to call in multiple times each workday and feature a configurable schedule that enables utility customers to select call-in times that best support their processes.

Activation: ORION Cellular Lens endpoints are shipped in an inactive, non-transmitting state. The Badger Meter IR Communication Device **must** be used to activate the endpoints and verify the encoder connection. (Smart Activation via wake on consumption is not supported.) Successful endpoint function can be confirmed through a web app demonstrating that communication has been verified to both the encoder and the network. Full installation and activation steps are available in the *ORION Cellular Lens Endpoint Quick Start Guide* (*ORI-QS-04841-EN*) at *badgermeter.com*.

Data Storage: The endpoints store 42 days of 15-minute data.

Dynamic RF Messaging: Specific configurations transmit a backup RF message to facilitate Quick Reads or help troubleshoot in the field in the rare event of a network communication outage. The endpoint begins to transmit this additional RF message when it has been unsuccessful at communicating with BEACON via the cellular network for a defined period of time.



APPLICATION

Form Factor: ORION Cellular Lens endpoints accommodate a larger antenna, the electronics to support the antenna, and a D cell battery pack. The electronics and battery assembly are fully encapsulated in epoxy for environmental integrity.

Meter Compatibility: When attached to a Badger Meter High Resolution Encoder, the ORION Cellular water endpoint is compatible with all current Badger Meter Recordall® Disc, Turbo Series, Compound Series, Combo Series and Fire Service meters and assemblies, and with E-Series G2® Ultrasonic, E-Series® Ultrasonic, E-Series® Ultrasonic Plus, and ModMAG® electromagnetic flow meters.

Encoder Compatibility: The ORION Cellular water endpoint is suitable for use with a Badger Meter High Resolution Encoder as well as the following Badger Meter approved three-wire encoder registers that have a manufacture date within 10 years of the current date as long as the encoder has three wires connected to it and is programmed into the three-wire output mode for AMR/AMI: Honeywell® (Elster/ABB) ScanCoder; evoQ4 meter with Sensus® protocol module; Master Meter® Octave® Ultrasonic meter encoder output; Metron-Farnier Hawkeye; Mueller Systems 420 Solid State Register (SSR) LCD; Neptune® ProRead, E-Coder®, ARB-V®, and ProCoder; and Sensus iPerl®.

SPECIFICATIONS

Dimensions	4.97 in. (126 mm) (H) 0.47 in. (12 mm) (H) above lid 6.00 in. (152 mm) (diameter) top 1.65 in. (42 mm) (D) bottom
Broadcast Network	LTE-M cellular network (primary communication technology)
	NB-IoT (secondary communication technology)
RF Message for Troubleshooting	FCC-regulated 902…928 MHz frequency hopping modulation
Operating Temperature Range • Cellular Communications • Storage, Meter Reading and RF Message	 –4…140° F (–20…60° C) –22…158° F (–30…70° C)
Humidity	0%…100% condensing
Battery	One (1) lithium thionyl chloride D cell (nonreplaceable)

Construction: All ORION Cellular water endpoints are housed in an engineered polymer enclosure with an ORION RF board, battery and antenna. For long-term performance, the enclosure is fully potted to withstand harsh environments and to protect the electronics in flooded or submerged pit applications.

Wire Connections: ORION Cellular Lens endpoints are available with inline connectors (Twist Tight® or Nicor®) for easy installation and connection to compatible encoders/meters. The endpoints are also available with flying leads for field splice connections. Standard ORION Cellular endpoints can support up to 25 foot lengths, and Lens endpoints can support up to 6 foot lengths. Other wire connection configurations may be available upon request.

FEATURES

Smart City Ready	Future-proof technology
Communication Type	Two-way
Endpoint Communication	Configurable call-in schedule
Reading Interval Type	15-minute
Encoder Compatibility	Absolute
Fixed Network Reading	✓
Cut-Wire Indication	✓
Encoder Error	✓
Low Battery Indication	✓
Remote Clock Synchronization	✓
Firmware Upgrades	✓

CONFIGURATIONS

Endpoint	Notes
ORION Cellular HLFX	Lens form factor

ORION Cellular endpoints are IoT Network Certified by CTIA, an association representing the U.S. wireless communications industry and companies throughout the mobile ecosystem. The certification signifies that the endpoints meet global 4G and 5G standards and are ready for use on wireless IoT networks.

License Requirements: ORION Cellular water endpoints comply with Part 15, Part 22, Part 24, and Part 27 of the FCC Rules. No license is required by the utility to operate an ORION meter reading system. This device complies with Industry Canada license-exempt RSS standard(s). The device shall be used in such a manner that the potential for human contact in normal operation is minimized. This equipment complies with RSS-102 radiation exposure limits. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body. This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

Transportation: **WARNING**: The operation of transmitters and receivers on airlines is strictly prohibited by the Federal Aviation Administration. As such, the shipping of radios and endpoints via air is prohibited. Please follow all Badger Meter return and/or shipping procedures to prevent exposure to liability.

Warning: To reduce the possibility of electrical fire and shock hazards, never connect the cable from the endpoint to any electrical supply source. The endpoint cable provides SELV low voltage limited energy power to the load and should only be connected to passive elements of a water meter register.

Caution: Endpoint batteries are *not* replaceable. Users should make no attempt to replace the batteries.
Changes or modifications to the equipment that are not expressly approved by Badger Meter could void the user's authority to operate the equipment.

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Badger Meter

ORION® Water Products

with BEACON® Software as a Service (SaaS)

PRODUCTS

This warranty shall apply to Badger Meter ORION® series AMR/AMI Water Endpoints, reading hardware and software for a BEACON® system, sold on or after April 11, 2024.

ORION series AMR/AMI Water Endpoints include Fixed Network (SE), ME and Mobile M endpoints.

This warranty is not transferable and is extended only to utilities, municipalities, other commercial users and authorized distributors, hereafter referred to as "Customer" and does NOT apply to consumers or any person or entity who is not an original Customer of Badger Meter or its authorized distributors.

MATERIAL AND WORKMANSHIP

Badger Meter warrants all ORION series AMR/AMI Water Endpoints including battery, reading hardware and software, hereafter referred to as "Product(s)" as listed below, to be free from defects in material and workmanship for the time period stated.

ORION SE, ORION ME[3] and ORION Mobile M Water Endpoints[1]	20 years and 6 months after shipment
ORION Cellular LTE-MP Endpoints	10 years and 6 months after shipment
Trimble® T10 Tablet[2]	3 years after shipment
Dell® Latitude 5430 Laptop[2] and Latitude 7230 Tablet[2]	3 years after shipment
Panasonic Toughbook® Laptop for BEACON Mobile Solution[2]	3 years after shipment
Trimble® Ranger 7 Handheld[2]	3 years after shipment
Trimble Yuma 7 Tablet[2]	3 years after shipment
ORION ME Modules[2] for Trimble Yuma 7 Tablet and Trimble Ranger 7 Handheld	3 years after shipment
Microsoft® Surface Go 3 Tablet[2]	1 year after shipment
ORION Mobile (ME) Transceiver[2]	3 years after shipment
ORION Mobile Integrated Receiver[2]	1 year after shipment
ORION Fixed Network (SE) Gateway Transceiver	1 year after shipment

[1] Water Endpoints and Endpoint batteries—collectively ORION Water Endpoint Products—are warranted to be free from defects in material and workmanship for twenty (20) years and six (6) months after shipment from Badger Meter. Badger Meter will repair or replace, at its discretion, a non-performing ORION Water Endpoint Product at no cost during the first ten (10) years, and at a prorated price during the last ten (10) years of the warranty. Badger Meter will apply these prorated price discounts to the ORION Water Endpoint Product list prices at the time of ORION Water Endpoint Product return and according to the following prorated price discount schedule: Years 11 through 12 - 75% discount; Years 13 through 15 - 50% discount; Year 16 - 40% discount; Year 17 - 30% discount; Year 18 - 20% discount; and Years 19 through 20 - 10% discount. Replacement Products are warranted for and under the balance of the original.

[2] Batteries, antennas, cables and accessories warranty is limited to 12 months from the date of shipment.

[3] Mobile solutions deployed prior to February 1, 2023 include ORION ME endpoints that are migratable to fixed network. BEACON SaaS mobile solutions deployed on or after February 1, 2023 include ORION ME endpoints that operate in mobile mode only.

PRODUCT RETURNS

Product failures must be proven and verified to the satisfaction of Badger Meter. The Badger Meter obligation hereunder shall be limited to such repair and replacement and shall be conditioned upon Badger Meter receiving written notice of any asserted defect within 10 (ten) days after its discovery. This exclusive remedy shall not be deemed to have failed its essential purpose so long as Badger Meter is willing and able to replace the defective Product for the Customer within a reasonable time, after receipt of proof that a defect is involved. Product returns must be shipped by the Customer prepaid F.O.B. to the nearest Badger Meter factory or distribution center. The Customer shall be responsible for all direct and indirect costs associated with removing the Product and reinstalling the repaired or replacement Product.

LIMITS OF LIABILITY

This warranty shall not apply to any Product repaired or altered by any Party other than Badger Meter. The foregoing warranty applies only to the extent that the Product is installed, serviced and operated strictly in accordance with Badger Meter instructions. The warranty shall not apply and shall be void with respect to Products exposed to conditions other than those detailed in Product technical literature or which have been subject to vandalism, negligence, accident, acts of God, improper installation, operation or repair, alteration or other circumstances which are beyond the reasonable control of Badger Meter. With respect to products not manufactured by Badger Meter, the warranty obligations of Badger Meter shall in all respects conform and be limited to the warranty extended to Badger Meter by the supplier.

THE FOREGOING WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER EXPRESS AND IMPLIED WARRANTIES WHATSOEVER, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE (except warranties of Title).

Any description of the Product, whether in writing or made orally by Badger Meter or its agents, specifications, samples, models, bulletins, drawings, diagrams, engineering sheets or similar materials used in connection with any Customer's order are for the sole purpose of identifying the Product and shall not be construed as an express warranty. Any suggestions by Badger Meter or its agents regarding use, application or suitability of the Product shall not be construed as an express warranty unless confirmed to be such, in writing, by Badger Meter.

Exclusion of Consequential Damages and Disclaimer of Other Liability

The liability of Badger Meter with respect to breaches of the foregoing warranty shall be limited as stated herein. Badger Meter's liability shall in no event exceed the contract price. BADGER METER SHALL NOT BE SUBJECT TO AND DISCLAIMS: (1) ANY OTHER OBLIGATIONS OR LIABILITIES ARISING OUT OF BREACH OF CONTRACT OR OF WARRANTY, (2) ANY OBLIGATIONS WHATSOEVER ARISING FROM TORT CLAIMS (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR ARISING UNDER OTHER THEORIES OF LAW WITH RESPECT TO PRODUCTS SOLD OR SERVICES RENDERED BY BADGER METER, OR ANY UNDERTAKINGS, ACTS OR OMISSIONS RELATING THERETO, AND (3) ALL CONSEQUENTIAL, INCIDENTAL AND CONTINGENT DAMAGES WHATSOEVER.

SMART WATER IS BADGER METER

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www.badgermeter.com

BEACON®
Advanced Metering Analytics

BEACON® Software as a Service (SaaS)

With ORION® Network as a Service (NaaS)

OVERVIEW

The BEACON® solution with ORION® Network as a Service (NaaS) presents a simple, yet powerful solution to bring a new level of utility optimizing information to light.

The solution combines our intuitive BEACON Software as a Service (SaaS) with a NaaS approach using proven ORION Cellular endpoints to deliver greater visibility and control over utility management.

Built-in infrastructure management services and a system design that keeps you in step with technology advancements, allows you to do what you do best—manage your water utility. Plus, built-in consumer engagement tools help enhance customer service, increase satisfaction and reduce costs.



SOFTWARE APPLICATIONS

BEACON SaaS

With tools beyond meter reading and network management, BEACON SaaS offers targeted advanced metering analytics. BEACON puts interval meter data to work to increase efficiency in day-to-day utility operations and address demands for actionable intelligence.

- **Problem solver** – User intuitive data tools place the power of water consumption data at your fingertips, allowing you to rapidly respond to customer inquiries and quickly resolve—and even eliminate—many billing issues.
- **Customized design** – A customizable dashboard delivers information configured to user security access level in a format matched to the utility's individual requirements, providing data management integrity, security and control.
- **Works with you** – Integration with utility systems—billing, work order, inventory, Customer Relationship Management (CRM) and Geographic Information Systems (GIS)—streamlines and improves utility operations without disrupting the current utility billing interface file transfer process.
- **Find out fast** – Alert conditions can be set to monitor and notify users of system exceptions, including continuous flow, for faster leak detection.
- **Innovation at your service** – Secure, hosted platform with automatic software upgrades ensures the latest technology and features are always available.

EyeOnWater®

The BEACON software suite includes informative consumer outreach tools to improve customer service consisting of the EyeOnWater consumer engagement website, smartphone mobile apps, and email or SMS text alerts, providing easy access to personal consumption data and alerts to potential leaks.

With these tools, water consumers are able to view their usage activity, and gain greater understanding and control of what they use and the value you provide.

HARDWARE

ORION NaaS is powered by the proven ORION system for interval data capture and two-way communication. The solution employs cellular endpoints which, as they leverage the public cellular network and require no proprietary gateways to operate, dramatically reduce infrastructure requirements compared to a traditional fixed network. This speeds installations and simplifies expansion as a system evolves.

- **High resolution data** – ORION Cellular endpoints are programmed to automatically broadcast 15-minute meter reading and event data to the BEACON software up to four (4) times per day. The high resolution data helps identify potential customer-side leaks and other anomalies in water use, and provides the utility with a potent tool to enhance its customer service.
- **Two-way communication** – BEACON software communicates with ORION Cellular endpoints to accomplish a number of system tasks, including requesting additional information from the endpoint and synchronizing the internal endpoint clock. If needed, the ORION two-way system architecture sends upgrades to the endpoint firmware over the air via the network, utilizing the powerful BEACON software suite.
- **Data integrity** – Each message from the ORION Cellular endpoint is securely transported to the BEACON software only via private network and never over the public internet.

SECURITY

BEACON is ISO 27001 certified and SOC 2 examined for security, availability and confidentiality.

TECHNICAL SUPPORT AND TRAINING

Configured for the utility, safe and secure BEACON SaaS provides utilities with regular software updates, long-term support and maintenance. Comprehensive BEACON training courses are available for online or on-site delivery at the time of system deployment. To maintain best practices, a library of online resources and options for group web-based training and support are also available. Once deployed, our technical support specialists can be contacted by phone, email and web to provide ongoing, customer-friendly support. Customized one-on-one training is available (fee applies) to further enhance user expertise.

Additionally, Badger Meter offers extended customized training to further enhance user expertise.

TECHNICAL REQUIREMENTS

BEACON

Developed as a hosted software platform, BEACON is a cloud-based application accessed through a standard web browser. Internet access is required. User logins provide secure access.

BEACON supported web browsers include the latest and next previous major releases of Google® Chrome, Microsoft® Edge, Mozilla® Firefox®, Microsoft® Internet Explorer® (IE 11 only); and Apple® Safari®.

EyeOnWater Consumer Engagement

The EyeOnWater consumer engagement website is a cloud-based application accessed through a standard web browser. Internet access is required. Water consumer user logins provide secure access to their information.

Supported web browsers include the latest and next previous major releases of Google® Chrome, Microsoft® Edge, Mozilla® Firefox®, Microsoft® Internet Explorer® (IE 11 only); and Apple® Safari®.

Smartphone applications require the following operating systems that can be downloaded from Google Play or the Apple Store:

- Android 7.0 or later
- iPhone, iPad iOS 16.0 or later

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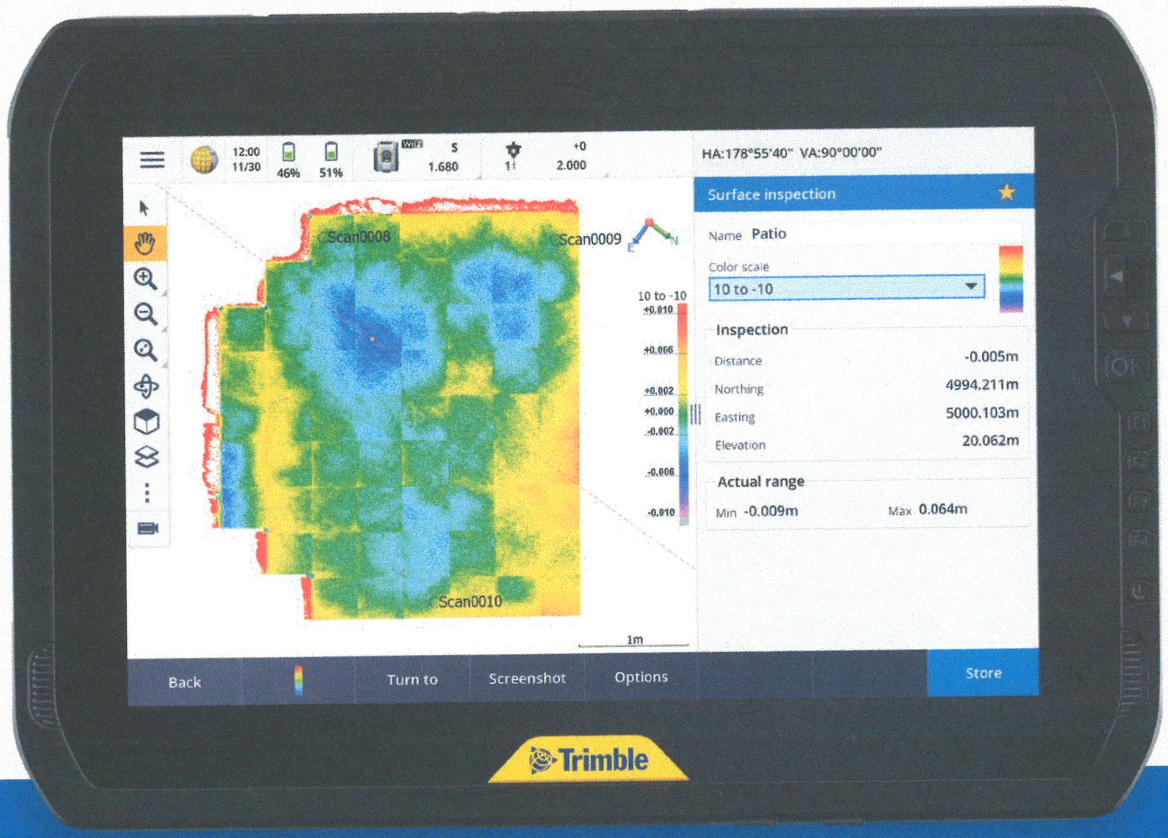
Due to continuous research, product improvements and enhancements, Badger Meter reserves the right to change product or system specifications without notice, except to the extent an outstanding contractual obligation exists. © 2025 Badger Meter, Inc. All rights reserved.

Trimble T100

TABLET



Depend on it.

KEY FEATURES

- Fast and powerful processor, for efficient data collection and data processing
- Windows® 11 brings the office to the field
- Large 10.1-inch touchscreen, sunlight readable and wet weather efficient with a high resolution display
- Ergonomic design that's comfortable and portable on long demanding days in the field
- Expandable Trimble® Empower modules, provide flexibility for user configurations

Learn more: geospatial.trimble.com/trimble-t100-tablet

Trimble T100 TABL

Item A.

Product Models	T100 (Wi-Fi)	T100 (4G LTE)
WLAN (Wi-Fi)	Yes	Yes
4G Data	No	Yes
Memory storage (SSD)	512 GB	512 GB
Internal GNSS	Included	Included

STANDARD FEATURES

System
- Intel® 8th Generation Core™ i5 Processor
- Intel HD Graphics 620
- 16 GB RAM
- 512 GB Storage[1]
- 10.1" 800 nits 1920 x 1200 (16:10) LED-backlight screen with capacitive multi-touch
- Wacom Digitizer for EMR Pen Support
- 8 Megapixel with LED Flash rear camera
- Wi-Fi 802.11ac
- Bluetooth® v 5.1
- 4G LTE WWAN EM7565
- Internal battery 92 Wh non removable
- Integrated speaker and microphone
- IP65 Dust and Moisture Ingress Protection

Operating System
- Microsoft® Windows® 11 Professional

Communications
- Cellular: 4G LTE worldwide coverage, certified on Verizon and AT&T, data only
- Wi-Fi 802.11ac
- Bluetooth v 5.1
- USB 3.1 Type C x 2
- Supports USB C DisplayPort Alt Mode

Standard Accessories
- EMR Stylus with replacement tips and removal tool
- AC-DC power adapter with power cord
- Screen protector
- USB A to USB C adapter

Optional Accessories
- EMR Stylus and replacement tips and removal tool
- Handstrap
- Vehicle Power Supply
- Office stand
- Pole mount (Short and long versions)

TECHNICAL SPECIFICATIONS

Physical
Size: 279 mm x 200 mm x 18.5 mm (11 in x 7.9 in x 0.7 in)
Weight: 1.65 kg (3.6 lbs.)
Processor: Intel® Core™ i5
Memory: 16 GB SDRAM
Storage: 512 GB SSD
User Interface: Power button, directional pad, programmable function keys
Power / Battery Status LED, On screen keyboard
Battery: 92 Wh internal non removable
Battery life: 10 hours @ 20 °C with GPS on
Charging time: 1:15 to 50% 3 hours to 100%[2]

Environmental
Temperature
Operating: –20 °C to +55 °C (–4 °F to 131 °F)[3]
MIL STD 810H Method 501.7, 502.7 Procedure II
Storage: –40 °C to +70 °C (–40 °F to 158 °F)
MIL STD 810H Method 501.7, 502.7 Procedure I
Thermal Shock: –20 °C and 60 °C non-operating
MIL STD 810H Method 503.7 Procedure I-C
Humidity: 0% – 95% non-condensing
MIL STD 810H Method 507.6 Procedure II - Aggravated Cycle
Water & dust proof: IEC 60629 Edition 2 - IP65
Vibration / Shock resistance: MIL STD 810H Method 514.8 Procedure I - Random Vibration
MIL STD 810H Method 514.8 Procedure II - Loose Cargo Transportation
Drop: Tests include room temperature, –20 °C, +60 °C
MIL STD 810H Method 516.8 Procedure IV - Transit Drop
Chemical Exposure: Contamination by Fluids
MIL STD 810H Method 504.3 Procedure II
Non Operating Altitude: –30 °C and 12,192 m (40,000 Feet)
MIL STD 810H Method 500.6 Procedure I
Operating Altitude: 5 °C and 9,144 m (30,000 Feet)
MIL STD 810H Method 500.6 Procedure II

Input/Output
Display: LED backlight scratch-resistant, auto rotate
Size: 10.1" capacitive multi-touch with EMR
Resolution: 1920 x 1200 px
Brightness: 800 nits
Audio: Built-in microphone and speaker
I/O: USB 3.1 type c x 2
Trimble EMPOWER Module Bays x 2
AC / DC Adapter: AC 100~240 V, 50~60 Hz,
DC 5 V, 9 V, 15 V, 20 V, 65 W
USB C PD 65W
Digital camera (rear facing): 8 MP with flash
Sensors: E-Compass, Accelerometer, gyroscope, ambient light sensor, proximity sensor

GNSS
Internal antenna: Beidou, Galileo, GLONASS, GPS L1 C/A, QZSS

1 Total usable memory will be less depending upon actual system configuration.
2 Battery operation and recharge times will vary based on many factors, including screen brightness, applications, features, power management, battery conditioning and other settings or preferences.
3 Tested under MIL-STD-810H method 501.6, Procedure II, and method 502.6, Procedure II. Battery capacity is reduced at lower temperatures or extremely high temperatures. Batteries should neither be charged at temperatures below 32 °F (0 °C) nor temperatures above 113 °F (+45 °C) to avoid impacting battery longevity and performance.
4 SBAS (Satellite Based Augmentation System), where available.

Caution: Do not expose bare skin to this product when handling this unit in extreme hot or cold environments. Do not charge batteries in extreme hot environments

Specifications subject to change without notice.

CE Bluetooth®

Contact your local Trimble Authorized Distribution Partner for more information

NORTH AMERICA
Trimble Inc.
10368 Westmoor Dr
Westminster CO 80021
USA

EUROPE
Trimble Germany GmbH
Am Prime Parc 11
65479 Raunheim
GERMANY

ASIA-PACIFIC
Trimble Navigation
Singapore PTE Limited
3 HarbourFront Place
#13-02 HarbourFront Tower Two
Singapore 099254
SINGAPORE

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Badger Meter

BEACON® AMA Solution

ORION® Cellular Coverage Analysis (CCA)

Customer: Distributor - Western Environment Utilities CO

Date Issued: 10/17/2025

Project: Town of Jerome, AZ

Revision: 1.0

SUMMARY INFORMATION

Endpoint Type: ORION Cellular Endpoint with connectivity to M2M cellular networks

Service Area (square miles): 15

Total Endpoints: 332

REQUEST INFORMATION

Solution Architect: Bill Batchelor

Badger Meter Account Manager: Dominick Fenton

Distributor Account Manager: John Bjorklund

INFORMATION PROVIDED

	FILE NAME	DATE RECEIVED
Coverage Request Form:	JeromeAZCCA.pdf	10/9/2025
Endpoint Locations:	Town of Jerome Meter Location_Numbers_Size.csv	10/9/2025

ANALYSIS COVERAGE AREA

Analysis is based on service location addresses provided by the Town of Jeorme, AZ, with 332 out of 332 (100%) successfully geocoded. A map of the geocoded endpoint locations is shown below.

Badger Meter

BEACON® AMA Solution

ORION® Cellular Coverage Analysis (CCA)

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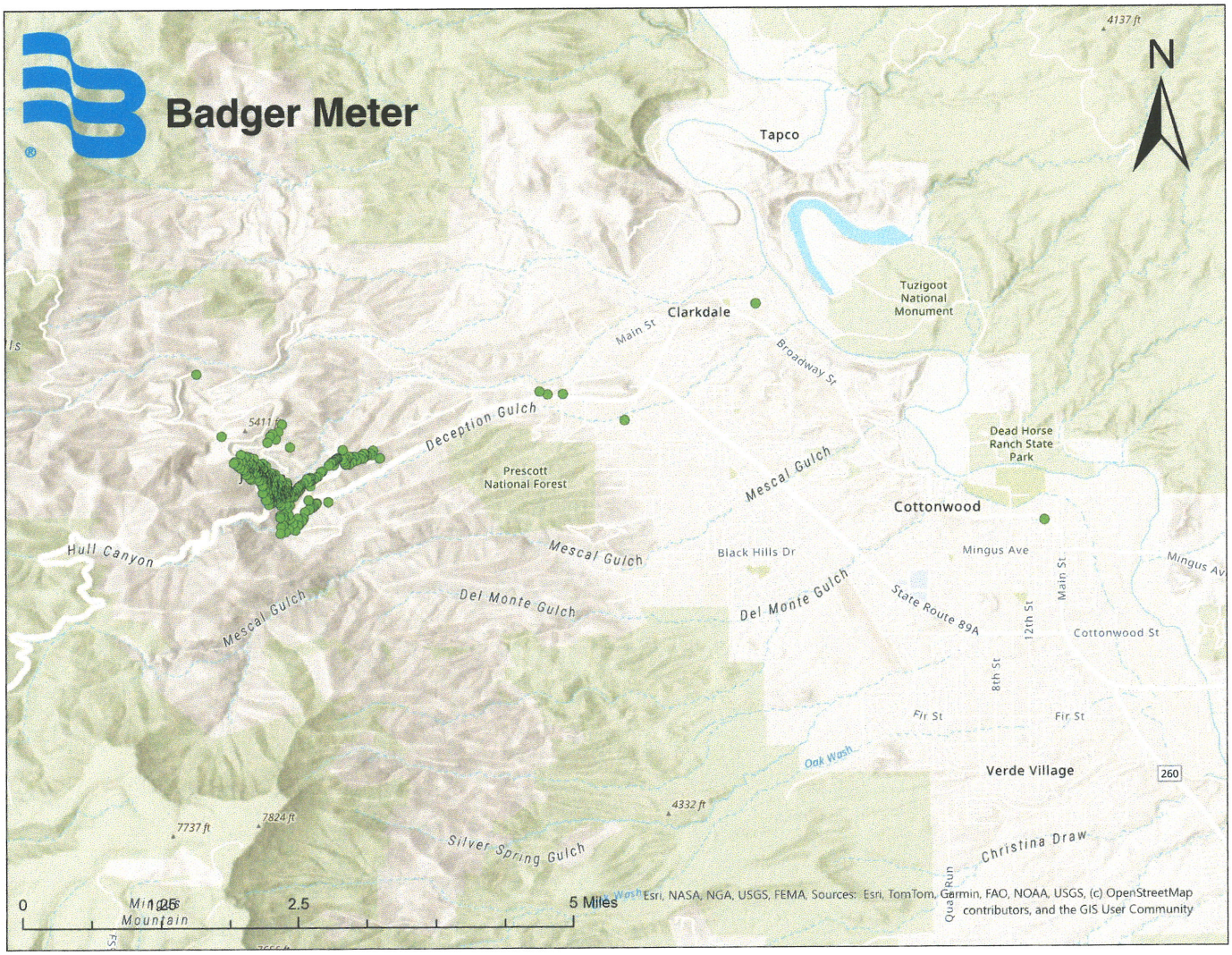
Date Issued: 10/17/2025

Project: Town of Jerome, AZ

Revision: 1.0

ENDPOINT LOCATIONS MAP



Badger Meter

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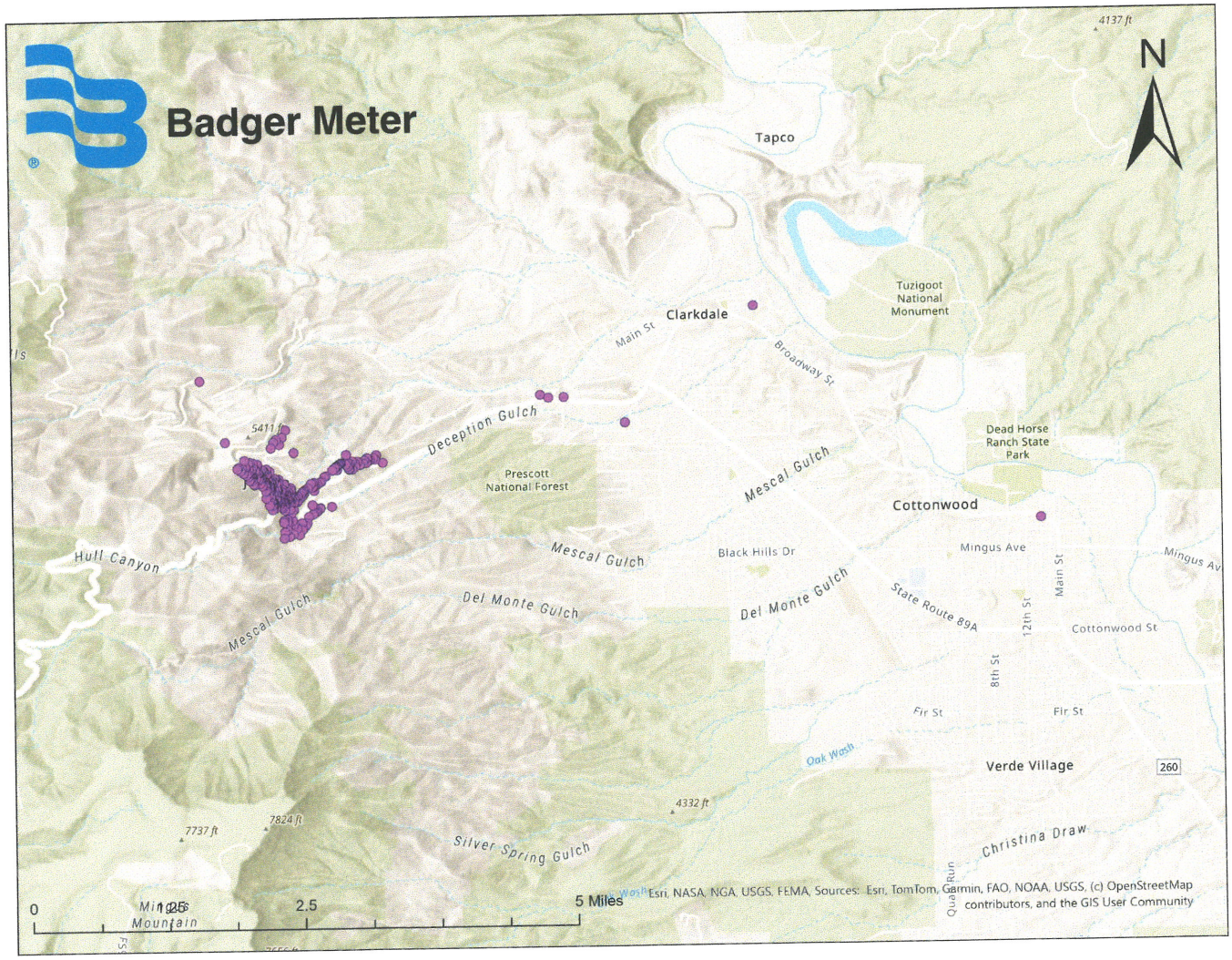
CELLULAR COVERAGE ANALYSIS

- This cellular coverage analysis has been run to determine connectivity of our providers M2M solutions which include both LTE-M and NB IoT networks. ORION Cellular Endpoints provide connectivity to both LTE-M and NB IoT networks.
- Using information provided from our carrier partners, this service area has M2M network coverage that will support our ORION Cellular endpoints.
- The map below provides an illustration of that coverage. Further guidance as to the placement of endpoints by type will be provided as deployment plans are refined



Badger Meter

BEACON® AMA Solution

ORION® Cellular Coverage Analysis (CCA)

Customer: Distributor - Western Environment Utilities CO

Date Issued: 10/17/2025

Project: Town of Jerome, AZ

Revision: 1.0

ASSUMPTIONS MADE

- Submitted information including but not limited to street addresses, service area, GPS coordinates, and meter locations are accurate.
- If GPS coordinates or a GIS shapefile are not provided for endpoint locations, street addresses are geocoded into decimal-degree latitude and longitude using ESRI's StreetMap Premium for ArcGIS North America HERE address locaters.
- Data from third party providers such as USGS National Elevation Dataset (NED), USGS National Land Cover Database (NLCD), Tele-Atlas municipal boundaries, cellular providers, and the RF propagation software used by Badger Meter is accurate.
- ORION endpoints are installed and maintained according to "ORI-UM-00025 ORION Water Endpoint Installation Manual" using a Badger Meter approved endpoint installation kit in a location that allows two-way communication between the endpoint and the cellular network.
    - Pit or vault installations are through a non-metal pit lid and the pit or vault lid is at or above grade
    - Indoor installations are mounted as high as possible in the floor joists above grade on an exterior wall

CLARIFICATIONS

- The ORION cellular coverage analysis is subject to change for reasons which may include but are not limited to; consultation with the customer, site visit by Badger Meter authorized personnel, and the availability of new or updated information.
- Cellular coverage within the utility service area is required to deploy ORION cellular endpoints.
- Review the cellular coverage analysis with your Badger Meter representative in order to understand how it may be used by the utility as a tool to deploy the system.
- All endpoints are to be installed in compliance with the published ORION installation guidelines which can be found at www.badgermeter.com
- Cellular endpoint type recommended is specific to the latitude and longitude for each location.

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www.badgermeter.com

TOWN OF JEROME, ARIZONA
POST OFFICE BOX 335, JEROME, ARIZONA, 86331
(928) 634-7943

Founded 1876
Incorporated 1899

REQUEST FOR PROPOSAL

FOR

ADVANCED METERING INFRASTRUCTURE SYSTEM

PROJECT NO.

Submission Deadline: WEDNESDAY, NOVEMBER 5, 2025
No later than 12:00 PM – Arizona Time

Town of Jerome
Attn: Town Clerk
PO Box 335
600 Clark St.
Jerome, AZ 86331

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NOTICE TO RESPONDENTS

REQUIRED PROPOSAL PACKAGE FORMS

THE FOLLOWING ITEMS MUST BE COMPLETED AND SUBMITTED WITH THIS COMPLETE AND INTACT PROPOSAL PACKAGE FOR A PROPOSAL TO BE CONSIDERED RESPONSIVE. ANY AND ALL DEFICIENCIES OF ITEMS LISTED BELOW WILL BE CONSIDERED AN ADEQUATE REASON TO REJECT THE PROPOSAL IN ITS ENTIRETY.

- Complete Proposal Package
- Acknowledgement of Addenda
- Executed Proposal Documents
  - Proposal
  - Fee Proposal
  - Non-Collusion Certificate
  - Certificate of Ownership
  - Respondent Qualifications, Representations, and Warranties
- Signatures, Seals, & Notaries (wherever necessary)

This information is provided for your use in preparing all documents as required for a complete proposal. Please double-check all requirements. If you have any questions regarding what is required with a submittal, please call and ask.

REQUEST FOR PROPOSAL

Town of Jerome
Advanced Metering Infrastructure System

Notice is hereby given that the Town of Jerome, Arizona, is requesting proposals from qualified person(s) or vendors (collectively, "respondents") to replace the Town's outdated water meters with an advanced metering infrastructure (AMI) system.

The Town of Jerome intends to implement a water meter replacement program and system-wide conversion of the Town's current water meters to an AMI. Existing meters will be replaced with equivalent-sized AMI meters that can capture and transmit water meter data to centralized software to streamline operations, improve subsequent billing processes, and enhance customer satisfaction.

The scope of work for this project includes, but is not limited to, providing the following:

- Water meters.
- RF-enabled (radio frequency) endpoints.
- Network software and infrastructure, including base stations and repeaters, where necessary and applicable.
- Software and equipment training.

The procurement time to complete the project is 180 calendar days from the date of the Notice to Proceed.

The Town of Jerome will receive and accept proposals until 12:00 p.m. On November 5, 2025, at Jerome Town Hall, 600 Clark St, Jerome, Arizona 86331. Proposals received after that time will not be accepted. The Town of Jerome reserves the right to reject any or all proposals and to award all or part of the proposal. Nevertheless, except when rejections of proposals are required by law, the Town reserves the right to waive any informality of the proposal. The Town intends to award the contract contemplated in this RFP to the responsible and responsive respondent whose proposal is determined, in writing, to be the most advantageous to the Town and best meets the overall needs of the Town, taking into consideration the evaluation criteria set forth in this RFP.

Brett Klein
Town Manager/Town Clerk

Posting Date:

Publishing Dates:

GENERAL PROJECT INFORMATION

The Town of Jerome is located on the side of Cleopatra Hill in the Black Hills of Arizona. The Town is the sole provider of metered water services within Town limits, as well as specific locations outside of Town limits. The Town, which has stretches of exposed water utility lines, experiences "four seasons," with some nights reaching freezing or below-freezing temperatures, typically from December to March.

The Town's existing water meter system comprises a variety of meter sizes (5/8" to 4"), some of which are more than 20 years old, to serve the community's roughly 450 residents and many tourists. Current metering practices include public works employees manually reading all meters, then supplying the reads to the finance department, which uploads and checks all information before running monthly statements.

Project Description

The Town of Jerome hereby requests proposals from experienced individuals or companies capable of implementing a system-wide conversion to an advanced metering infrastructure (AMI) system, comprising 332 new equivalent-sized AMI meters. The project will involve replacing all existing meters; however, it's anticipated that the Town Council may allow users to opt out at their request. Therefore, it is preferable for proposed AMI systems to be compatible with the Town's current Sensus meters. Installation guidelines will be provided by the awarded supplier to the installation company. The Town anticipates that this project will move forward as quickly as possible, with all meters to be installed within six months. Each respondent is requested to provide as much relevant information as possible within the scope of this RFP, including but not limited to the respondent's capabilities with respect to project management, the products and components proposed, service, maintenance, warranties, and post-installation support and service.

The purpose of this RFP is to invite cost proposals for services related to implementing a fixed-base AMI system and its management and maintenance as described in this RFP.

The Town of Jerome wishes to procure an AMI system that:

1. Provides integrated time interval data daily.
2. Replaces existing water meters (a majority are in utility easements or Town rights-of-way) and increases the accuracy of the reads associated with the system through the use of modern technology-based products.
3. Increases the efficiency of the water system, lowers operating costs, and enhances customer service.
4. Provides water meter reading redundancy.
5. Provides an option that enables the meters to be read using a drive-by method, utilizing a mobile reading device capable of reading the same transmitter as the fixed base transmitter, or some other method that equals or exceeds those described.
6. Provides that while in fixed base mode, the system has two-way communication capability, which allows the system to poll the transmitter at each meter location for a current read, and which also allows for upgrades of the fixed base transmitter firmware to incorporate technological advances and/or as deemed useful and necessary by the Town of Jerome.

7. Provides real-time meter leak detection on the distribution and customer sides of the meter.
8. Provides component pricing and after-sales service costs following project completion. Includes warranty information and system specifications.
9. Provides a system backhaul that interfaces with radio or cellular components, as fiber is not available.
10. Interfaces with the Town's billing software, Caselle.

Include any specifications and pricing pertaining to any additional costs, regardless of payment cycle, monthly, quarterly, annually, or otherwise, over and above the costs of installation.

Proposal Guidelines:
As part of this RFP, each respondent shall submit pricing for the water meters, necessary components for operation, software and hardware, battery life and replacement specifications, if boosters/repeaters would be needed, a minimum and maximum price for every meter type listed, the maximum escalation for the percentage of increase after the first five years, and training. Thereafter, if the Town of Jerome determines to proceed with selecting a respondent, the Town 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 Town of Jerome will reach an agreement on provisions for securing the metering system.

The Town of Jerome is looking for longevity from this project. It is expected that the new system will have a 20-year lifespan, with warranties to ensure product life begins at the time of installation of the unit. Battery life, as well as instructions for replacing batteries in the system, must be specified in the proposal, along with the associated price. All meter sizes must be compatible with our current system, which will be provided. The system must also allow for the future development and growth of the Town. Any upgrades/changes to the system and/or meters must be agreed to in writing by the Town Manager before proceeding.

Smart Utility Network Respondent References
Respondents must provide three references for utility systems with sizes (or larger), customer counts, and service areas (i.e., weather/location) similar to those of Jerome that are successfully using the proposed system version. Respondent must demonstrate a minimum of five years of experience in the field.

Project Objectives – Short Term
The Town of Jerome wishes to acquire and implement an AMI system to satisfy the needs of the community. The following are short-term goals for Jerome:

- Reduce water loss.
- Improve water conservation/water accountability.
- Replace all meters in the system with an AMI system.
- Reduce the current labor required by the Public Works and Utility departments in completing monthly billing.
- Improve customer service.
- Install all system components within six months.
- A system that supports direct communication to meters in the field.

Project Objectives – Long Term
Future objectives are as follows:

- Reduction in time spent reading meters to allow more time for infrastructure projects.
- Improve response times to potential problems.
- Asset management.
- Availability of information for emergency preparedness.
- Real-time leak detection.

Proprietary Information
All materials submitted in response to this solicitation, including samples, shall become the property of the Town and are therefore subject to public release, upon request. Respondents shall clearly mark any proprietary information contained in their submittal with the words "Proprietary Information." Respondents shall not mark any Solicitation Form as proprietary. Marking all or nearly all of a submittal as proprietary may result in rejection of the submittal.

Respondents should be aware that the Town is required by law to make its records available for public inspection. All respondents, by submission of material marked proprietary, acknowledge and agree that the Town will have no obligation to advocate for nondisclosure in any form, nor will the Town assume any liability to the respondents in the event that the Town must legally disclose these materials.

Minimum Qualifications
Respondents shall possess the qualifications and Arizona licenses as required by law, in addition to having extensive knowledge, expertise, and experience for the products they are recommending. Selected respondents will be required to supply, execute, and meet the terms of a standard General Services Contract, including insurance requirements, in a form acceptable to the Town Attorney. Approval of the Town Council will be required for the award of a contract. A sample agreement has not been provided with this request; however, respondents are encouraged to include a sample agreement with their proposal package, if available.

Proposal Submittal Delivery
Submit proposals to: Town of Jerome
Attn: Brett Klein, Town Clerk
PO Box 335
Jerome, AZ 86331
928-634-7943

Proposals may also be sent to the following email: b.klein@jerome.az.gov

Proposals may be hand-delivered, but must be received by 12:00 p.m. on November 5, 2025, at 600 Clark St., Jerome, AZ 86331, and **must** specify attention to Brett Klein, Town Clerk.

EVALUATION CRITERIA

The Town reserves the right to and will likely reject any proposals that do NOT meet the minimum criteria described in this RFP. For proposals meeting or exceeding the minimum criteria, the Town will review each proposal based on the criteria shown below. The Town intends to select the most highly qualified respondent based on demonstrated competence and qualifications to negotiate a contract.

A. General Information

a. Brief overview of the respondent and legal organization of the company. **Aquaflow Solutions Inc.** is a Glendale-based wholesale waterworks distributor supplying Arizona municipalities with reliable products and technology. We provide RG3/Tesla Duo water meters, AMI/AMR meter-reading systems, Cambridge Brass fittings, and Dresser/JCM repair clamps. Aquaflow is a fully incorporated Arizona company with an established team structure, local support, and a proven reputation for dependable service and waterworks solutions.
b. Submission requirements met. Yes
c. SAM.gov Unique Entity ID number (UEI) as required by grant funding. CYLSGQJVL457
d. Description of at least three but no more than five similar projects in which the respondent participated for each applied service category. Describe the respondent's role in the project and the scope of work that demonstrates the respondent's expertise. Provide the name and contact information for each project. It is preferred that similar projects have been conducted in a similar topography to the Town of Jerome. Aquaflow Solutions served as the lead distributor and technical support partner responsible for supplying properly sized water meters for full system upgrades. Our role included managing procurement, overseeing orders, coordinating installation schedules, and ensuring that each meter was deployed accurately and according to system requirements. We supported the utility through complete AMI/AMR integration by assisting with billing-system configuration, cloud-based data setup, and validation of all meter data flowing into the billing platform. Aquaflow worked directly with both the manufacturer and the utility's billing staff to configure, test, and verify end-to-end system functionality. Field training, installation oversight, and system testing were conducted on-site to ensure that all meters were activated and fully operational prior to going live.
After installation, Aquaflow continued working with billing personnel throughout the first year to ensure smooth operation, proper workflow adoption, and full staff training. Our support included post-installation monitoring, routine maintenance of the meter/billing system, and ongoing verification of data accuracy to ensure long-term system reliability.

Project References — Similar Terrain & System Environments
1. Big River Development District
Contact: Curtiss Martin – **C: 928-276-1104**
Service Count: ~1,300 services
System: Mobile drive-by AMR
Relevance: Mountainous/uneven terrain similar to the Town of Jerome
2. Alpine Water Systems
Contact: Shawna Metzger – **C: 928-339-4631**
Service Count: ~600 services
System: Mobile drive-by AMR
Relevance: Mountain regions comparable to Jerome

3. Pine-Strawberry DWID
Contact: Kyle Wortman – **C: 928-517-1218**
Service Count: ~3,600 services
System: Mobile drive-by AMR; preconfigured for fixed-base conversion
Relevance: Forested and mountainous elevations similar to Jerome

4. Rim Trail Water Company
Contact: Harry Jones – **C: 928-595-1111**
Service Count: ~125 services
System: Mobile drive-by AMR
Relevance: High-elevation rural terrain

5. ICR Water Users Association
Contact: Derek Scott – **C: 928-925-1294**
Service Count: ~1,800 services
System: Mobile drive-by AMR
Relevance: Mountainous terrain and dispersed service locations

B. AMI Information Requirements

a. Communication Propagation Study with a "Fixed Base" Communication system for the AMI system. Propagation study was done prior to bidding project for these estimated quantities.
b. Explain if the AMI system will include any cellular network. Yes. The AMI system includes full cellular capability through our LPN fixed-base architecture. The system allows the utility to operate in fixed-base mode, cellular mode, or a hybrid combination of both within the same platform. This provides maximum flexibility, coverage, and redundancy, enabling the Town to utilize fixed-base communication where optimal and cellular service in areas where terrain or site conditions require additional reach.
c. Explain if the AMI includes a free or paid customer engagement web portal. No, this would be a separate purchase for the town.
d. Explain if the AMI provides top-of-the-hour time-synchronized readings across the entire system with at least an update every hour. Endpoint synchronization is under 1 minute. Transmission resolution and intervals are hourly with15 minute intervals.
e. Explain if the meters, endpoints, and AMI infrastructure are manufactured by the same company. Yes; all three are manufactured by RG3 Meter Company.
f. Explain if the current meters and endpoints will be able to integrate with the AMI system. The existing meters will only integrate if the Town cuts the existing touch-read wire and manually connects it to our Solo endpoint. While this method is technically possible, we **do not recommend** exposing or using bare wires due to reliability, environmental concerns, and long-term maintenance issues. For this reason, we have quoted a complete replacement of the meter reading system to ensure accuracy, durability, and full AMI performance. For customers who choose not to participate in the AMI program, we recommend leaving their existing meters in place as they are. These accounts can remain on touch-read or be manually read and entered into the billing system as required.
g. Describe if the system can identify unauthorized usage on marketed accounts. No, it cannot detect unauthorized usage.
h. Describe if the system can configure high or low usage parameters and identify accounts in violation. High and low consumption parameters are of the billing system and identified within Caselle Billing, however, we have immediate leak alarm systems integrated into the endpoint.
i. Explain how many users the system can support at one time. No limit.
j. Explain if the software enhancements, upgrades, updates, and patches are included in the pricing structure or if it will be an annual cost for these items. Yes, there are annual

system support costs and they are included in the pricing structure. These will be billed annually form the manufacturer.

C. Endpoint Information and Requirements.

a. Describe the endpoint collection process and if it collects at the top of the hour and is synchronized with 15-minute reads from the water meter. Yes, transmission resolution and intervals are hourly with15 minute intervals.
b. Describe if the endpoint has two-way communication. Yes, it has two way communication.
c. Describe the temperatures the endpoint can withstand during storage and operations. Our published warranty operating temperature for our end point is -40 degrees to 185 degrees fahrenheit.
d. Describe if the endpoint can be installed via pit or remote. We can install pit or remote. Interior or exterior wall mount, pit/vault/through the lid.
e. Describe the network firmware updates.
   (i) Describe whether they can be done remotely, with infrared, or local updates. They can be done over the air (OTA) and be preformed remotely via LPN or on-site through Tesla Drive Software.
f. Explain the environmental conditions the endpoints can withstand, including flooding or submerged pit application. Operating humidity 0-100% non condensing. IP68 for meter pit environment. Fully potted, perfectly tuned, high surface area PCB antenna. Mount and lid for increased range and network stability. Operating temp -40 degrees to 185 degrees fahrenheit.

g. Describe the warranty for the endpoints and whether it is included. 20 year warranty (10 year full/ 10 year prorated).

D. Customer Portal Information and Requirements

a. Explain if the customer portal is owned and developed by the AMI manufacturer. We do not have a customer portal; we have integration for API third party.
b. Explain if the web portal will be accessible through a standard internet browser. N/A
c. Explain if the customer portal will allow the customer to set up a leak notification through the portal and let the customer be notified via email. N/A
d. Explain if the utility customer service representative will be able to see the same view as the customer or if the web portal will be different for the customer and the utility staff. N/A
e. Explain if the customer will be able to export consumption data in Comma Separated Value (CSV) format. N/A

E. Training Information and Requirements

a. Describe who will be providing the training (e.g., Manufacturer Certified Trainers). RG3 will be providing training with certified trainers on-site and remote.
b. Describe if there will be web-based training for future head-end system updates and upgrades, and if there will be any cost that may be associated with the training. We can do web based training for future updates and upgrades. The associated cost will be included in the annual system support.
c. Describe if training materials for end users will be available online or in electronic form. Either.

F. Other

a. Describe if you can replace a current meter in need of replacement with a non-AMI meter for an opt-out member and invoice separately from the project. Yes, we can do a straight read, touch read or AMR.

INSTRUCTIONS TO RESPONDENTS

General

No clarification as to the meaning of the plans, specifications, or other pre-bid documents will be made to any respondent orally. Should conflicts occur between drawings and/or specifications, the respondent shall be deemed to have estimated the most expensive interpretation of the conflict, unless the respondent asks for written clarification before submission of the proposal. All requests for such clarification shall be in writing to:

Questions: Brett Klein
Town of Jerome
PO Box 335
Jerome, AZ 86331
b.klein@jerome.az.gov

To be given consideration, a request for written clarification must be received at least four (4) days prior to the proposal opening. All such clarifications and any supplemental instructions will be in the form of a written addendum to the specifications. All such addenda will be transmitted to all respondents two days prior to the proposal opening. All addenda so issued shall become part of the Contract Documents.

Attention is called to the sheets in this RFP that include the words "**REQUIRED FOR SUBMITTAL**" at the bottom of the page. These sheets should be used and submitted with the proposal that is sent to the Town of Jerome, or pages with similar formatting containing all the same information should be included with the proposal.

Proposals shall be made upon the Proposal Documents contained in and submitted with this RFP. All papers bound with or attached to the proposal are necessary parts and must not be detached.

Each Proposal must be submitted in an envelope, addressed to Brett Klein, Town Manager, at Town of Jerome, 600 Clark St., PO Box 335, Jerome, Arizona 86331. Proposals will be returned unopened if not properly sealed when submitted.

Each envelope containing a proposal must be plainly marked on the outside as "TOWN OF JEROME ADVANCED METERING INFRASTRUCTURE SYSTEM." The envelope should bear on the outside the name of the respondent and their address. If forwarded by mail, the envelope containing the proposal must be enclosed in another envelope addressed to Brett Klein, Town Manager, at Town of Jerome, 600 Clark St., PO Box 335, Jerome, Arizona 86331.

Acknowledgement of Addenda
If any addenda are published prior to the proposal due date, the acknowledgement page must be signed by the contractor and returned with the proposal documents. If they are not included, the proposal will be disqualified. Addenda Acknowledged-Attached Copy

PROPOSAL TIMELINE

TOWN OF JEROME – ADVANCED METERING INFRASTRUCTURE SYSTEM

PROPOSAL PACKAGE AVAILABLE	October 6, 2025 Electronically from Brett Klein, at: b.klein@jerome.az.gov Or on the Town website, at: www.jerome.az.gov Town of Jerome Phone: (928) 634-7943
PROPOSALS DUE	November 5, 2025, 4:00 PM Office of the Town Clerk Town of Jerome 600 Clark St. PO Box 335 Jerome, AZ 86331
ANTICIPATED CONTRACT AWARD	December 9, 2025
ANTICIPATED NOTICE TO PROCEED	To be agreed upon (No later than December 31, 2025)

Questions regarding the project specifications should be directed in writing to Brett Klein at the Town of Jerome (email: b.klein@jerome.az.gov).

PROPOSAL DOCUMENTS

The following documents and information requested thereon are required to be submitted with your proposal.

Town of Jerome

Proposal Document A – Proposal

To: Honorable Mayor & Council
600 Clark St.
Jerome, AZ 86331

In compliance with the Town of Jerome's Request for Proposals for an Advanced Metering Infrastructure System and the Notice to Respondents by the Town Manager, the undersigned respondent:

Having carefully examined the proposal documents and being familiar with the conditions to be met, hereby submits the following proposal for furnishing the material, equipment, labor and everything necessary for the completion of the work listed and agrees to execute contract documents and furnish the required Bonds and Certificates of Insurance for the completion of said work, at the locations and for the prices set forth on the Fee Proposal.

Understands that procurement of this project shall be in accordance with all applicable Standard Specifications and as otherwise required by the General Provisions and Special Provisions.

Understands that this proposal shall be submitted with a proposal guarantee of cash, certified check, cashier's check, or surety bond (in accordance with Title 34, A.R.S.) for an amount not less than ten percent of the total amount proposal.

Agrees that upon receipt of Notice of Award from the Town of Jerome, they will enter into contract negotiations and execute the contract documents.

Work shall commence no later than 30 days, after the Notice to Proceed and shall be completed within 180 calendar days, beginning with the day following the starting date specified in the Notice to Proceed. The time allowed for completing the work includes lead time for obtaining the necessary materials and/or equipment. Respondent agrees to pay, as liquidated damages, two times the sum as stated in the latest revision of the MAG Specifications. Liquidated Damages shall be based upon the final contract amount.

The respondent hereby acknowledges receipt of and agrees that this proposal is based on the following Addenda (if there are no addenda, write NONE below).

Acknowledged 12-01-2025 -Addenda Attached.

The Town of Jerome retains the right to reject any or all proposals and to waive minor defects and technicalities or withhold the award, as may be deemed best for the interest of the Town.

This proposal shall be valid for a period of 30 days after the proposal deadline.

THIS PROPOSAL is submitted by Aquaflow Solutions Inc,

a corporation organized under the laws of the State of Arizona, a partnership consisting of _____

_____, or an individual trading as _____ of the

City of _____, and holder of Arizona State Contractor's License(s):

Classification(s) N/A

No.(s) N/A

Respectfully Submitted,

Aquaflow Solutions Inc
Respondent

11009 N. 51st Drive Glendale,AZ 85304
Address

Mike Ellis – Municipal Sales Representative
By (Officer & Title)

12-01-2025
Date

ATTEST:

Mike Ellis
(Officer and Title)

_____
Witness (if respondent is an individual)

Town of Jerome

Proposal Document B – Fee Proposal

Respondent Aquaflow Solutions Inc

Mailing Address 11009 N. 51st Drive City Glendale

State AZ Zip 85304 Telephone 602-733-7777

PURSUANT to, and in compliance with, the Town of Jerome's Request for Proposals for an Advanced Metering Infrastructure System, the Notice to Respondents, Instructions to Respondents, and the Proposal Documents relating to the:

TOWN OF JEROME
ADVANCED METERING INFRASTRUCTURE SYSTEM

This is to certify that the above documents, as well as the site upon which work is to be performed and any and all conditions affecting the work, have been carefully examined, that the amount and nature of work to be accomplished is thoroughly understood and that at no time will misunderstanding of the drawings, specifications or conditions to be overcome be alleged or pled as a basis for change orders, damages or non-performances.

I (We) acknowledge that the following Fee Proposal and table are for the convenience of the Town of Jerome to analyze the individual components of the proposal and to provide a means for partial payments during the project. The sum of the extended unit prices shall be the final price for the product procurement in accordance with the technical specifications. The total price listed on the Fee Proposal shall be the same as listed on the proposal to the Town of Jerome.

FEE PROPOSAL INSTRUCTIONS:

1. All items will be paid for as lump sums. The Fee Proposal's estimated quantity and unit price will be used as a means of computing progress payments and as a basis for any Change Orders incurred.

2. The owner reserves the right to recalculate the following Fee Proposal if they appear malapportioned.

3. The lump sum amounts indicated below are to include the respondent's cost of administration, mobilization, bonds, insurance, and any other miscellaneous items required for the project.

FEE PROPOSAL Town of Jerome Advanced Metering Infrastructure System					
Fixed Based Proposal Quote #11015		Est. Qty.	Units	Unit Price	Total Price
CIVIL BASE PROPOSAL					
1	¾ x 5/8" AMI Meter	299	299	$373.30	$111,617.15
2	1" threaded AMI Meter	17	17	$587.70	$9,990.88
3	1 ½" flanged AMI Meter	13	13	$1,264.77	$16,442.01
4	2" AMI Meter	2	2	$1,628.70	$3,257.39
5	4" AMI Meter	1	1	$5,506.17	$5,506.17
6	AMI System Software	1	1	$26,658.43	$26,658.43
7	AMI System Training	1	1	Included in Software	Included in Software
8	AMI Data Collection Hardware/Software	1	1	$ 28,333.45	$ 28,333.45
9	FCC Registration/ Subscription Fee Per Mtr	1	322	$6.52	$2,164.91
SUBTOTAL COSTS – BASE PROPOSAL				$64,359.04	$203,970.39
GRAND TOTAL, BASE PROPOSAL				$216,820.52	

GRAND TOTAL – BASE PROPOSAL (in words):two hundred sixteen thousand eight hundred twenty dollars and fifty two cents.

NOTE: All Quantities Shown are approximate and are furnished solely for the contractor's convenience. The quantities provided will be the lump sum that payment will be made on. The individual items are for use by the Town to analyze proposals, use as a basis for any supplemental agreements, and for partial progress payments.

Aquaflow Solutions Inc

11009 N.51st Drive
Glendale AZ 85304
602-733-7777

QUOTE

DATE	QUOTE #
12/1/2025	11015

COMPANY
TOWN OF JEROME ATTN: TOWN CLERK PO BOX 335 600 CLARK ST. JEROME, AZ 86331

SHIP TO
TOWN OF JEROME ATTN: TOWN CLERK PO BOX 335 600 CLARK ST. JEROME, AZ 86331

CUST P.O. #	PROJECT DESCRIPTION	REQUESTED BY	QUOTE EXPIRES	TERMS	REP
	SOLO FIXED		12/1/2025		LP

QTY	U/M	DESCRIPTION	UNIT PRICE	TOTAL
1	ea	450 PACKAGE (450PKG) - LAPTOP (1 DAY ON-SITE TRAINING). RUGGED LAPTOP WITH TESLE DRIVE ROUTE SOFTWARE LOADED (COMTLAPTOP + TDRIVE), TESLA MDM SOFTWARE APPLICATION (MDM), 450 TRX MOBILE DATA COLLECTOR (TRANS450), 450 TRUCK MOUNT ANTENNA (TRKANT450), TAMPER MINI RATCHET WITH BIT DRIVER (TPBIT), FCC LICENSING (450FCC), RG3 BILLING INTEGRATION (MDMBI), REMOTE TRAINING. SOFTWARE LICENSE PAID WITH REQUIRED ANNUAL SUBSCRIPTION.	17,392.03	17,392.03T
1	ea	FNC 450 BUILDING (60' LMR 600). FIXED NETWORK COLLECTOR FOR BUILDING INSTALLATION (OFFICE, SHOP, FIRE DEPT., ETC.) INCLUDES A 450 TRANSCEIVER, COAX, 24' BASE POLE, OMNI ANTENNA, INSTALLATION TESLA DRIVE, AND TESLA MDM SETUP AND TRAINING. TESLA DRIVE RUNS IN THE BACKGROUND ON UTILITY OFFICE COMPUTER. 110V AC POWER AND INTERNET PROVIDED BY THE UTILITY. DOES NOT INVCLUDE MOBILIZATION (PART #MOB).	14,244.44	14,244.44T
332	ea	AMI ANNUAL SUBSCRIPTION FEE PER METER (AMIT2) 251-1000	6.52081	2,164.91T
5	ea	DUO COLLECTOR (450 FNC) (SOLAR PACKAGE) IDEAL FOR SMALLER COVERAGE AREAS OF UP TO 1,000 METER. COVERAGE AREA IS ROUGHLY 1 MILE DEPENDING ON HEIGHT, TOPOGRAPHY AND GROUND COVER. TYPICALLY MOUNTS ON POLES, BUILDINGS, TANKS, OR PHONE TYPE TOWERS. INSTALLING WITHIN LINE OF SITE OF BASE STATION CREATES BACKHAUL REDUNDANCY. CELLULAR DATA RELOAD (#RELOAD) REQUIRED. *INSTALLATION AND MOBILIZATION SEPARATE IF NEEDED. **REQUIRES AT LEAST ONE PAIR OF FCC LICENSED FREQUENCIES.	1,717.802	8,589.01T
36	ea	MOBILIZATION HOURLY RATE. TRAVEL TIME FROM LONG VIEW, TX TO AND FROM LOCATION BY HOUR. TRAVEL IS CALCULATED BY WELL-KNOWN SOFTWARE SUCH AS GOOGLE MAPS, APPLE OR OTHER. ONLY ONE MOBILIZATION FEE WILL BE CHARGED FOR ALL INFRASTRUCTURE INSTALLED PER TRIP	257.40	9,266.40T
16	ea	HOURLY RATE TO INSTALL METERS, REGISTERS, POLES, TOWERS OR FIXED NETWORK EQUIPMENT ON TOWERS, POLES, BUILDINGS, ETC. ALL INSTALLATION AND FIELD WORK SUBCONTRACTED TO METER INSTALL GROUP, LLC..	343.75	5,500.00T
299	ea	INTEGRATED (BRASS BOTTOM, NO CHECK VALVE, OPTICAL, GALLONS, SOLO 1 COM WIRE) #PD07RGBOSRG3	373.30151	111,617.15T
17	ea	1" PD METER - RADIO NOT INTEGRATED (NO CHECK VALVE, OPTICAL, GALLONS, SOLO 1 COM WIRE) #PD10RGBOSRG3	587.69882	9,990.88T
13	ea	1.5" PD METER - RADIO NOT INTEGRATED (GALLONS, SOLO 1 COM WIRE) #PD15RGBHSRG3	1,264.77	16,442.01T

		SUBTOTAL
E-mail	Web Site	**SALES TAX (6.3%)**
info@aquaflowaz.com	www.aquaflowaz.com	**TOTAL**

Aquaflow Solutions Inc

11009 N.51st Drive
Glendale AZ 85304
602-733-7777

QUOTE

DATE	QUOTE #
12/1/2025	11015

COMPANY
TOWN OF JEROME ATTN: TOWN CLERK PO BOX 335 600 CLARK ST. JEROME, AZ 86331

SHIP TO
TOWN OF JEROME ATTN: TOWN CLERK PO BOX 335 600 CLARK ST. JEROME, AZ 86331

CUST P.O. #	PROJECT DESCRIPTION	REQUESTED BY	QUOTE EXPIRES	TERMS	REP
	SOLO FIXED		12/1/2025		LP

QTY	U/M	DESCRIPTION	UNIT PRICE	TOTAL
2	ea	2" PD METER - RADIO NOT INTEGRATED (GALLONS, SOLO 1 COM WIRE) #PD20RGBHSRG3	1,628.695	3,257.39T
1	ea	4" SPIRELY ULTRASONIC WATER METER, 316 STAINLESS STEEL BODY WITH ENCODER MODULE. 14" LL #US040RGDRG3L	5,506.17	5,506.17T

		SUBTOTAL	$203,970.39
E-mail	Web Site	SALES TAX (6.3%)	$12,850.13
info@aquaflowaz.com	www.aquaflowaz.com	**TOTAL**	**$216,820.52**

Proposal Document C – Non-Collusion Certificate

ADVANCED METERING INFRASTRUCTURE SYSTEM

Respondent: Aquaflow Solutions Inc

The undersigned respondent hereby certifies as follows:

To the best of his/her knowledge, the person, vendor, association, partnership, or corporation herein has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive pricing in the preparation and submission of a proposal to the Town of Jerome for consideration in the award of this solicitation.

Dated this 01 day of December 2025.

Mike Ellis
Signature

602-733-7777
Phone Number

Mike Ellis
Written Name

info@aquaflowaz.com
Email Address

Proposal Document D – Certificate of Ownership

ADVANCED METERING INFRASTRUCTURE SYSTEM

Respondent: Aquaflow Solutions Inc

The undersigned respondent hereby certifies as follows:

To the best of his/her knowledge, the person, vendor, association, partnership, or corporation herein, are the only person, vendors, corporations, partnerships, or other associations having any direct or indirect financial interest in the respondent's business as legal or equitable owner, creditor (except current bills for operating expenses), or holder of any security or other evidence of indebtedness.

Dated this 01 day of December 2025.

Mike Ellis
Signature

602-733-7777
Phone Number

Mike Ellis
Written Name

info@aquaflowaz.com
Email Address

Proposal Document E – Respondent Qualifications, Representations, and Warranties

ADVANCED METERING INFRASTRUCTURE SYSTEM

Respondent: Aquaflow Solutions Inc

The undersigned respondent hereby certifies as follows:

X1 Taxes and Leins – Respondent has no unsatisfied tax or judgment lien on record.

X2 Respondent's Examination – Respondent has made its own examination, investigation, and research regarding the requirements of the solicitation, including but not limited to the work to be done, services to be performed, any conditions affecting the work and services, the type and quantity of labor, equipment, and facilities necessary to perform. Respondent fully understands the character of the work and services, the manner in which payment is to be made, and the terms and conditions of the solicitation. Respondent acknowledges and agrees that it has satisfied itself by its own examination, investigation, and research, and that it will make no claim against the Town because of erroneous estimates, statements, or interpretations made by the Town. Respondent hereby proposes to furnish all materials, equipment, and facilities and to perform all labor which may be required to do the work within the time required and upon the terms and conditions provided in the solicitation, and at the prices as proposed.

Dated this 01 day of December 2025.

Mike Ellis
Signature

602-733-7777
Phone Number

Mike Ellis
Written Name

info@aquaflowaz.com
Email Address

Alternate Bids for Your Consideration

FEE PROPOSAL Town of Jerome Advanced Metering Infrastructure System					
Alternate #1 Duo Cellular End Point Quote #11014		Est. Qty.	Units	Unit Price	Total Price
CIVIL BASE PROPOSAL					
1	¾ x 5/8" AMI Meter	299	299	$448.57	$134,122.30
2	1" threaded AMI Meter	17	17	$669.80	$11,386.63
3	1 ½" flanged AMI Meter	13	13	$1,346.05	$17,498.60
4	2" AMI Meter	2	2	$1,716.26	$3,432.51
5	4" AMI Meter	1	1	$5,506.17	$5,506.17
6	AMI System Software	1	1	$7,018.30	$7,018.30
7	AMI System Training	1	1	Included in Software	Included in Software
8	AMI Data Collection Hardware/Software	0	0	$0.00	$0.00
9	FCC Registration/ Subscription Fee Per Mtr	1	322	$6.52	$2,164.91
SUBTOTAL COSTS – BASE PROPOSAL				$ 16,711.67	$181,129.42
GRAND TOTAL, BASE PROPOSAL				$192,540.57	

GRAND TOTAL – BASE PROPOSAL (in words):one hundred ninety two thousand five hundred forty and fifty seven cents.

NOTE: All Quantities Shown are approximate and are furnished solely for the contractor's convenience. The quantities provided will be the lump sum that payment will be made on. The individual items are for use by the Town to analyze proposals, use as a basis for any supplemental agreements, and for partial progress payments.

Aquaflow Solutions Inc

11009 N.51st Drive
Glendale AZ 85304
602-733-7777

QUOTE

DATE	QUOTE #
12/1/2025	11014

COMPANY	SHIP TO
TOWN OF JEROME ATTN: TOWN CLERK PO BOX 335 600 CLARK ST. JEROME, AZ 86331	TOWN OF JEROME ATTN: TOWN CLERK PO BOX 335 600 CLARK ST. JEROME, AZ 86331

CUST P.O. #	PROJECT DESCRIPTION	REQUESTED BY	QUOTE EXPIRES	TERMS	REP
	DUO CELLULAR ENDPOINT		12/1/2025		LP

QTY	U/M	DESCRIPTION	UNIT PRICE	TOTAL
1	ea	SOFTWARE & BILLING INTEGRATION PACKAGE (PKGSBI) NO COMPUTER W/ 1 DAY ON SITE TRAINING.TESLA DRIVE ROUTE SOFTWARE (LAPTOP NOT PROVIDED), TESLA MDM SOFTWARE APPLICATION (MDM), RG3 SIDE BILLING INTEGRATION (MDMBI), AND REMOTE TRAINING. SOFTWARE LICENSE PAID WITH REQUIRED ANNUAL SUBSCRIPTION FEE	7,018.30	7,018.30T
332	ea	AMI ANNUAL SUBSCRIPTION FEE PER METER (AMIT2) 251-1000	6.52081	2,164.91T
299	ea	5/8" X 3/4" PD METER - RADIO NOT INTEGRATED (NO CHECK VALVE, OPTICAL, GALLONS, DUO 1 COM WIRE) #PD07RGBODRG3	448.56957	134,122.30T
17	ea	1" PD METER - RADIO NOT INTEGRATED (NO CHECK VALVE, OPTICAL, GALLONS, DUO 1 COM WIRE) #PD10RGBODRG3	669.80176	11,386.63T
13	ea	1.5" PD METER - RADIO NOT INTEGRATED (GALLONS, DUO 1 COM WIRE) #PD15RGBHDRG3	1,346.04615	17,498.60T
2	ea	2" PD METER - RADIO NOT INTEGRATED (GALLONS, DUO 1 COM WIRE) #PD20RGBHDRG3	1,716.255	3,432.51T
1	ea	4" SPIRELY ULTRASONIC WATER METER, 316 STAINLESS STEEL BODY WITH ENCODER MODULE. 14" LL #US040RGDRG3L	5,506.17	5,506.17T

		SUBTOTAL	$181,129.42
E-mail	Web Site	SALES TAX (6.3%)	$11,411.15
info@aquaflowaz.com	www.aquaflowaz.com	**TOTAL**	**$192,540.57**

FEE PROPOSAL Town of Jerome Advanced Metering Infrastructure System					
Alternate #2 Tesla 4 MDB Quote #11013		Est. Qty.	Units	Unit Price	Total Price
CIVIL BASE PROPOSAL					
1	¾ x 5/8" AMI Meter	299	299	$302.56	$90,465.26
2	1" threaded AMI Meter	17	17	$509.12	$8,655.07
3	1 ½" flanged AMI Meter	13	13	$983.39	$12,784.11
4	2" AMI Meter	2	2	$1,325.64	$2,651.28
5	4" AMI Meter	1	1	$5,506.17	$5,506.17
6	AMI System Software	1	1	$16,338.35	$16,338.35
7	AMI System Training	1	1	Included in Software	Included in Software
8	AMI Data Collection Hardware/Software	0	0	$0.00	$0.00
9	FCC Registration/ Subscription Fee Per Mtr	1	1	$1,000.00	$1,000.00
SUBTOTAL COSTS – BASE PROPOSAL				$ 25,965.23	$137,400.24
GRAND TOTAL, BASE PROPOSAL				$146,056.46	

GRAND TOTAL – BASE PROPOSAL (in words):one hundred forty six thousand fifty six and forty six cents.

NOTE: All Quantities Shown are approximate and are furnished solely for the contractor's convenience. The quantities provided will be the lump sum that payment will be made on. The individual items are for use by the Town to analyze proposals, use as a basis for any supplemental agreements, and for partial progress payments.

Aquaflow Solutions Inc

11009 N.51st Drive
Glendale AZ 85304
602-733-7777

QUOTE

DATE	QUOTE #
12/1/2025	11013

COMPANY
TOWN OF JEROME ATTN: TOWN CLERK PO BOX 335 600 CLARK ST. JEROME, AZ 86331

SHIP TO
TOWN OF JEROME ATTN: TOWN CLERK PO BOX 335 600 CLARK ST. JEROME, AZ 86331

CUST P.O. #	PROJECT DESCRIPTION	REQUESTED BY	QUOTE EXPIRES	TERMS	REP
	TESLA 4 MDB		12/1/2025		LP

QTY	U/M	DESCRIPTION	UNIT PRICE	TOTAL
1	ea	RUGGED LAPTOP WITH TESLA DRIVE ROUTE SOFTWARE LOADED(COMTLAPTOP), TESLA MDM SOFTWARE SETUP (MDM), 900 TRANSCEIVER (TRANS900), 900 TRUCK MOUNT ANTENNA (TRKANT900), TAMPER MINI RATCHET WITH BIT DRIVER (TPBIT), RG3 BILLING INTEGRATION (MDMBI), REMOTE TRAINING. SOFTWARE LICENSE PAID WITH REQUIRED ANNUAL SUBSCRIPTION FEE	16,338.35	16,338.35T
1	ea	AMR ANNUAL SUBSCRIPTION FEE PER METER (AMRT1MINIMUM; 1-555) INCLUDES SOFTWARE LICENSES, SOFTWARE UPDATES, DATA STORAGE, AND UNLIMITED TECHNICAL SUPPORT. MINIMUM APPLIES TO LESS THAN 555 METERS (AMRT1). CHARGED DIRECTLY TO END USER AT FIXED PRICE.	1,000.00	1,000.00T
299	ea	5/8" X 3/4" PD METER - GALLONS - NO CHECK VALVE - TESLA 4 INTEGRATED REGISTER #PD07TGBT	302.5594	90,465.26T
17	ea	1" PD METER - GALLONS - NO CHECK VALVE - TESLA 4 INTEGRATED REGISTER #PD10TGBT	509.12176	8,655.07T
13	ea	1.5" PD METER - GALLONS - NO CHECK VALVE - TESLA 4 INTEGRATED REGISTER #PD15TGBT	983.39308	12,784.11T
2	ea	2" PD METER - GALLONS - TESLA 4 INTEGRATED REGISTER #PD20TGBT	1,325.64	2,651.28T
1	ea	4" SPIRELY ULTRASONIC WATER METER, 316 STAINLESS STEEL BODY WITH ENCODER MODULE. 14" LL #US040RGDRG3L	5,506.17	5,506.17T

SUBTOTAL	$137,400.24
SALES TAX (6.3%)	$8,656.22
TOTAL	**$146,056.46**

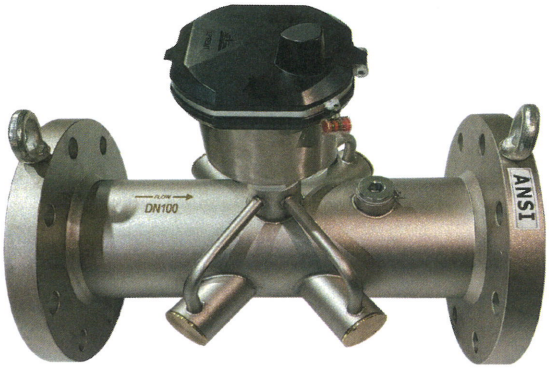
E-mail	Web Site
info@aquaflowaz.com	www.aquaflowaz.com

MEASURE TODAY. ENSURE TOMORROW

SpiRely™ Series

AWWA ULTRASONIC WATER METER

Spire Metering offers the latest in Commercial/Industrial ultrasonic metering technology for reliable flow measurement. The rugged SpiRely water meter will provide sustained flow accuracy for the life of the meter while providing connectivity to smart AMR/AMI solutions.

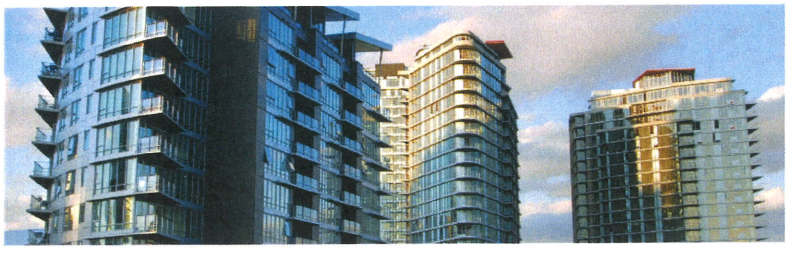


Applications

- Any Application that requires high accuracy across all flow rates for revenue billing
- Municipal water and water distribution network
- Waste water, irrigation water, reclaim water and storm water
- Commercial buildings:
  Malls, campus, hospitals, industrial parks, airports, facilities
- Industrial water:
  Steel, heavy manufacturing plants, power plants, food & beverage
- Leak and tamper detection, DMA (District Metered Area) leakage detection system
- AMR/AMI projects which require flow accuracy with low life cycle costs

Features & Benefits

- No moving parts; dependable ultrasonic performance without maintenance; lifetime accuracy without degrading
- Fully encapsulated in a heavy-duty enclosure with IP68 / NEMA 6P submerssible rating
- Straight through flow cell design without diameter reduction, neither strainer. Ignorable pressure loss, saves significant pumping cost
- NSF61-G proved. Meets or exceeds AWWA C715
- Detect active leak, backflow, tampering, flow rate, and pipe burst
- 10 years battery lifetime with battery life indication.
- Does not measure entrained air in pipe and is unaffected by magnetic interference
- AMR / AMI ready
- Pulse, Sensus UI 1203, Modbus and 4-20mA
- Data Logger with 700 daily totals and 24 monthly totals



SPIRE METERING TECHNOLOGY

Spire Metering Technology LLC, 34 Saint Martin Drive, Suite 13, Marlborough, MA 01752, USA
For Sales Contact : RG3 Meter Company | 903.753.3456 sales@rg3meter.com www.RG3Meter.com

SpiRely™ Series
AWWA ULTRASONIC WATER METER



SpiRely™ series Ultrasonic Water Meter is specially designed for municipal, commercial and industrial water metering applications where the demand is challenging and traditional mechanical water meters fail.

The SpiRely™ series is carefully engineered to offer robust performance in harsh environments. The flow sensor utilizes a crystal to generate an ultrasonic signal. There are no moving parts to wear out over time, as in traditional mechanical meters. The electronics, transducers and cables are all encapsulated in a heavy-duty metal enclosure which is NEMA 6P/IP68 submerssible rated. It is suitable for both outdoor and indoor applications and anywhere the meter may be submersible.

The SpiRely™ series offers the most advanced water flow measurement by using state-of-the-art multi-path ultrasonic technology. It employs 4 pairs of ultrasonic transducers to interrogate the flow from different positions, so that flow profile distortion has minimal impact on the measurement results. This is a significant improvement compared to single-path ultrasonic flow meters, because it is very common in real applications that there is not enough straight-pipe run after an elbow, a valve or a pump, or the sensor installation is not perfectly aligned with existing pipe line. In those scenarios, turbulence (swirl) or other type of secondary flow could cause errors with single-path flow meters.



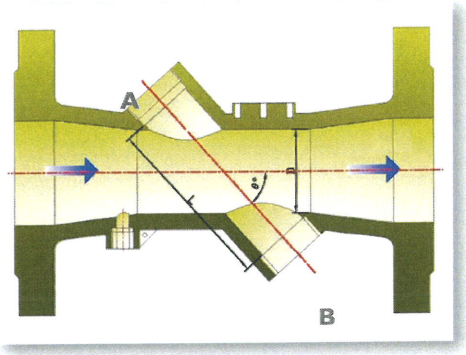
The technical specification of the SpiRely™ series water meter meets the ISO 4064 (or OIML R49) water meter standards for Class D accuracy, and exceeds the AWWA C715 water meter standard. The operational temperature ranges from 32.2°F to 140°F continuous duty. The large display can be set to display the flow total, flow rate, working time, leakage alarm, reverse flow, and more. The meter also has an output interface which can be configured as Sensus UI1203, RS485/Modbus, or pulse.

Spire Metering's SpiRely™ series Ultrasonic Water Meter stands out among the competition due to itsrugged design, multi-path technology,wide dynamic range, and long lasting battery. The SpiRely™series is even able to perform reliably when the water has high particulate or the environment is harsh. Both commercial and industrial installations can profit from the advantages of precision, wear-free water flow measurement, operational security and long service life.

SpiRely™ Series
AWWA ULTRASONIC WATER METER

Operating Principle

The SpiRely™ series ultrasonic water meter consists of a flow-cell, a pair of ultrasonic flow transducers and an integrator. The transducers are firmly mounted on the flow-cell at the optimal position. As illustrated, the transducers face each other with one on the upstream, and the other on the downstream.



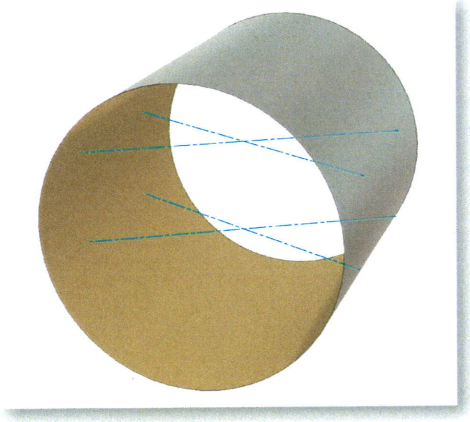
The integrator (or calculator) controls the two ultrasonic transducers to transmit and receive ultrasounds to conduct precise flow measurement. Specifically, it operates the two transducers which transmit a pulse of ultrasonic energy into the water flow toward the opposite transducer. The integrator detects the pulse signal which has traveled within the flow tube, and then is received by the opposite transducer. With advanced digital signal processing technology, the integrator precisely measures the arrival (or transit) time of each pulse signal.

Since the transit-time difference between the two pulses is directly proportional to flow velocity, it can calculate the flow velocity and flow rate. This is accomplished by combining it with the geometry of the flow-cell and fluid dynamics theory.

Only ultrasonic pulses are used to interrogate the flow which enables the meter to have no moving parts. Since the principle is based on the transit-time *difference* instead of transit-time, all the interfering factors, such as temperature, pressure, solids concentration and water quality, are cancelled out. The end result is an ultrasonic metering system which is inherently robust!

Unique Multi-path Technology

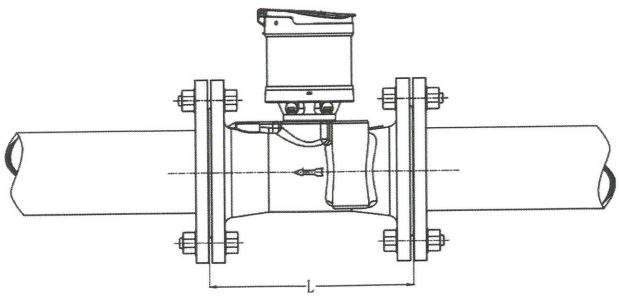
In real application, it is not easy to install the flow sensor perfectly in line with the pipe line. A slight misalignment could cause flow profile distortion inside the flow sensor, and thus cause significant measurement errors. Spire Metering developed a unique multi-path technology to solve this problem. Four pairs of ultrasonic transducers are mounted on the flow sensor body to interrogate the flow from four different paths. A flow calculation algorithm based on fluid dynamics theory is then used to derive an average flow reading with improved accuracy.

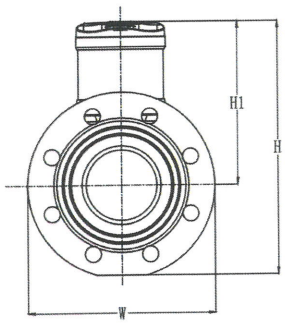


SpiRely™ Series
AWWA ULTRASONIC WATER METER

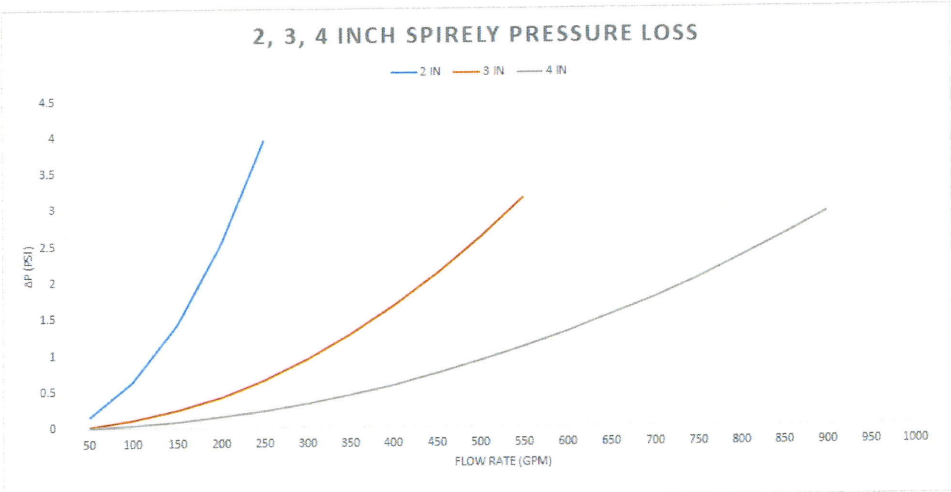
Technical Specifications

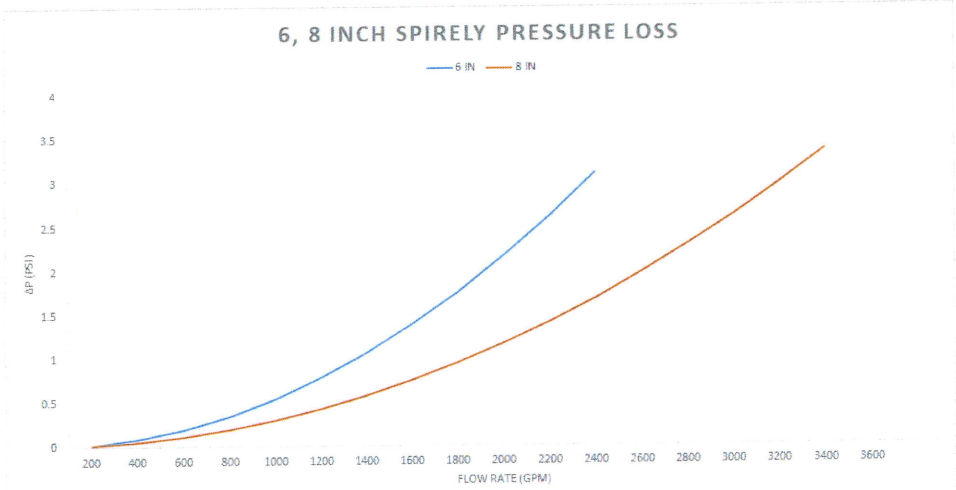
Metrology Performance	Unit	Nominal Size						
		DN50	DN80	DN100	DN150	DN200	DN250	DN300
		2"	3"	4"	6"	8"	10"	12"
Start Flow	GPM	0.1	0.15	0.18	0.3	0.5	0.5	1
Minimum Flow Rate (100%+/-5%)	GPM	0.56	1.4	2.24	5.59	8.8	10	14
Normal Flow Range Lower Limit (100%+/-1.5%)	GPM	1	2.5	3.5	9	18	28	40
Normal Flow Range Upper Limit (100%+/-1.5%)	GPM	270	640	1100	2300	4000	6200	9600
Safe Max Operating Capacity	GPM	270	640	1100	2300	4000	6200	9600
Pressure Loss at SMOC	psi	3.08	3.14	2.99	2.84	3.37	3.07	2.87
Dimensions and Weight								
L	mm	432	305	356	457	508	451	502
	inch	17"	12"	14"	18"	20"	17.75"	19.75"
W	mm	150	190	229	279	343	406	502
	inch	5.91	7.48	9.01	10.98	13.5	15.98	19.75
H1	mm	220	240	250	280	300	325	340
	inch	8.8	9.45	9.84	11.02	11.81	12.8	13.38
H	mm	300	335	365	420	472	528	590
	inch	11.81	13.18	14.37	16.8	18.58	20.78	23.22
Weight	kg	11	16	20	33	48	60	86
	lbs	24.2	35.2	44	72.6	105.6	132	189.2

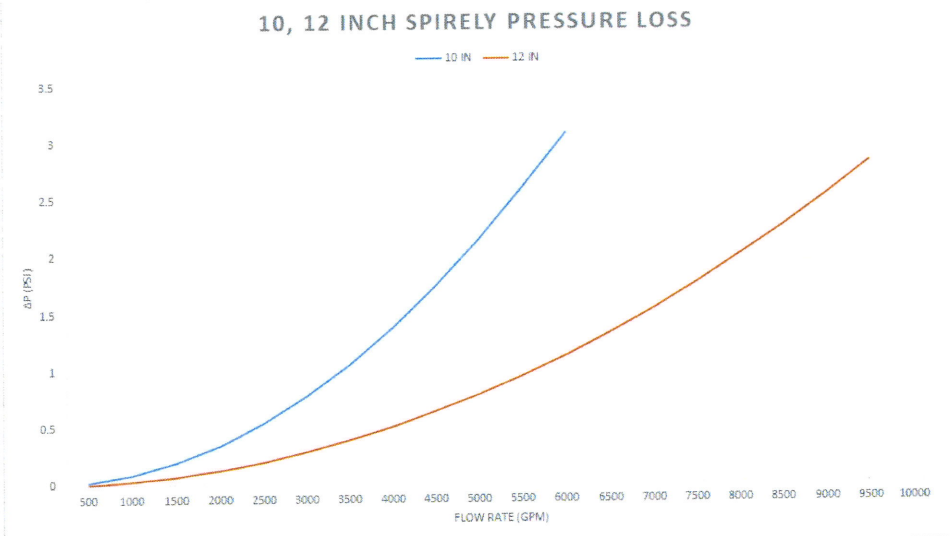




SpiRely™ Series
AWWA ULTRASONIC WATER METER







SpiRely™ Series
AWWA ULTRASONIC WATER METER

Electrical Data	
Power Supply:	Battery, 3.6V, Lithium
Replacement Interval:	10 years
Backup Power Supply:	Internal SuperCap
Communication Interface:	Pulse, RS485 / MODBUS, Sensus UI 1203, 4-20mA
CE approval:	EN61326-1:2006

Metrology Data	Meets AWWA C715 standard as well as ISO4064 / OIML R49 standard
Accuracy Class:	2 (according to ISO4064 / OIML R49)
Metrological Class:	D (according to ISO4064 / OIML R49)
Temperature Rating:	T30
Meets ANSI / AWWA Standards:	C715-18 Type II, C750-19

Mechanical Data	
Environmental Class:	B. Optional A
Electromagnetic Class:	E1
Environmental Temp:	32~131°F
Permission Flow Condition:	Full pipe, water with suspended solids less than 5%. Solid size less than 1/16". Non viscous fluids.
Permissible Flow Temp:	32.2~140°F for permanent installation and up to 185°F for short term (<24hours). Higher temperature rating available upon request. However, factory calibration is done at room temperature only.
Enclosure Protection:	NEMA 6P / IP68
Integrator Detachable:	No
Lid Cover Protection:	Yes
Working Pressure:	232 psi
Body Material:	316 stainless

Pressure Loss

The pressure loss of a flow sensor is proportional to the square on the flow : $\Delta p = k \times Q^2$
Here Δp is pressure loss, Q is volume flow rate and k is the coefficient.
All meters have Δp less than 0.63bar at Q3, meet ISO4064 / OIML R49 standard and AWWA standard.

About Spire Metering Technology

Spire Metering is a global leader in flow and energy management solutions. Through continuous innovation, we transform complex ultrasonic technology into affordable, reliable solutions for accurate flow and energy measurement.

Optical Encoder

Description



The Optical Encoder provides a high resolution encoded output using an industry standard ASCII communication protocol. The direct read mechanical odometer is permanently sealed and magnetically driven. With no battery and frictionless LED optical technology, the Optical Encoder provides a long and accurate service life for all AMR and AMI applications.

Application:
The Optical Encoder is designed for use with RG3 Positive Displacement water meters. The Optical Encoder provides connectivity with RG3 Tesla endpoints, RG3 approved touch modules, and other RG3 approved AMR and AMI technology solutions.

Mounting:
The Optical Encoder in its shroud assembly uses a bayonet mount compatible with RG3 5/8" and 1" Positive Displacement water meters. The bayonet mount allows positioning of the register in any of four orientations for direct reading convenience. The Optical Encoder can be removed from the meter without disrupting water service.

Operation:
The Optical Encoder uses LED light paths to determine the exact position of each number wheel. Readings obtained by an AMR or AMI device are retrieved directly from the position of the encoder's odometer.

Magnetic Drive Communication:
Reliable and dependable register coupling is provided through a direct-drive, high-strength magnetic field, through the meter body to the wetted magnet.

Connections:
The Optical Encoder provides 3 wire communication to AMR and AMI devices. In-line RG3 or Nicor connectors are available for easy connection and installation. Optionally, the encoder can be purchased with flying lead bare wire for field splice connection or fully pre-wired and potted to an AMR or AMI device.

Tamper Resistant Features:
The Optical Encoder is secured to the meter with a tamper resistant Torx screw. It can be installed at the factory or in the field.

Construction:
The hermetically sealed, IP68 rated Optical Encoder assembly is constructed of a strengthened glass lens top and a corrosion-resistant metal bottom. The encoder gearing is self-lubricating thermoplastic to minimize friction and provide long, reliable life. The shroud assembly is constructed of nylon plastic for UV resistance and strength.

Temperature:
The operating range of the Optical Encoder is 14° to 158° F.

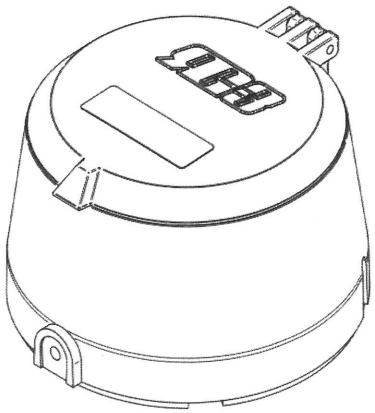
Standards:
The Optical Encoder exceeds all applicable requirements of AWWA Standard C707.

2912 South Access Rd.
Longview, TX 75602
PH: 903-753-3456
Fax: 903-753-5678
RG3METER.COM

Optical Encoder

SPECIFICATIONS:

Encoder Type	Direct read, permanently sealed, magnetic drive, absolute encoder
Unit of Measure	U.S. Gallons or Cubic Feet
Test Circle	360° circle with ten divisions
Number Wheels	8 digits
Weight	10 ounces
Humidity	0 to 100% condensing
Temperature	14° to 158° F
Signal Output	Industry standard ASCII Format
Electronic Resolution	8-dial resolution for AMR and AMI
Signal Type	3-wire for AMR and AMI (red=power, black=ground, green=data)
Power Source	External – No internal battery



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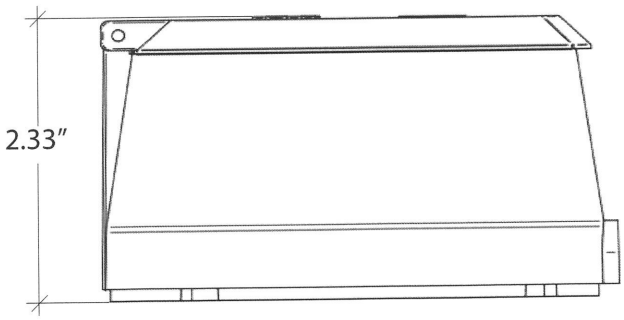

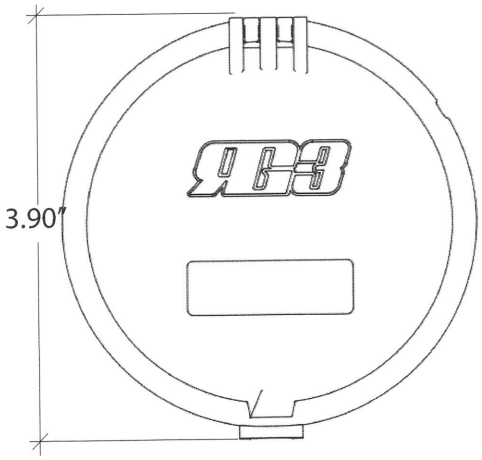

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RG3METER.COM

Positive Displacement
Large Cold Water Meters

1 1/2" (DN 40 mm) - 2" (DN 50 mm)

Data Sheet

Applications - For use in measurement of potable cold water in residential, commercial and industrial services where flow is in one direction only.

General - All Positive Displacement cold water meters (1 1/2" - 2") conform to American Water Works Association (AWWA) C700 Standard Specifications latest revision.

Measuring Chambers - Measuring chambers are made of suitable engineering plastics to meet AWWA C700 standards. The piston has approximately the same specific gravity as water. All of the spindles are stainless steel.

Lead Free Main Case - The main cases are made of Bismuth BiAlloy CDA89836 or EnviroBrass™ II C89520 and are in compliance with NSF / ANSI 61 standards and the Safe Drinking Water Act (NSF 372). The serial number is permanently marked on the body, along with the size, direction of flow and manufacturer (RG3). The bolts are made of stainless steel to prevent corrosion.

Main Case	Lead Free Bronze
Measuring Unit	Thermoplastic
O-Ring	Nitrile Rubber
Magnet	Ceramic Ferrite
Strainer	Thermoplastic
Register Lens	Tempered Glass
Register Housing & Lid	Bronze or Polymer
Gearing Wheels	Thermoplastic

Installation - The meter must be installed in a clean pipeline, free from any foreign materials. The meter should be installed with the direction of flow as indicated by the arrow cast in the meter case. The meter may be installed in horizontal or inclined lines.

Strainers - All meters have a strainer installed in the meter and are made of a polypropylene plastic. The strainers are located near the inlet port in the main case just before the measuring chamber. The strainer screens are rigid, snug fitting and have an effective straining area of at least double that of the main case inlet. All strainers are easily removable and replaceable.

2912 South Access Rd.
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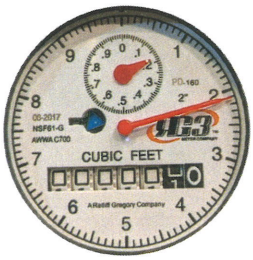
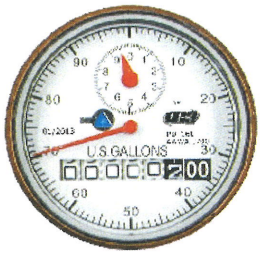
RG3METER.COM

LGPD12241

Direct Read Sealed Registers - Registers are the straight read, magnetic drive, odometer type with a sweep hand and leak detector. Registers are hermetically sealed to prevent fogging. Registers are roll sealed and dry with a 360° test view. All direct reading register cups are made of copper to prevent corrosion and covered with a high-strength, impact-resistant glass lens to prevent breakage. The register housings and lids are made of high strength polymer or copper alloy. All registers are secured to the main case by means of a tamper-proof Torx screw to allow for in-line service replacement.

Registers include:
- Company name
- Month and year of manufacture
- Center sweep hand
- Large, easy to read numbers
- Size of meter
- Unit of measure
(Example U.S. Gallons, Cubic Feet, or m3)
- Low flow / leak indicator





Registers include an odometer, which will give the total amount of water flow. One sweep of the hand will be equal to:

1-1/2 & 2" meters	100 gallons/10 cu ft

Register Options

Direct Read	Bronze or Plastic
AMR	Tesla 4 TR Integrated Transceiver Register
AMI or AMR	Tomahawk Encoder with Tesla Solo or Duo

Magnetic Drive - Meters use high strength magnets to provide positive, reliable and dependable register coupling.

Characteristics- Meets or exceeds latest revision of AWWA C700 Dimensional Standards. Operational Temperature range 33°F.-80°F.

All Bronze Construction	Direct Read & AMR/AMI Register Options	American Made	Excellent Start Up & Low Flow Rate	Built-in Strainer

Tamper-proof Features - Registers contain a locking device to prevent theft of water usage. Removing the register requires a special tool.

Maintenance - The measuring chamber assembly can be removed in order to be repaired or replaced.

Warranty - Standard 5 year new meter accuracy warranty and a 25 year main case warranty.
* Refer to full warranty for detailed warranty guidelines and standards.

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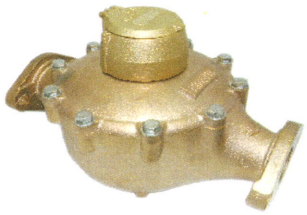
LGPD12241

Positive Displacement
Large Cold Water Meters

1-1/2" (DN 40 mm) - 2" (DN 50 mm)





Specifications

Model		PD 15	PD 20
Size		1-1/2"	2"
Low Flow	USGPM	1 -1/2	2
Normal Flow	USGPM	5-100	8-160
High Flow	USGPM	100	160
Continuous	USGPM	50	80
Max Pressure	PSI	150	150
Extreme High Flow (Intermittent)	USGPM	120	170
Operating Tempature	Deg. F	33°-80°	33°-80°
Length	Inches	13"	17"
Height	Inches	7 - 15/16"	8 - 1/2"
Weight	Pounds	25lb	34.6lb
Ends		Flanged	Flanged

* Due to continuous research and product enhancement, RG3 Meter Company reserves the right the change product or system specifications without notice, except to the extent an outstanding contractual obligation exists.

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RG3METER.COM

LGPD12241

LPN 450 TRX

We've got you covered.

RG3 Licensed Private Network (LPN) data collectors offer a strategic two-way communication option for smart water and smart gas deployments. The LPN 450 TRX mobile data collector operates in the 450-470 MHz frequency band spectrum creating a highly reliable private network with far-reaching range.

The two-way system incorporates rich security features and is end-to-end upgradable remotely with over-the-air updates. The proprietary LPN RF protocol provides time-synced operations to alleviate network RF collision. Data is time-stamped and mapped to show how it travelled through the network.

LPN 450 TRX

LPN 450 TRX The 450 TRX mobile data collector is a solid-state industrial piece of hardware that connects to a computer or tablet with a Windows operating system via USB-C or Bluetooth. It is compact and easily transferred from one place to another. It operates in the 450-470 MHz licensed frequency band and is used for collecting meter data, programing, troubleshooting, and other two-way functions in a Licensed Private Network (LPN).

AMI Hybrid Capabilities The 450 TRX can be used to collect hourly data from your meter system, even if your primary read strategy is drive-by AMR. When not in field use, the 450 TRX can be used as a stand alone AMI base station to stream meter data to Tesla Net MDM. Your utility can use the standard drive-by AMR antenna or erect a separate AMI antenna installed at a greater height for increased reach and coverage.

Extensive Range With the standard AMR drive-by antenna, the 450 TRX can easily read meters a mile away when not blocked by a major obstruction. That kind of reading range lowers cost and time to read meters in a drive-by AMR application. It can also provide a large area of coverage around your office when not being used in the field.

Features and Benefits

- Solid state durability
- Light weight and easily portable
- Plug-and-play operation
- Licensed Private Network with low RF interference
- Two-way communications
- Time-Stamped readings and alarms
- End-to-End security
- Live stream meter readings and alarms

Specifications

Dimensions	6.5" x 3.2" x 3.1"
Weight	1 lbs
Operating Temperature	-4°F to +140°F (-20°C to +60°C)
Storage Temperature	-40°F to +185°F (-40°C to +85°C)
Humidity	0% to 95% non-condensing
Operating Power	12VDC
Data Connection	USB-C or Bluetooth or Ethernet
Frequency Band	450-470 MHz
Approvals	FCC Part 90 and Part 15
AMI Backhaul	Ethernet



LPN BLACK BOX PRODUCT DATA SHEET

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450TRXDS12241

Tesla 4 TR - Transceiver Register

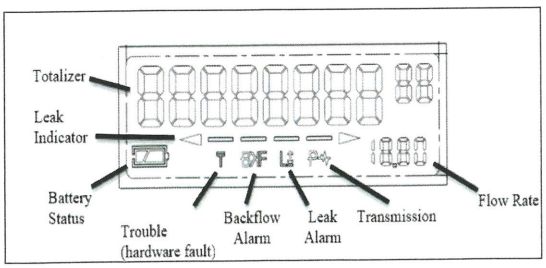
Description

Applications: The Tesla 4 TR Transceiver Register is a solid-state encoder with no mechanical numerical wheels. It is equipped with an integrated 1-Watt transceiver contained entirely inside the hermetically sealed enclosure . Tesla 4 TR is ideal in harsh meter pit environments with its standard external antenna. It is designed for use with all RG3 meters and to retrofit most other manufactures' meters (Badger, Neptune, Sensus, Mueller (Hersey), Master Meter, Zenner, etc.). Tesla 4 TR provides 2-way wireless connectivity with RG3 Tesla Drive AMR reading software which eliminates the need for physical access to the meter after installation.



Operating Characteristics: The digital reading transmitted by Tesla 4 TR integrated 1-Watt transceiver is retrieved directly from the register's internal magnetic sensor coupled to the wetted magnet through the meter body. Tesla 4 TR magnetic sensors are always on and always watching. This technology provides real time reads and eliminates interpretation of odometer wheels by means of LED, optical character recognition, or electromechanical contacts that could wear out. The Tesla 4 TR solution provides superior long-term performance and the most accurate counting solution available.

LCD: Tesla 4 TR is equipped with a large LCD for easy reading. The LCD provides a 10-digit programmable meter read and a 6 segment leak detector indicator with flow direction arrows. Flow rate, water movement, battery status, tamper, back flow, leak warning, and transmission indicator are shown on the LCD as appropriate. At 20% battery life remaining, the battery status indicator begins to flash on and off. Status indicators are sent as part of the AMR extended message. The LCD is always active and requires no tools for visual reading.



Specifications

Encoder Type	Straight reading, permanently sealed, electronic LCD absolute encoder with field programmable integrated 1-Watt RF transceiver for AMR applications.
Encoder Display	10-digit LCD totalizer, 6 segment leak detector, flow direction arrows, rate of flow, battery status, leak alarm, and back-flow alarm
Unit of Measure	U.S. gallons, Imperial gallons, cubic feet, cubic meters, and liters
Flow Rate	Units of Measure per Minute
Numerals	7.44 mm (.293") high and 7.24 mm (.285 wide)
Humidity	0 to 100% condensing
Weight	238 grams or 8.5 oz
Temperature	-40° to 185°F (-40° to 85°C)
Status Indicators	Electronic and visual icons for: Totalizer, flow rate, back-flow, leak, battery indicator (including 20% battery life alarm)
Signal Output	1-Watt RF Transmission
Signal Type	Unlicensed Frequency (902 MHz-928 MHz)
Battery	D cell lithium thionyl chloride battery with capacitor, fully encapsulated within Tesla 4 TR housing
Battery Life	25 Years (calculated)
Warranty	20 Years (Prorated)

Tesla412241

Water Movement Indicator: Six segments illuminate in succession ending in an arrow to demonstrate directionality and to simulate water flow. The water movement indicator activates immediately upon water movement. Cessation of segment movement demonstrates that water movement has stopped within the past 20 seconds. After 20 seconds all segments disappear.

Flow Rate: Flow rate is clearly displayed in the applicable unit of measurement and updated every 10 seconds. If the unit of measure is gallons, for example on a residential meter, displayed flow rates range from 1/10th gpm to 1,999 gpm.

Back flow: The back flow indicator is activated after 4 units of back flow and remains illuminated for 30 days. A back flow flag is sent with the extended RF message, as long as the indicator is activated.

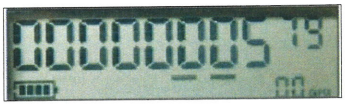
No Flow: No Flow is activated when no usage has occurred in the past 30 days. The No Flow remains until usage occurs. A No-Flow flag is sent with the extended RF message as long as the indicator is activated.

Battery Status: Tesla 4 TR uses a D cell lithium thionyl chloride battery with capacitor to provide a true 25 year battery profile. Tesla 4 TR adjusts the battery status indicator based on actual usage to provide the most accurate and up to date information to the utility. When the battery reaches 20%, the battery status icon on the LCD begins to flash on and off. Battery status is sent with the extended RF message each time Tesla 4 TR is read.

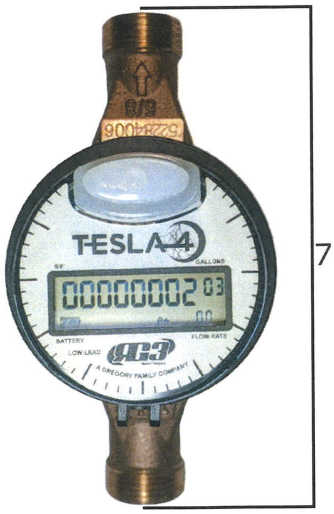
Trouble: Tesla 4 TR monitors it's own systems internally. When an unexpected event occurs, Tesla 4 TR resets the problematic section. If the unexpected event was software related, the reset will clear the issue and normal operation will continue. If the problem is located in hardware, a reset will not rectify the difficulty. If the Tesla 4 TR experiences 3 resets over the life of the product, a "T" is raised on the LCD to indicate the alarm visually. The Trouble status is sent with the extended RF message if activated each time Tesla 4 TR is read.

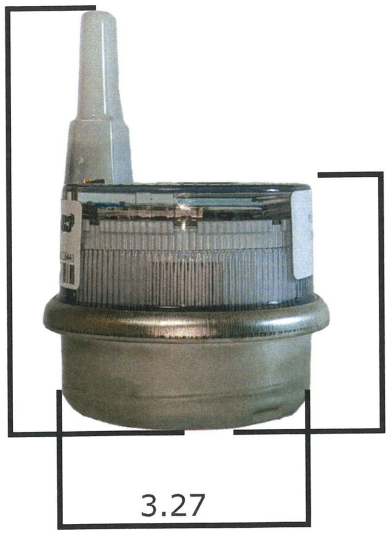
Leak Detection: Leak monitoring is constant. As a standard, the leak flag is triggered after 48 hours of continuous water movement. The leak flag will turn off if no water movement occurs for a period of 1 hour to ensure that the utility is not wasting resources addressing a leak that was in reality high usage.

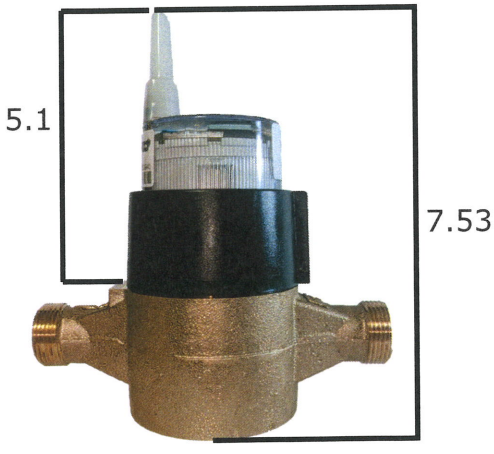
Dimensions



Actual Size LCD





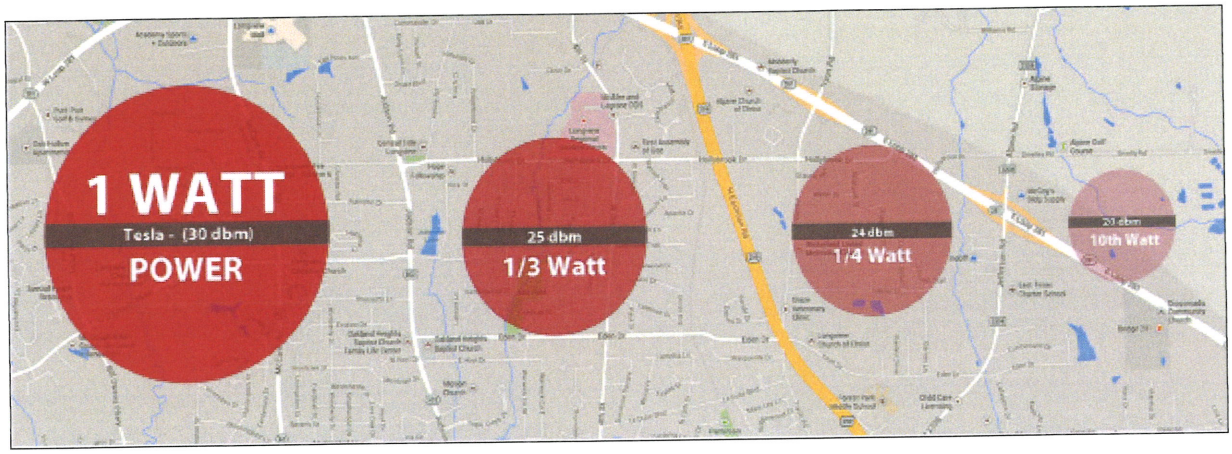


Tesla412241

Leak Counter: The leak counter indicates the number of days a leak has been occurring. The information is transmitted every time Tesla 4 TR is read. This enables the utility to provide warning to the customer and then respond accordingly if the customer has not resolved the issue. The leak counter resets after 10 days of non-continuous use.

Time Sync for Water Loss Identification: Every time Tesla 4 TR reads, it syncs time with the reading device. Tesla 4 TR time sync is a 2-Way transmission function and can only be accomplished with true 2-way communication. This feature is important because water loss identification through metering requires the comparison of water volumes recorded by customer and mainline meters over a specific period of time to the water volumes discharged from the treatment facilities or the volume passing through system zone meters over this same period of time. Distribution leak detection requires time synchronization to avoid "clock drift", a phenomena where two clocks do not run at the exact speed and after a period of time, "drift apart". By syncing time with the reading device, Tesla 4 TR avoids clock drift completely and delivers the most accurate leak detection possible.

Transmission: Tesla 4 TR technology starts where the rest of the industry's most advanced solutions top out. All functions are accomplished through streamlined 2-way communication utilizing the FCC approved unlicensed 902-928 MHz band. To ensure transmission success, Tesla 4 TR employs Cyclic Redundancy Checks (CRC), Spread Spectrum Frequency Hopping Modulation, and Channel Coding.



***Rule of Thumb: 6dbm gain = twice the distance of Transmission**

Transmission Power: Tesla 4 TR transmits at a full 1-watt. Unlike 1-way bubble up technologies that throw hundreds of thousands of wasted transmissions and large amounts of unnecessary energy into the atmosphere each month, Tesla 4 TR's extremely efficient 1 watt power is environmentally friendly. Although Tesla 4 TR has 10 times the transmission power of other leading AMR technologies, the total monthly output of electromagnetic radiation is at least 10,000 times less than comparable technologies, or roughly 5% of the amount emitted by the average cell phone each month in the US.

Drive-By (AMR) Read: Tesla 4 TR transmits its associated meter number, current read, number of digits transmitted, unit of measurement, battery status, leak counter, and back flow, tamper, and leak flags as applicable. Individual meters can be read alone or all meters can be read at once.

Transmission Indicator: The transmission indicator illuminates when Tesla 4 TR conducts RF activity, allowing the operator to visually confirm transmission has been sent.

Resolution for 5/8" to 4" Meter Applications: "Absolute" 10-digit meter reading on the LCD with precise visual readings down to the hundredths of a gallon or thousandths of a cubic foot/meter. Electronic output includes 8-digit remote meter reading. 1 to 8 digits can be communicated for billing.

Resolution for 6" through 12" Meter Applications: "Absolute" 9-digit meter reading on LCD with precise visual readings down to the whole unit. Electronic output includes 8-digit remote meter reading. 1 to 8 digits can be communicated for billing.

Factory Programming: When combined with an RG3 meter, Tesla 4 TR is factory programmed with a reading of 1 gallon and associated to its companion meter's serial number, type, and size. Factory programmed Tesla 4 TR register/meter combinations are ready for installation upon delivery just like a direct read meter with no additional operations needed.

Construction: Tesla 4 TR shroud assembly is constructed from engineered polycarbonate with a hermetically sealed stainless steel bottom. The enclosure is UV-resistant, weatherproof, and fully encapsulated to withstand harsh environments and to protect the solid state electronics. External antenna screw terminal pins are molded into the engineered polycarbonate lens and back sealed with a potting compound eliminating any opportunity for moisture intrusion at the connections making Tesla 4 TR suitable for installation in all environments, including continuously submerged water meter pits. Electronic circuitry is gold plated to provide increased corrosion resistance before it is encapsulated by high quality endothermic potting material that diminishes the expansion and contraction related to temperature extremes. Electronics are designed to provide immunity to electrical surges. Tesla 4 TR uses magnetically driven thermoplastic floating gears to minimize friction and provide long, reliable life. Tesla 4 TR counting mechanisms are permanently active magnetic sensors. The power source is an internal lithium battery with capacitor that is independently encapsulated in potting for redundant protection against moisture.

Precision Counting: Tesla 4 TR uses magnetic sensors that detect changes and disturbances in the magnetic field of the wetted meter magnet like flux, strength, and direction. This precision technology allows Tesla 4 TR to accurately count with resolutions that far exceed the flow capabilities of any water, while remaining sensitive enough to count down to the thousandths of a gallon.

Antenna: Tesla 4 TR is equipped with an integrated antenna that is external to the register for superior propagation and to ensure strong and reliable transmissions in flooded pit environments.

Watchdog: All mechanical and electronic devices are subject to the effects of their environment. Tesla 4 TR is equipped with an internal watchdog that reboots the electronics if faced with an external interference such as a close proximity lightning strike or other uncontrollable event.

Electrical: Tesla 4 TR electronic circuitry is gold plated and designed to provide immunity to electrical surges and transients per IEC801-2, IEC801-4 Severity Level 4.

Data Log / Consumption: Tesla 4 TR retains 120 days of hourly data. Consumption data can be wirelessly extracted at the meter site with no need to access the meter physically.

Tesla 4 TR can Retro-Fit to the Following Manufactures Meters :

Badger Meter, Inc. · Sensus The Measure of the Future · Hersey Meters · Neptune Technology Group · Master Meter · Zenner

RG3 Meter Company

Tesla412241

TESLA DUO AMI ENDPOINTS FOR WATER

We've got you covered.

Tesla Duo (Duo) multi-network AMI water endpoints give you several options to read your meters from the office, as well as, a drive-by AMR backup option. Each Duo is both a cellular endpoint and a point-to-multi-point RF fixed-network endpoint, combining the two leading AMI technology options into one. Using the multi carrier eSIM over the LTE-M network, each Duo evaluates the signal strength at the installation location of multiple public cellular network carriers and chooses the strongest. The built in 450-470 MHz RF transceiver gives the Duo the ability to overcome poor cellular coverage areas and any dead spots in the service area. It also provides you with a built in network guarantee so you will have peace of mind knowing that you will always have a network available. Utilizing both public cellular networks and a utility owned Licensed Private Network provides the greatest coverage possible and unmatched redundancy. Combining the two most effective AMI read methods into one Tesla Duo multi-network endpoint produces the most versatile technology available and makes it very easy for you to read your meters from the office.



Instant AMI

As soon as a Tesla Duo endpoint is installed, you can read it from your office. When an endpoint is activated, it immediately communicates with cell networks and the Licensed Private Network (LPN) if fixed data collectors are installed. If a Duo is outside of the 450 MHz LPN coverage area, or no fixed network data collectors are installed, it will operate as a cellular endpoint. If LPN coverage becomes available in the future, the Duo will automatically switch to the 450 MHz LPN network and then back to the cellular networks if LPN coverage is ever unavailable. The automatic network switch feature makes installing or expanding your system extremely easy and hassle-free.

Future Proof Redundant Coverage

The Tesla Duo provides superior network coverage simply because it uses multiple networks. Typical cell endpoint challenges such as cellular tower coverage drops, tower equipment changes, and localized cell dead spots are easily overcome with built-in alternative cellular carrier options and the utility owned 450 MHz LPN. Factors that can adversely affect traditional fixed networks like new construction and vegetation growth can be damaging to a utility owned network over time. Duo AMI endpoints overcome these obstacles by switching networks automatically. The ability to move between networks as needed affords the Tesla Duo multi-network endpoint more opportunity to deliver meter data than any other technology. Auto compensating for changes in your meter system creates a highly resilient future proof technology with multiple paths of redundancy.

Cellular Endpoint

When public cellular network coverage is available, Tesla Duo endpoints are self-contained. Simply install and you will be reading from the office. If cell dead spots exist in your system, Tesla Duos can use the utility owned 450 MHz Licensed Private Network to communicate.

Point-to-Multi-point RF Fixed Network Endpoint

When cellular coverage isn't optimal everywhere in your meter system, 450 MHz LPN fixed data collectors can be installed to overcome cell network problem spots. Fixed Network Collectors can cover large areas where utility towers already exist but can also cover small areas economically using Duo Collectors (see rg3meter.com for information on Duo Collectors).

Guarantee of Network Performance

Tesla Duo eSIM cards are able to automatically switch between multiple cellular cariers. If the cellular communication networks that support any Tesla Duo endpoint discontinue operation, the already built in 450 MHz transceiver can immediately be used for both drive-by AMR and fixed network AMI reading strategies. The 450 MHz Licensed Private Network is owned by the utility, providing built-in security and peace of mind. If the primary method of data delivery has been over the LPN and something catastrophic happens to a fixed data collector, the Tesla Duo will automatically begin sending meter data over the strongest cellular network available.

Installation

The Tesla Duo housing design allows for pit or wall installation with no change in products. In meter pit installations, the low-profile lid mount rugged design brings the endpoint above the mud, water, and depths of the meter pit environment giving them the best opportunity for solid antenna propagation which translates directly into exceptional range. To ensure a long-life cycle, Tesla Duo endpoints are solid state devices built to be completely submerged for their entire service life without danger of water intrusion. Firmware can be updated at any time after installation over the air (OTA) for future feature additions and bug fixes. Tesla Duo multi-network endpoints are plug-and-play with no programming required making them easy and fast to install.

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Encoder Compatibility

While RG3 offers a battery free analog encoder and a universal encoder that can retrofit any meter with a removable register, Tesla Duo endpoints work with any wired make or model encoder register of any manufacture that uses the industry standard UI-1203 communication protocol. They also have the capability to detect most major manufacturer encoder register brands and utilize extended protocols if offered. They are perfect for upgrading older systems from walk-by or drive-by to read from the office AMI.

Tesla Duo endpoints can be read from the office (AMI) and or by drive-by (AMR), with no programming required to switch between the two read strategies. When using the 450-470 FCC Licensed Private Network, Tesla Duo endpoints utilize a secure and protected proprietary time-synchronized, RF protocol.

Features and Benefits

- TeslaDuo eSIM cards are purchased with 10 years of pre-paid data for cost control. (Verizon is not pre-paid)
- Secure, encrypted, true 2-way communication provides greater functionality.
- Near real-time alerts and alarms improve customer service.
- TeslaDuo automatically switches to the public cellular network with the strongest signal if LPN coverage is not successful, creating unparalleled network coverage redundancy.

Multi-Network Migratable

- Tesla Duo automatically migrates between the 450-470 MHz Licensed Private Network and multiple public cellular networks creating multi-network redundant coverage, giving you the best opportunity possible to read your meters from anywhere.
- Simultaneous redundant read strategies for enhanced system reliability.
- 120 days of hourly reads stored in the endpoint for data redundancy.

Long-Life Rugged Design

- IP68 Environmental Rating for the highest protection against the meter pit environment.
- Ultra rugged, fully potted, solid-state design.

- Mount in lid antenna for increased range and network stability.
- Remote Over the Air (OTA) updates increase endpoint and system longevity.
- 20-year warranty (10-year full /10-year prorated).

Plug-and-Play Installation

- Tesla Duo installation is quick, easy, and requires no programming.
- Endpoints are pre-configured at the factory for immediate deployment.
- No expertise needed. Install, record data, and move on.
- Automatic successful network communication verification after installation
- Endpoint serial numbers are barcoded to reduce human data errors.

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DUODS12241

TESLA DUO

RG3 METER COMPANY

Description

Tesla Duo (Duo) water AMI endpoints are equipped with a cellular modem and multi carrier eSIM along with a 450 MHz RF transceiver for independent dual network communication with a drive-by AMR backup. Each endpoint can use multiple existing public cellular networks, or a point-to-multi-point Licensed Private Network (LPN) in the 450 – 470 MHz band to deliver meter data to the utility securely and with great flexibility. When used primarily as a cellular endpoint, the Duo can compensate for poor cellular areas and cell dead spots by supplementing those areas with the 450 MHz LPN. While the cellular and LPN networks can be used independently, the redundancy of multi-network coverage creates an extremely effective future evolving multi-network option not achievable with a single network. Each Tesla Duo can be read by drive-by AMR as a backup.



Functionality

Operation: Tesla Duo water endpoints communicate with the encoder to capture interval read data and meter status information. The endpoints then send read and endpoint status information over the Licensed Private Network or public cellular networks. Two-way communication provides for time synchronization, on demand reads, over the air firmware updates, and remote shut off valve control. Multi-network coverage gives the utility the flexibility to install Fixed Network Collectors in places that make sense, while utilizing existing public cellular networks in other parts of the system, or switch from one network to another after installation for future network optimization. This speeds installations while presenting multiple options to overcome future system environmental changes such as vegetation growth, building construction, or expansion as a system evolves.

Activation: Tesla Duo water endpoints are shipped in an inactive, non-transmitting state. After installation, the endpoints begin communicating data once the encoder indicates water has been used. Alternatively, a magnet can be used to manually activate the endpoints and verify the encoder connection.

Data Storage: Tesla Duo endpoints store 120 days of hourly data for local retrieval via data log.

Output Message: Tesla Duo water endpoints communicate a unique serial number, meter reading data, and applicable status indicators such as flags and alarms.

Application

Read Strategies: Tesla Duo water endpoints can send AMI meter related information through multiple public cellular networks, a utility owned private point-to-multi-point fixed network, AMR drive-by or switch between the read strategies with no programing required. A Multi-Network approach can also be chosen to utilize all network options simultaneously for redundancy and optimization. When more than one network is available, the Tesla Duo automatically switches between them so that the information collected has the best chance of reaching the utility.

Configurations: Tesla Duo water endpoints can be installed in indoor, outdoor and pit lid applications. As with all radio frequency (RF) endpoints of any manufacturer, mounting through or under a metallic pit lid has a negative impact on signal propagation. A polymer pit lid is highly suggested for optimal performance. The electronics and battery assembly are fully encapsulated in epoxy for environmental integrity. The endpoint is available with a connector assembly for ease of installation.

RG3 METER COMPANY
2912 South Access Rd.
Longview, TX 75602
PH: 903-753-3456
Fax: 903-753-5678
RG3METER.COM

TeslaDuo-Duo12242

Specifications

Approvals	Part 90, part 15, part 22, part 24, and part 27 of the FCC rules
Battery	Non-replaceable D-Cell lithium thionyl chloride with HLC capacitor for extended life
Battery life	20 years[1]
Connection to register	Bare wire (splice), RG3, Nicor or other industry-standard connectors
Data resolution	4–8 digits[2]
Encoder disconnect	An alarm is sent if communication with the encoder is interrupted as in the case of theft or vandalism
Endpoint to endpoint synchronization	< 1 min
Firmware updates	Over the air (OTA) firmware updates can be performed remotely via cellular network, the 450 MHz LPN or on-site through Tesla Drive software
Inputs	Single or dual port
Installation Locations	Interior or exterior wall mount, pit/vault, through-the-lid[3]
Meter encoder compatibility	All RG3 meter and encoders as well as most major manufacturers of water meters[4]
Meter flags and alarms	Back flow, Tamper, Leak, Major Leak, Diagnostic and Battery Status flags as well as supporting extended flags and alarms from multiple meter manufacturers[4]
Meter interface	Pulse or Encoder
Network compatibility	Tesla Net
Network topology	450 – 470 MHz Licensed Private Network (point-to-multi-point) and AT&T, Verizon, T-Mobile and other public cellular LTE-M networks
Network type	Two-way[5]
On-board storage	120 days of hourly read data
Operating humidity	0%-100% non-condensing
Operating temperature	-40° to 185°F (-40° to 85°C)
Physical characteristics	Height 6.5″ Width of Threads 1.8″ Width of Cap at Threads 1.98″ (2-1/8″ pit lid hole required) Dimensions of Base 3.2″w x 3.1″ d Weight: 1 lb Color: black
Remote shut-off	Open, close, partially closed – controlled from Tesla MDM or Tesla Drive software[6]
Security	AES 256 encryption and authentication
AMI read transmission resolution	Hourly
AMI read transmission interval	Cellular: Up to 4 times per day / 450 MHz LPN: 15 minutes
AMI Major Leak alarm transmission	Immediate
Warranty	20 years[1, 7]

[1] Battery life warranty invalid if product is stored more than 1 year before installation and activation
[2] Reports all digits that are electronically available from register
[3] Pit/vault installation under non-metallic lid
[4] Contact factory for specific meters and flags/alarms supported
[5] Two-way communication for time synchronization, remote configuration, on-demand reads, historical data log retrieval, valve control, and firmware over the air (OTA) updates
[6] Contact factory for specific valves supported
[7] Refer to RG3 standard warranty for details

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2912 South Access Rd.
Longview, TX 75602
PH: 903-753-3456
Fax: 903-753-5678
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TeslaDuo-Duo12242

LPN DUO COLLECTOR



We've got you covered.

RG3 Licensed Private Network (LPN) data collectors offer a strategic two-way communication option for smart water and smart gas deployments. The Tesla Net LPN operates in the 450-470 MHz frequency band spectrum creating a highly reliable private network with extensive coverage and far-reaching range.

The two-way system incorporates rich security features and is end-to-end upgradable remotely with over-the-air updates. The proprietary LPN RF protocol provides time-synced operations to alleviate network RF collision. Data is time-stamped and mapped to show how it travelled through the network. The result is extremely reliable network coverage.



LPN Duo Collector

Big Impact – Small Package LPN Duo Collectors (DCs) send and receive information to Tesla AMI endpoints over a Licensed Private Network and then send collected data over one of multiple public cellular networks (Verizon, AT&T, T-Mobile, etc.), depending on which has the strongest signal at the time. DCs are ideal for communicating with up to 1,000 endpoints within a 1/2-mile radius (approximately 1 sq mile) or farther depending on geography and installation height. DCs can store up to 38,250 reads that can be retrieved manually with a 450 TRX mobile data collector as a backup.

Easy Installation Installing a Duo Collector is as easy as mounting it and plugging it in. DCs can be installed anywhere using the two provided mounting holes. DCs come with a cord and power converter to be powered by a standard 110v outlet with ground. If A/C power isn't available, a solar power package can be added to make the Duo Collector self-contained. They can be screwed to a wall, clamped to a pole, or placed on the back of a street sign or light. A simple website registration is required after installation.

Extreme Duty Outside of power options and firmware, DCs are identical to Tesla Duo AMI endpoints. They have the same compact 6.5" x 3.2" form factor, fully potted electronics, and are also constructed with a 450-470 MHz LPN transceiver and a cellular modem. Since DCs were constructed to withstand 20 years completely submerged in a challenging meter pit environment, it is easy to see how the rugged design will provide a very long service life when mounted to an elevated tank, pole, building, or inside an office. They are built to operate in extreme temperatures ranging from -40°F to +185°F (-40°C to +85°C) and can easily stand up to a hurricane.



Features and Benefits

- Easy for utility personnel to install
- Quickly provide network coverage to a large subdivision (roughly 96 city blocks)
- Super easy way to read your meters from the office AMI
- Licensed Private Network with low RF interference
- Two-way communications
- Time-Stamped readings and alarms
- Over-the-air remote firmware updates
- End-to-End security
- Hourly usage data
- Data Storage for redundant transmissions
- IP-68 weatherproof enclosure
- Built in duplexer for single antenna
- Near real time alarms
- Easy to add to existing network

Specifications

Dimensions	6.5" x 3.2" x 3.1"
Weight	3 lbs
Mounting Options	Pole or wall mount
Operating Temperature	-40°F to +185°F (-40°C to +85°C)
Enclosure Rating	IP-68
Humidity	0% to 95% non-condensing not including AC power converter or solar package
Operating Power	110VAC, Solar
Surge Protection	3330 joules
Frequency Band	450-470 MHz
Approvals	Part 90, Part 15, Part 22, Part 24, & Part 27 of the FCC rules
Backhaul Options	Cellular
# of Endpoints Served	1,000
Capacity of Read Storage	38,200 reads

LPN DUO COLLECTOR PRODUCT DATA SHEET

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DCDS1224.1

LPN FIXED NETWORK COLLECTOR

We've got you covered.

RG3 Licensed Private Network (LPN) Fixed Network Collectors offer a strategic two-way communications option for smart water and smart gas deployments. Tesla Net LPN operates in the 450-470 MHz frequency band spectrum creating a highly reliable private network with extensive coverage and far-reaching range.



The two-way system incorporates rich security features and is end-to-end upgradable remotely with over-the-air updates. The proprietary LPN RF protocol provides time-synced operations to alleviate network RF collision. Data is time-stamped and mapped to show how it travelled through the network. The result is extremely reliable network coverage.

High-Capacity FNC Base Station and Repeater

Rugged Simplicity LPN Fixed Network Collectors (FNC) can operate as a base station or a repeater depending on internet connectivity. If plugged into Ethernet or connected to WiFi, the FNC is a base station. If not, it is a repeater. FNCs are elegantly designed with only a solid-state transceiver array and a few supporting components. The simplicity of the build makes LPN Fixed Network Collectors affordable, extremely durable, and maintenance free.

Scalability and Performance Depending on antenna installation height, geography, building construction, and land cover, LPN Base Stations and Repeaters can provide a coverage radius of up to 3.5-miles. A single FNC base station can communicate with up to 48,000 endpoints and store 38 million reads. FNC base stations can communicate with up to 12 FNC repeaters within a 10-mile radius. The repeater mode duty cycle limits FNC repeaters to 12,000 endpoints and a capacity of 153,000 reads.

Data Backhaul Ethernet is the preferred backhaul because hardwired connections are the most reliable and the data transfer speed allows utilities to view data in near real time. Wi-Fi is the second preference and offers similar performance. As a backup, stored data is also retrievable manually with a 450 TRX mobile data collector.

Features and Benefits

- Up to 38 Square Miles (3.5 mile radius from tower) of network coverage from a single Fixed Network Collector
- FNC to FNC communication up to 10 miles
- Quickly migrate part or all of your meter system to read from the office AMI
- Licensed Private Network with low RF interference
- Two-way communications
- Time-Stamped readings and alarms
- Two backhaul options
- Over-the-air remote firmware updates
- End-to-End security
- Hourly usage data
- Near real-time alarms
- Data Storage for redundant transmissions
- Point-to-Multi-Point network
- Easy to add Solo Repeaters as coverage needs grow

Specifications

	FNC Base Station	FNC Repeater
Enclosure Dimensions	20" x 16" x 8"	20" x 16" x 8"
Weight	34 lbs	34 lbs
Mounting Options	Pole mount	Pole mount
Operating Temperature	-4°F to +140°F (-20°C to +60°C)	-4°F to +140°F (-20°C to +60°C)
Storage Temperature	-40°F to +185°F (-40°C to +85°C)	-40°F to +185°F (-40°C to +85°C)
Enclosure Rating	NEMA 3R	NEMA 3R
Humidity	0% to 95% non-condensing	0% to 95% non-condensing
Operating Power	110VAC	110VAC, Solar
Backup Battery (UPS)	Yes	Yes
Surge Protection	3330 joules	3330 joules
Frequency Band	450-470 MHz	450-470 MHz
Approvals	FCC Part 90 and Part 15	FCC Part 90 and Part 15
Backhaul Options	Wired (Ethernet/Fiber), Wi-Fi	--
# of Endpoints Served	48,000	12,000
# of Repeaters Served	12	--
Capacity of Read Storage	38,000,000 reads	153,000 reads
Backup Mode Read Retrieval	Yes	Yes

RG3 Meter Company . 2912 South Access Road . Longview, TX 75602 . p 903.753.3456 . f 903.753.5678 . RG3Meter.com

LPN SOLO REPEATER



We've got you covered.

RG3 Licensed Private Network (LPN) data collectors offer a strategic two-way communication option for smart water and smart gas deployments. The Tesla Net LPN operates in the 450-470 MHz frequency band spectrum creating a highly reliable private network with extensive coverage and far-reaching range.

The two-way system incorporates rich security features and is end-to-end upgradable remotely with over-the-air updates. The proprietary LPN RF protocol provides time-synced operations to alleviate network RF collision. Data is time-stamped and mapped to show how it travelled through the network. The result is extremely reliable network coverage.







LPN Solo Repeater

Big Impact – Small Package LPN Solo Repeaters communicate with Tesla AMI endpoints and LPN Fixed Network Collectors over a Licensed Private Network. Solo Repeaters are typically positioned in areas that have poor nework coverage due to geography or other obstructions. They are installed high enough to overcome the interference caused by the obstruction and relay the endpoint data to an LPN Fixed Network Collector. Solo Repeaters are ideal for communicating with up to 1,000 endpoints within a 1/2-mile radius (approximately 1 sq mile).

Easy Installation Installing a Solo Repeater is as easy as mounting it with the two provided mounting holes and plugging it in. Solo Repeaters come with a cord and power converter to be powered by a standard 110v outlet with ground. If A/C power isn't available, a solar power package can be added to make the Solo Repeater self-contained. They can be screwed to a wall, clamped to a pole, or placed on the back of a street sign or light. Mount it, plug it in, and your done.

Extreme Duty Outside of power options and firmware, Solo Repeaters are identical to Tesla Solo AMI endpoints. They have the same compact 6.5"x 3.2" form factor, fully potted electronics, and are also constructed with a 450-470 MHz LPN transceiver. Since Solo Repeaterss were constructed to withstand 20 years completely submerged in a challenging meter pit environment, it is easy to see how the rugged design will provide a very long service life when mounted to an elevated tank, pole, building, or inside an office. They are built to operate in extreme temperatures ranging from -40°F to +185°F (-40°C to +85°C) and can easily stand up to a hurricane.



Features and Benefits

- Easy for utility personnel to install
- Quickly extend network coverage to a large subdivision (roughly 96 city blocks)
- Easy way to send meter reads to your office (AMI)
- Licensed Private Network with low RF interference
- Two-way communications
- Time-Stamped readings and alarms
- Over-the-air remote firmware updates
- End-to-End security
- Hourly usage data
- Easy to add to existing network
- IP-68 weatherproof enclosure
- Built in duplexer for single antenna
- Near real time alarms
- Mount it, plug it in & your done

Specifications

Dimensions	6.5" x 3.2" x 3.1"
Weight	3 lbs
Mounting Options	Pole or wall mount
Operating Temperature	-40°F to +185°F (-40°C to +85°C)
Enclosure Rating	IP-68
Humidity	0% to 95% non-condensing not including AC power converter or solar package
Operating Power	110VAC, Solar
Surge Protection	3330 joules
Frequency Band	450-470 MHz
Approvals	Part 90, Part 15, Part 22, Part 24, & Part 27 of the FCC rules
Backhaul Options	--
# of Endpoints Served	3,000

LPN DUO COLLECTOR PRODUCT DATA SHEET

RG3 Meter Company . 2912 South Access Road . Longview, TX 75602 . p 903.753.3456 . f 903.753.5678 . RG3Meter.com

TESLA SOLO AMI ENDPOINTS FOR WATER

We've got you covered.

Tesla Solo (Solo) AMI water endpoints allow you to read meters from the office. They use a 450-470 MHz transceiver to send and receive information to data collectors over a Licensed Private Network (LPN). They automatically migrate between drive-by AMR and read from the office AMI with no programming. Solos come configured from the factory and do not require any additional setup on site. The plug-and-play design makes them fast and easy to install. The endpoint housing design allows for pit or wall installation with no change in products.



Exceptional Range

Tesla Solo endpoints offer exceptional range, while eliminating network RF signal collision. They can communicate with Tesla Fixed Network Collectors (FNC) up to 3.5 miles away. FNC Repeaters can communicate with FNC Base Stations up to 10 miles. As a general rule of thumb, operating in the 450-470 MHz band affords Solo endpoints 400% more range than that of unlicensed 900 MHz systems.

Greater range to Fixed Network Collectors translates directly into improved coverage. Cost is lowered by reducing the number of FNCs needed to read the meters and performance is raised by increasing the number of successful transmissions to LPN infrastructure.

Long-Term Network Performance

Meter pits tend to fill up with materials that block RF signals. Solo endpoints have a low-profile lid mount design that brings the LPN omnidirectional antenna above the mud, water, and depths of the meter pit environment. Removing the opportunity for the meter pit to block the radio signal generally improves the total range of Solo endpoints by up to 250% over technologies that use antennas built in the register, even if they use the same 450-470 MHz band. The mount in the lid design keeps the antenna above dirt and water that will eventually fill a meter pit which helps maintain network performance over time.

Super-Duty Construction

To ensure a long-life cycle, Solo endpoints are solid state devices built to be completely submerged for their entire service life without danger of water intrusion. They are designed for the toughest environments and extreme temperatures. Firmware can be updated at any time after installation over the air (OTA) for future feature additions and bug fixes.

Encoder Capability

While RG3 offers a battery-free analog encoder and a universal encoder that can retrofit any meter with a removable register, Solo endpoints work with any wired make or model encoder register of any manufacture that use the industry standard UI-1203 communication protocol. They also have the capability to detect most major manufacturer encoder register brands and utilize extended protocols if offered. They are perfect for upgrading older systems from walk-by or drive-by to read from the office AMI.

Long-Life Rugged Design

- IP68 Environmental Rating for the highest protection against the meter pit environment.
- Ultra rugged 100% solid-state design with no moving parts.
- Fully potted, perfectly tuned, high surface area PCB antenna for excellent propagation.
- Mount in lid antenna for increased range and network stability.
- 20-year warranty (10-year full / 10-year prorated).

Migratable Between AMI and AMR

- Solo endpoints automatically migrate between drive-by AMR and read from the office AMI.
- Add a data collector and your system will read AMI from the office.
- If no collector is in range, you can read your system by AMR drive-by.
- 120 days of hourly reads stored in the endpoint for data redundancy.

Two-Way Communication

- Secure, encrypted, true two-way communication provides greater functionality.
- Time synchronous RF protocol expands efficiency.
- On Demand Reads assists in billing inquiries.
- Near real-time alerts and alarms improve customer service.
- Remote Over the Air (OTA) updates increase endpoint and system longevity.

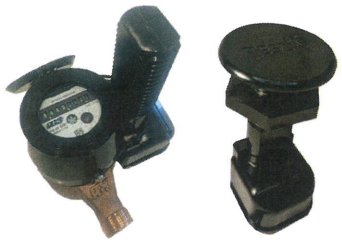
Plug-and-Play Installation

- Solo installation is quick, easy, and requires no programming.
- Endpoints are pre-configured at the factory for immediate deployment.
- No expertise needed. Install, record data, and move on.
- Automatic successful network communication verification after installation.
- Endpoint serial numbers are barcoded to reduce human data errors.

TESLA SOLO

Description

Tesla Solo (Solo) AMI / AMR water endpoints transmit meter data over a point-to-multi-point Licensed Private Network (LPN) in the 450 – 470 MHz band for smart water applications. Tesla Solo endpoints can be used in AMI and AMR applications.



Functionality

Operation: Tesla Solo endpoints communicate with an encoder register to capture and relay interval read data and meter status information over 450 MHz point-to-multi-point Licensed Private Network. Two-way communication provides for time synchronization, on demand reads, over the air firmware updates, and remote shut off valve control. Solo endpoints are designed for AMI fixed network reading while offering AMR drive-by reading with no programming. Solo endpoints can be used in Hybrid AMR / AMI systems and can easily migrate from AMR to AMI.

Activation: Tesla Solo endpoints are shipped in an inactive, non-transmitting state. After installation, the endpoints begin communicating data once the encoder indicates water has been used. Alternatively, a magnet can be used to manually activate the endpoints and verify the encoder connection.

Data Storage: Tesla Solo endpoints store 120 days of hourly data for local data log retrieval.

Output Message: Tesla Solo AMI / AMR endpoints communicate a unique serial number, meter reading data, and applicable status indicators such as flags and alarms.

Application

Read Strategies: Tesla Solo AMI / AMR endpoints can be utilized in a drive-by AMR, fixed network AMI or combination of the two read strategies simultaneously with no programming needed.

Configurations: Tesla Solo water endpoints can be installed in indoor, outdoor and pit lid applications. As with all radio frequency (RF) endpoints of any manufacturer, mounting through or under a metallic pit lid has a negative impact on antenna propagation. Polymer meter pit lids are highly recommended for optimal performance. The electronics and battery assembly are fully encapsulated in epoxy for environmental integrity. The endpoint is available with a connector assembly for ease of installation.

2912 South Access Rd.
Longview, TX 75602
PH: 903-753-3456
Fax: 903-753-5678
RG3METER.COM

Specifications

Approvals	FCC part 90 and part 15
Battery	Non-replaceable D-Cell lithium thionyl chloride with HLC capacitor for extended life
Battery life	20 years[1]
Connection to register	Bare wire (splice), RG3, Nicor or other industry-standard connectors
Data resolution	4–8 digits[2]
Encoder disconnect	An alarm is sent if communication with the encoder is interrupted as in the case of theft or vandalism
Endpoint to endpoint synchronization	< 1 min
Firmware updates	Over the air (OTA) firmware updates can be performed remotely via the LPN or on-site through Tesla Drive software
Inputs	Single or dual port
Installation Locations	Interior or exterior wall mount, pit/vault, through-the-lid[3]
Meter encoder compatibility	All RG3 meter and encoders as well as most major manufacturers of water meters[4]
Meter flags and alarms	Back flow, Tamper, Leak, Major Leak, Diagnostic and Battery Status flags as well as supporting extended flags and alarms from multiple meter manufacturers[4]
Meter interface	Pulse or Encoder
Network compatibility	Tesla Net
Network type	Two-way[5]
Network topology	450 - 470 MHz Licensed Private Network (point-to-multi-point)
On-board storage	120 days of hourly readings – per port
Operating humidity	0%-100% non-condensing
Operating temperature	-40° to 185°F (-40° to 85°C)
Physical characteristics	Height 6.5″ Width of Threads 1.8″ Width of Cap at Threads 1.98″ (2-1/8″ pit lid hole required) Dimensions of Base 3.2″w x 3.1″ d Weight: 1 lb Color: black
Remote shut-off	Open, close, partially closed – controlled from Tesla MDM or Tesla Drive software[6]
Security	AES 256 encryption and authentication
AMI read transmission resolution	Hourly
AMI read transmission interval	15 minutes
AMI Major Leak alarm transmission	Immediate
Warranty	20 years[1, 7]

[1] Battery life warranty invalid if product is stored more than 1 year before installation and activation
[2] Reports all digits that are electronically available from register
[3] Pit/vault installation best performance under non-metallic lid
[4] Contact factory for specific meters and flags/alarms supported
[5] Two-way communication for time synchronization, remote configuration, on-demand reads, historical data log retrieval, valve control, and firmware over the air (OTA) updates
[6] Contact factory for specific valves supported
[7] Refer to RG3 standard warranty for details

2912 South Access Rd.
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PH: 903-753-3456
Fax: 903-753-5678
RG3METER.COM

SoloSS12241

Town of Jerome

Addendum to the Request for Proposals for

Advanced Metering Infrastructure System

Please take note that due to an irregularity discovered, most notably with the submission deadline, proposals will be accepted until **Monday, December 1, 2025, at 5:00 p.m AZST.**

Furthermore, there will be **no surety bond requirement upon submission**.

No proposals submitted have been reviewed yet. If you have submitted a proposal and would like to use this extra time to resubmit, please advise Town Manager Brett Klein that you are resubmitting. Otherwise, your previously submitted proposal will be honored.

For questions regarding the RFP, timeline and administrative issues, please contact Brett Klein at: b.klein@jerome.az.gov

For technical questions please contact Public Works Director Marty Boland at m.boland@jerome.az.gov or (520) 904-5272

For a listing of current meters, please contact Michele Sharif at m.sharif@jerome.az.gov or (928) 634-7943

Town of Jerome

A. PROPOSAL

To: Honorable Mayor & Council
600 Clark St.
Jerome, AZ 86331

In compliance with the Advertisement for Bids, by the Town Manager, the undersigned Bidder:

Having carefully examined the bidding documents and being familiar with the conditions to be met, hereby submits the following proposal for furnishing the material, equipment, labor and everything necessary for the completion of the work listed and agrees to execute contract documents and furnish the required Bonds and Certificates of Insurance for the completion of said work, at the locations and for the prices set forth on the BID SCHEDULE.

Understands that procurement of this project shall be in accordance with all applicable Standard Specifications and as otherwise required by the General Provisions and Special Provisions.

Understands that this proposal shall be submitted with a proposal guarantee of cash, certified check, cashier's check or surety bond (in accordance with Title 34, A.R.S.) for an amount not less than ten percent of the total amount bid.

Agrees that upon receipt of Notice of Award from the Town of Jerome, they will enter into contract negotiations and execute the contract documents.

Work shall commence no later than 30 days, after the Notice to Proceed and shall be completed within 180 calendar days, beginning with the day following the starting date specified in the Notice to Proceed. The time allowed for completion of the work includes lead time for obtaining the necessary material and/or equipment. Bidder agrees to pay, as liquidated damages, 2 times the sum as stated in the latest revision of the MAG Specifications. Liquidated Damages shall be based upon the final contract amount.

The Bidder hereby acknowledges receipt of and agrees his proposal is based on the following Addenda. (If there are no addenda, write NONE below).

NONE

The Town of Jerome retains the right to reject any or all proposals and to waive minor defects and technicalities or withhold the award, as may be deemed best for the interest of the Town.

This proposal shall be valid for a period of thirty (30) days after the bid deadline.

THIS PROPOSAL IS SUBMITTED BY Metron Farnier, LLC _____, a corporation organized under the laws of the State of Arizona, a partnership consisting of Limited Liablity Corporation or individual trading as _____ _____ of the City of _____ and is the holder of Arizona State Contractor's License(s):

Classification(s) _____
No. (s)_ _____

Respectfully Submitted,

Metron Farnier, LLC
Firm

5665 Airport Blvd, Boulder, CO 80301
Address

Matt Kosorok, VP Enterprise Solutions
By (Officer & Title)

November 5, 2025
Date

ATTEST:

_____
(Officer and Title)

_____
Witness (if Bidder is an Individual)

REQUIRED FOR SUBMITTAL

Town of Jerome

B. BID SCHEDULE

Firm Name Metron Farnier, LLC

Mailing Address 5665 Airport Blvd

City Boulder State Colorado Zip 80301

Telephone 303-449-8833

PURSUANT to an in compliance with the Bid Package, Notice of Invitation to Bid, Instructions to Bidders, and the Bid Documents relating to the construction of:

TOWN OF JEROME
ADVANCED AUTOMATIC METERING INFRASTRUCTURE PROGRAM

This is to certify that the above documents, as well as the site upon which work is to be performed and any and all conditions affecting the work, have been carefully examined, that the amount and nature of work to be accomplished is thoroughly understood and that at no time will misunderstanding of the drawings, specifications or conditions to be overcome be alleged or pled as a basis for change orders, damages or non-performances.

I (We) acknowledge that the following Bid Schedule and table is for the convenience of the Town of Jerome to analyze the individual components of the Bid and to provide a means for partial payments during the project. The sum of the extended unit prices shall be the final price for the product procurement in accordance with the technical specifications. The total price listed on the Bid Schedule shall be the same as listed on the proposal to the Town of Jerome.

BID SCHEDULE INSTRUCTIONS:

1. All Items will be paid for as Lump Sums. The "ENGINEERS ESTIMATED QUANTITY/BID SCHEDULE" and the "CONTRACTORS UNIT PRICE" will be used as a means of computing progress payments and as a basis for any Change Orders incurred.

2. The Owner reserves the right to recalculate the following Schedules if they appear malapportioned.

3. The Lump Sum amounts indicated below are to include the Supplier's cost of administration, mobilization, bonds, insurance, and any other miscellaneous items required for the project.

BID SCHEDULE Town of Jerome Advanced Automatic Metering Infrastructure Program					
		Est. Qty	**Units**	**Unit Price**	**Total Price**
CIVIL BASE BID					
1	¾ x 5/8" AMR Meter	299		$390.00	$116,610.00
2	1" threaded AMR Meter	17		$585.000	$9,945.00
3	1 ½" flanged AMR Meter	13		$900.00	$11,700.00
4	2" AMR Meter	2		$1,250.00	$2,500.00
5	4" AMR Meter	1		$4,400.00	$4,400.00
6	AMR System Software	1		$0.00	$0.00
7	AMR System Training	1		$0.00	$0.00
8	AMR Data Collection Hardware/Software	1		$0.00	$0.00
9	FCC Registration	1		$0.00	$0.00
SUBTOTAL COSTS – BASE BID					
GRAND TOTAL, BASE BID (This number to be used for the Contractors Bid Bond)				$145,155.00	

GRAND TOTAL – BASE BID (in words)

One hundred and forty-five thousand one hundred and fifty-five dollars

NOTE: All Quantities Shown are approximate and are furnished solely for the contractor's convenience. The quantities provided will be the lump sum that payment will be made on. The individual items are for use by the Town to analyze bids, use as a basis for any supplemental agreements, and for partial progress payments.

REQUIRED FOR SUBMITTAL

INSTALLATION PRICING - SCHEDULE A

Metron
Town of Jerome, Arizona

Installation pricing -Schedule A

	Discription		Metron Preferred Pricing	
		Qty	Each	Subtotal
1	Installation of utility meters – 5/8x3/4"	299	$ 105.00	$ 31,395.00
2	Installation of utility provided meters – 1"	17	$ 105.00	$ 1,785.00
3	Installation of utility provided meters – 1.5" (Flanged)	13	$ 225.00	$ 2,925.00
4	Installation of utility provided meters – 2" (Flanged)	2	$ 225.00	$ 450.00
5	Installation of utility provided meters – 3" (Flanged)	0	$ 375.00	$ -
6	Installation of utility provided meters – 4" (Flanged)	1	$ 450.00	$ 450.00
		Meter Install	**Sub-Total**	**$ 37,005.00**
7	Install non-functioning Curb Stop (Dry) (Company provided part)-3/4"	As Needed	$ 65.00	
8	Install non-functioning Curb Stop ((Wet/Live) (Company provided part))-3/4"	As Needed	$ 195.00	
9	Regrade of meter boxes (As Needed or requested – Does not include boxes incased in concrete)	As Needed	$ 20.00	
10	Box Replacement (no charge if box is provided by Town-Does not include boxes incased in concrete)	As Needed	$ 20.00	
11	Pull Box as needed to access meter to safely replace (up to, two boxes deep up to 12" - 24" deep)	As Needed	$ 75.00	
12	Pull Box as needed to access meter for replacement (3 boxes deep or greater 25" or more in depth)	As Needed	$ 150.00	
13	GPS Location (Includes Mapping of meter locations at customers request)		$ 2,500.00	
16	Workflow/Document Management		$ 1,500.00	$ 1,500.00
17	Mobilization		$ 3,500.00	$ 3,500.00
		Total		**$ 42,005.00**

NOTE: All Quantities Shown are approximate and are furnished solely for the contractor's convenience. The quantities provided will be the lump sum that payment will be made on. The individual items are for use by the Town to analyze bids, use as a basis for any supplemental agreements, and for partial progress payments.

REQUIRED FOR SUBMITTAL

TOWN OF JEROME, ARIZONA | Advanced Automatic Metering Infrastructure Program

METER AND INSTALLATION COMBINED PRICING - SCHEDULE A+B

Item	Description	Qty	Unit Price	Subtotal
1	¾ x 5/8" AMR Meter	299	$390.00	$116,610.00
2	1" Threaded AMR Meter	17	$585.00	$9,945.00
3	1 ½" Flanged AMR Meter	13	$900.00	$11,700.00
4	2" AMR Meter	2	$1,250.00	$2,500.00
5	4" AMR Meter	1	$4,400.00	$4,400.00
6	AMR System Software	1	$0.00	$0.00
7	AMR System Training	1	$0.00	$0.00
8	AMR Data Collection Hardware/Software	1	$0.00	$0.00
9	FCC Registration	1	$0.00	$0.00
	Materials Subtotal			$145,155.00
	INSTALLATION PRICING – SCHEDULE A			
1	Install 5/8 x 3/4" Meters	299	$105.00	$31,395.00
2	Install 1" Meters (Owner Provided)	17	$105.00	$1,785.00
3	Install 1.5" (Flanged) Meters	3	$225.00	$675.00
4	Install 2" (Flanged) Meters	2	$225.00	$450.00
5	Install 3" (Flanged) Meters	1	$375.00	$375.00
6	Install 4" (Flanged) Meters	1	$450.00	$450.00
7	Install Non-Functioning Curb Stop (Dry) – 3/4"	As Needed	$65.00	—
8	Install Non-Functioning Curb Stop (Wet/Live) – 3/4"	As Needed	$195.00	—
9	Regrade Meter Boxes	As Needed	$20.00	—
10	Box Replacement (Town Provided)	As Needed	$100.00	—
11	Pull Box – Meter Replacement (Up to 24" depth)	As Needed	$75.00	—
12	Pull Box – Meter Replacement (3'+ depth)	As Needed	$150.00	—
13	GPS Location & Mapping			$2,500.00
14	Workflow / Document Management			$1,500.00
15	Mobilization			$3,500.00
	Installation Subtotal			$42,005.00
	TOTAL PROJECT BID			$187,160.00

REQUIRED FOR SUBMITTAL

C. NON-COLLUSION CERTIFICATE

ADVANCED AUTOMATIC METERING INFRASTRUCTURE PROGRAM

Company Name: Metron Farnier, LLC

The undersigned Vendor hereby certifies as follows:

To the best of his/her knowledge, the person, vendor, association, partnership, or corporation herein has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive pricing in the preparation and submission of a bid to the Town of Jerome for consideration in the award of this solicitation.

Dated this 5th day of November 2025.

Signature

303-449-8833
Phone Number

Matt Kosorok, VP Enterprise Solutions
Written Name

Matt.Kosorok@metron-us.com
Email Address

REQUIRED FOR SUBMITTAL

E. VENDOR QUALIFICATIONS, REPRESENTATIONS, AND WARRANTIES

ADVANCED AUTOMATIC METERING INFRASTRUCTURE PROGRAM

Company Name: Metron Farnier, LLC

The undersigned Vendor hereby certifies as follows:

X1 Taxes and Leins – Vendor has no unsatisfied tax or judgement lien on record.

X2 Vendor's Examination – Vendor has made its own examination, investigation and research regarding the requirements of the solicitation including but not limited to the work to be done, services to be performed, any conditions affecting the work and services, the type and quantity of labor, equipment, facilities necessary to perform. Vendor fully understands the character of the work and services, the manner in which payment is to be made, the terms and conditions of the draft agreement and the solicitation. Vendor acknowledges and agrees that it has satisfied itself by its own examination, investigation, and research, and that it will make no claim against the Town because of erroneous estimates, statements, or interpretations made by the Town. Vendor hereby proposes to furnish all materials, equipment, and facilities and to perform all labor which may be required to do the work within the time required and upon the terms and conditions provided in the draft agreement and the solicitation, and at the prices as bid.

Dated this 5th day of November 2025.

Signature

303-449-8833
Phone Number

Matt Kosorok
Written Name

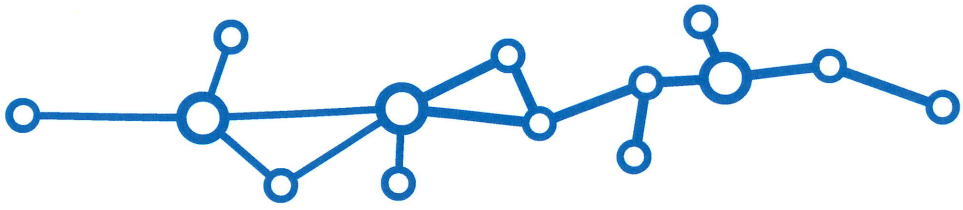
Matt.Kosorok@metron-us.com
Email Address

REQUIRED FOR SUBMITTAL

The Business of Water.
Simplified.

TOWN OF JEROME, AZ
RFP QUESTIONS

Metron-Farnier, LLC
5665 Airport Blvd,
Boulder, CO 80301
Alex Schechter
alex.schechter@metron-us.com
12/01/2025



A. GENERAL INFORMATION

a. Brief overview of the vendor and legal organization of the company

Metron Response:

Metron Farnier has been supplying advanced metering solutions to utilities for over 30 years and has been an innovation leader within the industry. It is a limited liability company headquartered in Boulder, CO. Metron has a presence in all 50 states.

b. Submission requirements met

Metron Response:

Metron feels submission requirements have been met.

c. SAM.gov Unique Entity ID number (UEI) as required by grant funding.

Metron Response:

DBJVLTWLZQV1

d. Description of at least three (3) but no more than five (5) similar projects in which the vendor participated for each applied service category. Describe the vendor's role in the project and scope of work that demonstrates the vendor's expertise. Provide the name and contact information for each project. It is preferred that the similar project have been conducted in similar topography to the Town of Jerome.

Metron Response:

Below are five similar projects in which Metron participated, demonstrating our expertise across various applied service categories. These projects include deployments in diverse and challenging topographies, many of which share similarities to the Town of Jerome's environment:

Reference 1: (Municipal Utility) Town of Camp Verde, AZ
Client Name: Town of Camp Verde
Client Project Name: Meter Changeout Project
Client Reference Name & Title: Jeff Low – Utilities Director
Client Phone Number: 928-469-9063
Client Email: jeff.low@campverde.az.gov
Location of Work: Camp Verde, Arizona
Total Endpoints: 2,200
Initial Timeframe for Duration and Completion of Work: 1 year to complete all work including installation and billing
Scope of Work / Description of Work Performed (including systems integrated): Metron supplied cellular AMI water meters for the district's service area. The Town of Camp Verde handled all self-installation, supported by Metron's technical team for configuration and ongoing system support.
Comments: The Town of Camp Verde has had a successful time with the Metron product with a strong read rate and capturing thousands of dollars of unrecognized revenue.

Reference 2: (Municipal Utility) Avra Water Company
Client Name: Avra Water Company
Client Project Name: Water Infrastructure Finance Authority Meter Replacement Project
Client Reference Name & Title: Cathy Kuefler – Administrative Manager
Client Phone Number: 520-780-8689
Client Email: cath@avrawater.com
Location of Work: Tucson, Arizona
Total Endpoints: 2,600
Initial Timeframe for Duration and Completion of Work: 1 year
Scope of Work / Description of Work Performed (including systems integrated): Metron supplied 1,400 Cellular enabled registers and meters to Avra Water co-op. Avra has been conducting their own installation of the product to combat a failing Sensus drive by system.
Comments: Avra has had a successful Time with the Metron product with a strong read rate and capturing Thousands of dollars of unrecognizes revenue.

Reference 3: (Rural Utility) BDM Rural Water, SD
Client Name: BDM Rural Water
Client Project Name: AMI Deployment
Client Reference Name & Title: Rodney Kappes – General Manager
Client Phone Number: 605-448-5417
Client Email: rodneyk@bdmruralwater.com
Location of Work: Day County, South Dakota
Total Endpoints: 2,300+
Initial Timeframe for Duration and Completion of Work: Completed
Scope of Work / Description of Work Performed (including systems integrated):
Metron supplied cellular AMI water meters for the district's service area. BDM handled all self-installation, supported by Metron's technical team for configuration and ongoing system support.
Comments: Successful deployment enabled reliable meter reads across a rural service territory with minimal field maintenance.

Reference 4: (Municipal Utility) Evergreen Metro District, CO
Client Name: Evergreen Metro District
Client Project Name: AMI Upgrade
Client Reference Name & Title: Kevin Rosemeyer – Water Director
Client Phone Number: 303-301-5500
Client Email: krosemeyer@evergreenmetro.org
Location of Work: Evergreen, Colorado
Total Endpoints: 4,500
Initial Timeframe for Duration and Completion of Work: One-year upgrade process
Scope of Work / Description of Work Performed (including systems integrated):
Metron performed a full upgrade from a previous drive-by AMR system to a cellular AMI network to improve meter reading efficiency and data visibility. Meters were supplied and installed by Metron, including those in indoor applications across hilly terrain.
Comments: The deployment improved operational efficiency and real-time data access, resulting in high customer satisfaction.

Reference 5: (Municipal Utility) Town of Erie, CO
Client Name: Town of Erie, Colorado
Client Project Name: AMI Upgrade
Client Reference Name & Title: Chris Biggs – Meter Supervisor
Client Phone Number: 303-243-2520
Client Email: cbiggs@erieco.gov
Location of Work: Erie, Colorado
Total Endpoints: 3,900+ and ongoing
Initial Timeframe for Duration and Completion of Work: 2023 to Present
Scope of Work / Description of Work Performed (including systems integrated):
The Town transitioned from a mix of non-Metron AMI and older meter types to a standardized deployment using Metron cellular AMI meters and endpoints across all meter sizes. Metron supplied the meters and supported installation efforts.
Comments: Ongoing project aimed at improving system visibility, data access, and customer engagement.

Each project highlights Metron's ability to deliver reliable smart water solutions in a range of topographies, including hilly and rural areas, and demonstrates our project management and technical expertise.

B. AMI INFORMATION REQUIREMENTS

a. Communication Propagation Study with a "Fixed Based" Communication system for the AMI system.

Metron Response:
Please see Prop Study in Appendices.

b. Explain if the AMI system will include any cellular network.

Metron Response:
Metron's AMI system is a fully cellular solution and utilizes existing cellular networks (Verizon and/or AT&T) for communication between endpoints and the headend system.

c. Explain if the AMI includes a free or paid customer engagement web portal.

Metron Response:
Metron's AMI solution includes WaterScope™, our customer engagement web portal, at no additional cost.

d. Explain if the AMI provides top-of-the-hour time-synchronized readings across the entire system with at least an update every hour.

Metron Response:
Meter readings from Metron endpoints are time-synchronized, with each endpoint synchronizing every time it communicates over the cellular network. The internal hardware-based real-time clock is set during these communications, ensuring all data transmitted by Metron endpoints is time-stamped to within 1 second of accuracy. All consumption intervals are synchronized to the minute, from midnight to midnight of the prior day. Transmissions occur once per day and include 1440 one-minute data intervals, rather than hourly updates.

Therefore, the system provides time-synchronized readings, but not top-of-the-hour updates every hour across the entire system.

e. Explain if the meters, endpoints, and AMI infrastructure is manufactured by the same company.
Metron Response:
Metron manufactures and develops all meters, endpoints, and AMI infrastructure—including the head end system and consumer portal. This approach ensures full compatibility and eliminates any cost differences among the components.

f. Explain if the current meters and endpoints will be able to integrate with the AMI system.
Metron Response:
Yes, current meters and endpoints can integrate with the AMI system. Metron offers a retrofittable endpoint that allows for migration of any existing meter—at the Town's discretion—onto Metron's cellular AMI solution, including recently purchased manual read meters. The water meters can be equipped with standard AMI outputs, and the output volume can be adjusted onsite.

g. Describe if the system can identify unauthorized usage on marketed accounts.
Metron Response:
The utility can upload a list of meters that have been shut-off for non-payment and WaterScope will alert to cases where the homeowner has turned the water back on.

h. Describe if the system can configure high or low usage parameters and identify accounts in violations.
Metron Response:
The system can be configured to set high or low usage parameters and identify accounts in violation.

i. Explain how many users the system can support at one time.
Metron Response:
There are not currently any limitations on the number of users the system can support at one time.

j. Explain if the software enhancements, upgrades, updates, and patches are included in the pricing structure or if it will be an annual cost for these items.
Metron Response:
All software enhancements, upgrades, updates, and patches are included in the pricing structure and there will be no additional annual cost for these items.

C. ENDPOINT INFORMATION AND REQUIREMENTS.

a. Describe the endpoint collection process and if it collects at the top of the hour and synchronized with 15-minute reads from the water meter.

Metron Response:

The endpoint collection process involves storing water usage data in 1-minute intervals throughout the day while the communications module remains in sleep mode. Once per day, the endpoint wakes and transmits the accumulated, time-synchronized midnight-to-midnight consumption data over the cellular network. Meter readings from MIUs are time-synchronized, with each endpoint synchronized during daily communications using a hardware-based real-time clock, achieving time-stamp accuracy within 1 second. Consumption intervals are synchronized to the minute, not specifically to the top of the hour or to 15-minute intervals by default. The system's default is 1-minute interval data, and while endpoints can be configured to deliver hourly or 15-minute interval reads.

b. Describe if the endpoint had two-way communication.

Metron Response:

The endpoint supports two-way communication. This functionality is provided via the existing cellular network and enables remote configuration, firmware upgrades, meter re-programming, time synchronization, and over-the-air (OTA) updates.

c. Describe the temperatures the endpoint can withstand storage and operating.

Metron Response:

The VN endpoint is fully submersible (IP68) and operates between -4 to 140 degrees Fahrenheit. Storage temperature range is between -20 to 140 degrees Fahrenheit. The endpoint meets compliance for functioning accurately and without damage at operating temperatures up to 140 degrees Fahrenheit, and is able to operate over a range of at least -30°F to 140°F as required.

d. Describe if the endpoint can be installed via pit or remote.

Metron Response:

The endpoint can be installed in a pit, and there is also a remote option available.

e. Describe the network firmware updates.

Metron Response:

Network firmware updates can be performed both locally and remotely. Locally, updates are executed via infrared communication using the Metron tablet communicator software. Remotely, firmware upgrades are supported over-the-air (OTA) through secure two-way communication via the cellular network and the AMI communications network. Updates may be initiated for individual endpoints or in bulk, with commands sent from the head-end system. Metron coordinates and controls the entire firmware update process, including communicating the need for upgrades to the Town of Jerome, AZ, collaborating on rollout plans, scheduling, and providing detailed reports on successful and failed updates. Firmware updates are completed with zero interruption to utility operations, and all network communication equipment supports remote software and firmware upgrades, including batch upgrades.

Rigorous QA processes, structured testing, and release management ensure all updates are validated, secure, and minimally disruptive.

i. Are they able to be done remotely, with infrared or local updates.
Metron Response:
Firmware updates can be performed both remotely via two-way communication over the cellular network and locally using infrared (IR) communication. This dual approach allows for flexible update options, enabling updates to be sent and received over-the-air as well as installed directly on the device using IR.

f. Explain the environments that the endpoints can withstand, including flooding or submerged pit application.
Metron Response:
The endpoint is IP-68 rated and can withstand flooding or submerged pit applications.

g. Describe the warranty for the endpoints and if it is included.
Metron Response:
The endpoints are covered by a 20-year warranty, which consists of a full replacement for the first 10 years and a prorated warranty for the following 10 years. The warranty is included in the original cost and begins at the time of shipment. See our Warranties in the Appendices.

D. CUSTOMER PORTAL INFORMATION AND REQUIREMENT

a. Explain if the customer portal is owned and developed by the AMI manufacturer.
Metron Response:
The customer portal is owned and developed by the AMI manufacturer, Metron.

b. Explain if the web portal will be accessible through a standard internet browser.
Metron Response:
The web portal is fully accessible through a standard internet browser with a valid username and password. It supports Chrome, Edge, Safari, Firefox, and other available browsers.

c. Explain if the customer portal will allow the customer to set up a leak notification through the portal and let the customer be notified via email.
Metron Response:
The customer portal allows customers to set up leak notifications through the portal or smartphone application. Customers may choose to be notified via email, text, or phone notifications.

d. Explain if the utility customer service representative will be able to see the same view as the customer or if the web portal will be different for the customer and the utility staff.

Metron Response:
Utility customer service representatives will be able to see the same view as the customer in the web portal. The web version provides identical visibility for both consumer and customer service staff, ensuring that all analytical customer screens are the same for CSRs and customers. While the utility portal offers extended access for system-wide consumption data and the ability to modify customer-facing screens, the customer-facing view remains consistent and identical for support purposes. This design allows utility staff to effectively assist customers by viewing exactly what the customer sees.

e. Explain if the customer will be able to export consumption data in Comma Separated Value (CSV) format.

Metron Response:
The customer will be able to export consumption data in Comma Separated Value (CSV) format and/or Excel.

E. TRAINING INFORMATION AND REQUIREMENT

a. Describe who will be providing the training. Example, Manufacturer Certified Trainers

Metron Response:
Metron will do all the training directly. The trainer may vary depending on the training (billing vs customer service vs field staff), but the trainer will be a Metron employee.

b. Describe if there will be web-based training for future head end system updates and upgrades and if there will be any cost that may be associated with the training.

Metron Response:
Unlimited training and support are included in the upfront cost. Training on future head end system updates and upgrades will be provided through web-based training at no additional cost.

c. Describe if training materials for end users will be available online or in electronic form.

Metron Response:
Training materials are incorporated into the online platform, allowing end users to access them electronically.

F. OTHER

a. Describe if you can replace a current meter in need of replacement with a non-AMI meter for an opt-out member and invoice separately from the project.

Metron Response:
Yes, we are able to replace a current meter in need of replacement with a non-AMI meter for an opt-out member.

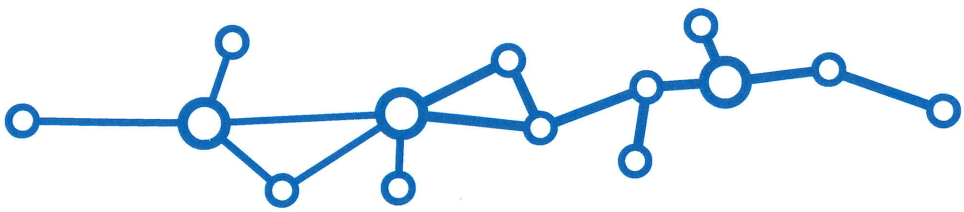
The Business of Water.
Simplified.

THE TOWN OF JEROME, ARIZONA ADVANCED METERING INFRASTRUCTURE (AMI) PROJECT

Metron-Farnier, LLC
5665 Airport Blvd,
Boulder, CO 80301

Alex Schechter
720-618.3435
alex.schechter@metron-us.com

11/5/2025







The Town of Jerome

Proposal for AMI Water Metering System

Submitted By:
Metron Farnier, LLC
Bidding for Advanced Metering Infrastructure (AMI) Project

Project Scope:
Replacement of existing water meters with AMI meters in the Town of Jerome's distribution system.

Prepared For:
The Town of Jerome

Sales Contact:
Alex Schechter
Metron-Farnier, LLC
Email: Alex.Schechter@metron-us.com
Phone: 720-618.3435

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LETTER OF INTENT

To: Honorable Mayor & Council
The Town of Jerome Water Resources Department
600 Clark St.
Jerome, AZ 86331

Subject: Statement of Qualifications – AMI Full-Service Implementation and Maintenance Program

Dear Selection Advisory Committee,

Metron Farnier, LLC. (Metron) is pleased to submit this Request of Proposal (RFP) in response to the Town of Jerome's request for a turnkey Advanced Metering Infrastructure (AMI) Full-Service Implementation and Maintenance Program. With over three decades of innovation and leadership in water intelligence and metering technologies, Metron is uniquely positioned to deliver a comprehensive solution that will modernize the Town of Jerome's water metering operations, enhance data visibility, and ensure long-term service reliability for decades to come.

We understand the Town's vision: to implement a system-wide AMI network that improves billing accuracy, elevates customer engagement, and enables proactive water management through data-driven insights. Metron's solution is designed to do just that — combining proven, field-tested hardware with a powerful software platform and a dedicated long-term asset management program.

Our proposal outlines a true turnkey approach. Metron will serve as the single point of responsibility for system design, meters, communications endpoints, software, data hosting, with full-service training, maintenance and support. To ensure seamless field execution, we will deploy full meter replacements for the Town. Together, our team will deliver a fully functional, standards-compliant AMI solution tailored to the Town's current and future needs.

Metron's WaterScope® platform will serve as the heart of the solution — providing secure, web-based access to high-resolution consumption data, integration with the Town's Caselle's current billing system, and customer-facing tools to improve transparency and engagement. Our solutions have consistently delivered read rates exceeding 99%, advanced analytics, and operational reliability for utilities large and small.

We appreciate the opportunity to present this bid proposal and look forward to partnering with the Town of Jerome to deliver a transformative AMI program that meets today's needs and tomorrow's challenges. Should you have any questions or require additional information, we would welcome the opportunity to discuss our proposal in greater detail.

Authorized Representatives
The following individuals are authorized to make representations on behalf of Metron for this project:

- **Alex Schechter, Metron Sales Account Manager**
  5665 Airport Blvd, Boulder, CO 80301
  720-618-3435
  Alex.Schechter@metron-us.com
- **Matt Kosorok, Metron VP of Enterprise Solutions**
  5665 Airport Blvd, Boulder, CO 80301
  303.449.8833
  matt.kosorok@metron-us.com

This proposal has been signed by the undersigned, a corporate officer with the authority to bind Metron Farnier, LLC.

Sincerely,



Matt Kosorok
VP, Enterprise Solutions
Metron Farnier, LLC

1. COMPANY OVERVIEW & QUALIFICATIONS

ABOUT METRON FARNIER, INC.

Metron Farnier, Inc. (Metron) is a leading provider of advanced water metering and water intelligence solutions, with more than 30 years of experience supporting municipal and commercial utilities across the United States. Headquartered in Louisville, Colorado, Metron has been at the forefront of metering innovation — designing and manufacturing state-of-the-art water meters, communication endpoints, and data management platforms that empower utilities to manage water resources more effectively and sustainably.

Since our founding in 1991, Metron has remained focused on a single mission: **to deliver actionable water intelligence that transforms how communities monitor, manage, and conserve water.** Our technologies are deployed in more than 8,000 networks and over 500,000 metering points nationwide, providing utilities and their customers with high-resolution data that improves billing accuracy, reduces water loss, and enhances operational efficiency. To date, Metron solutions have helped clients save over **1.3 billion gallons of water** — a testament to our commitment to conservation and performance.

PROVEN EXPERIENCE IN THE MUNICIPAL WATER SECTOR

Metron's solutions are designed specifically for municipal water systems, and we bring deep experience working with water municipalities of all sizes. Our projects range from small utility deployments to large-scale citywide AMI rollouts involving hundreds of thousands of meters. We have implemented solutions in varied geographic and environmental conditions, from densely populated urban centers to challenging rural terrains, ensuring reliability and scalability in any setting.

Our approach is rooted in partnership. We work closely with utility stakeholders, engineering firms, and technology partners from planning through deployment and long-term operation. This collaborative model ensures each project meets technical specifications, regulatory requirements, and performance expectations while staying on schedule and within budget.

LICENSING, CERTIFICATION, AND TECHNICAL EXPERTISE

Metron maintains all required business licenses and complies with all relevant industry standards. Our meters meet or exceed **AWWA Standard C715-18, C700, and C712 (Single-Jet)** and are **NSF/ANSI 61 and 372** certified for drinking water applications. We leverage and build to **ISO 9001 standards** with a goal of obtaining certification in June 2026. We also utilized ISO certified suppliers for key components and asset management, ensuring that our products and services adhere to the highest standards of reliability and safety.

Our engineering teams provide full system design and support for metering equipment and our AMI data management platform, WaterScope®. This engineering depth allows Metron to take full ownership of system deployment and ensures seamless integration with the Town's water metering infrastructure.

PROXIMITY AND SUPPORT RESOURCES

Metron maintains a service and support center hub, located in Louisville, Colorado which includes field resources to support deployment and ongoing maintenance for the Town of Jerome. Our network of trained technicians, project managers, and engineers ensures rapid response times and support. As part of our commitment to long-term service excellence, we will also provide a dedicated project manager and field support team for the duration of the project.

PROVEN TRACK RECORD

Metron has an extensive history of delivering successful AMI deployments for public utilities. Our work consistently meets or exceeds performance targets, including read rates above 99%, seamless integration with existing billing systems, and measurable operational savings. We bring this same dedication and proven track record to the Town of Jerome, ensuring that your investment in AMI technology delivers maximum long-term value.

METRON'S UEI

SAM.gov Unique Entity ID number (UEI) as required by grant funding is DBJVLTWLZQV1.

2. PROJECT UNDERSTANDING & TURNKEY APPROACH

UNDERSTANDING THE TOWN OF JEROME'S VISION AND OBJECTIVES

The Town of Jerome is embarking on a transformative effort to modernize its water metering and data management capabilities through a full-service Advanced Metering Infrastructure (AMI) program. The vision is clear: replace or retrofit existing meters with state-of-the-art, cellular based AMI technology; ensure accurate, reliable data collection for billing and operations; and deliver long-term service improvements that enhance customer engagement and resource management.

Metron understands that this initiative is not just about upgrading infrastructure - it's about enabling **data-driven water management**. With over three decades of experience supporting utilities nationwide, we recognize that a successful AMI program must do more than transmit meter reads. It must:

- Deliver consistently high read rates and reliable data for billing accuracy.
- Provide actionable insights into consumption patterns, leaks, and anomalies.
- Integrate seamlessly with existing utility systems and workflows.
- Support proactive customer communication and engagement.
- Scale and evolve with future needs and technologies.

Our solution and approach are designed to achieve these outcomes — providing the Town of Jerome with a future-ready AMI system that enhances operational efficiency, reduces non-revenue water, and strengthens their customer trust.

FULL-SERVICE PROGRAM DELIVERY

Metron's proposed solution is a **true turnkey offering**, where we serve as the single point of responsibility for the design, deployment, integration, and long-term operation of the AMI system. This comprehensive approach minimizes complexity for the Town and ensures seamless accountability from start to finish. Our scope of services will include:

- **Project Planning & Management:** Comprehensive planning, coordination, and oversight from kickoff through final system commissioning.
- **Meter Replacement and New Installations:** Removal and replacement of existing meters and installation of new meters where required, ensuring full system coverage.
- **AMI Endpoint Deployment:** Installation of cellular LTE-M endpoints
- **Software Implementation:** Configuration and deployment of Metron's WaterScope® platform for data management, analytics, and integration with the Town of Jerome's Caselle billing system.
- **Training:** Comprehensive training for staff and ongoing support throughout the lifetime of the meters and software.
- **Long-Term Asset Management:** Daily system monitoring, proactive maintenance, and guaranteed system performance with 99%+ read rates.

To execute the physical deployment of meters and endpoints, Metron will engage if needed with a **certified installation partner** This partner will work under Metron's direction, adhering to all town, state, and federal requirements, including OSHA standards and safety protocols.

Key features of our AMI system include:

- **WaterScope® Platform**: A cloud-based platform that offers utilities comprehensive usage analytics and conservation tools. The platform is accessible to both utility managers and consumers, without incurring additional fees, empowering end users to track and manage water consumption efficiently.
- **1-Minute Data Analytics**: Metron's endpoints capture consumption data in 1-minute intervals, giving utilities unprecedented visibility into consumption patterns, enabling early leak detection, peak flow management, and more granular resource control.
- **Retrofitting Flexibility**: Our VN system endpoints (the Prism) retrofit onto existing mechanical meter bodies, ensuring compatibility with current infrastructure and reducing overall deployment costs.

SEAMLESS INTEGRATION WITH EXISTING SYSTEMS

We recognize the importance of a solution that not only collects accurate data but also integrates cleanly into existing operational workflows. Metron's WaterScope® platform is designed with open architecture and robust API capabilities, allowing for straightforward integration with the Town of Jerome's Caselle billing software and other utility systems. The platform supports standard, non-proprietary data formats and interfaces, ensuring that data flows reliably from field devices to billing and customer information systems.

Through this integration, the town will gain real-time access to metering data, daily system performance dashboards, and consumption analytics, empowering staff to respond quickly to anomalies, optimize system performance, and improve customer service.

ACCELERATED IMPLEMENTATION WITH MINIMAL DISRUPTION

Our deployment approach prioritizes speed, accuracy, and minimal disruption to customers. Metron will coordinate closely with the town to develop a phased installation schedule that ensures timely project completion while maintaining ongoing utility operations. Customer engagement is a key part of our plan. We will provide clear communication, flexible scheduling, and support throughout the deployment process.

Metron has refined a deployment methodology that emphasizes meticulous planning, field validation, and quality control. Our process ensures that each installation is performed correctly the first time, reducing rework and maximizing long-term system reliability.

COMMITMENT TO LONG-TERM PARTNERSHIP

Metron views this project as the beginning of a long-term partnership with the Town of Jerome. Our responsibility extends far beyond installation. We will proactively address issues and continuously improve the solution to meet evolving needs. Our dedicated support team will remain engaged throughout the life of the program, providing training, software updates, and responsive technical assistance, as needed.

3. FULL-SERVICE PROGRAM CAPABILITIES

Our program is built around four core pillars: **metering hardware, cellular communications, data management software, and long-term support**. Each component is designed to deliver exceptional performance on its own, and together they form a cohesive ecosystem that enables reliable data collection, actionable insights, and operational efficiency.

FIELD DEPLOYMENT & INSTALLATION

Metron will oversee all field activities associated with meter and endpoint installation. Together with the Town, the team will:

- Perform site surveys and gather detailed data for all meter locations.
- Replace existing meters and install new cellular smart meters.
- If retrofit meters are required, we will install our cellular LTE-M Prism™ register endpoints with two-way licensed communication.
- Mount remote antenna systems as needed to optimize network performance.
- Provide customer scheduling, notification, and installation times.

Safety is a top priority with Metron to maintain robust safety training and compliance programs.

ADVANCED METERING TECHNOLOGY

At the core of our solution are Metron's **Spectrum™ Single Jet series water meters** — high-accuracy metering ranging from 5/8" to 8" and prides itself on the low-flow capability of our meter line. With its simplistic design coupled with minimal accuracy degradation, revenue stays steady throughout the life of the meter and eliminates the testing and maintenance normally required for commercial meters that offer this type of performance. Set it and forget.

The **Spectrum™ Wave™ ultrasonic meter** is based on a "See Through" ultrasonic technology. With this concept, the two sensors, used alternatively for the transmission and the reception of the ultrasonic signal into the water pipe, are installed on each end of a straight section of the water pipe. With such a mechanical configuration, the water flow remains free of any mechanical structure that would increase the drop of pressure inside the meter. The meter provides a very wide range with low flow accuracy to 0.05 gpm, which will capture the highest levels of revenue.

Designed for long-term performance and reliability, these meters feature:

- **No moving parts** – reducing wear and extending service life.
- **IP68-rated construction** – ensuring reliable operation even in submerged conditions.
- **High accuracy across a wide flow range** – improving billing precision and revenue capture.
- **Integrated communication ports** – enabling seamless connection to AMI LTE endpoints.

Our meter portfolio includes models suitable for all meter sizes and service types, ranging from 5/8" residential meters to 8" commercial meters.

LTE-M CELLULAR NETWORK & COMMUNICATION ENDPOINTS

Metron's AMI communication endpoints are designed to meet and exceed the Town's requirements for performance, reliability, and flexibility. Key features include:

- **Multi-carrier LTE-M connectivity:** Each endpoint supports two national carriers, Verizon and AT&T, automatically connecting to the strongest available signal and switching networks if needed for redundancy without reprogramming or field visits.
- **Two-way licensed communication:** Operating in the 700 MHz band, endpoints enable scheduled and on-demand reads, over-the-air firmware updates, and remote shutoff valve operation.
- **No repeaters required:** Direct-to-cloud communication eliminates the need for repeaters and networks, reducing infrastructure and improving reliability.
- **20-year battery life:** Endpoints are powered to ensure consistent performance for two decades.

- **Rich data storage:** The default storage configuration retains 45 days of 1-minute interval data in the communication device. If required, the device can be configured to store 5-minute intervals, extending storage capacity to 225 days. This exceeds the requirement for retaining 120 days of hourly reading intervals in the event of backhaul loss or unavailability.
- **Tamper detection and diagnostics:** Endpoints continuously monitor connection integrity and report tamper alerts, battery voltage, and other diagnostic data.

WATERSCOPE® – DATA MANAGEMENT AND ANALYTICS PLATFORM

Metron's **WaterScope®** platform serves as the backbone of the AMI solution, providing utilities with secure, web-based access to consumption data, analytics, and system performance information. WaterScope® integrates directly with the Town's Caselle billing software and other utility systems through open, standards-based interfaces.

Key platform capabilities include:

- **Real-time data access:** Consumption data is available as frequently as every hour, enabling timely decision-making and rapid identification of anomalies.
- **Advanced analytics:** Automated detection of leaks, backflow, no-flow events, and continuous flow conditions.
- **Custom alerts and notifications:** Daily email alerts for critical consumption events, tamper conditions, and read failures.
- **Customer engagement:** A built-in customer portal allows users to view daily, monthly, and annual consumption, set budgets, and receive alerts for unusual usage or leaks.
- **Scalability and flexibility:** The platform supports multiple meter types, manufacturers, and service types, ensuring compatibility with future technology and expansion needs.
- **Secure cloud hosting:** All data is hosted in secure, redundant cloud environments with continuous monitoring, disaster recovery, and routine backups.

The Metron system delivers top-tier meter read performance, consistently exceeding industry standards.

System Notifications:

As the endpoint transmissions are delivered in the middle of the night, the **1-minute analytics** are analyzed for several unique defined conditions. The conditions are configurable and have optional auto generated notifications. Those conditions are:

- **Leak** – A leak flag is triggered if there were 1440 1-minute intervals that had consumption above 0. Metron feels that if the meter can't register 0 gallons for at least 1-minute in a 24-hour period there is no question there is a leak.
- **Threshold Leak** – The Metron residential meter is accurate below 1/50th of a gallon per minute. Because of this, the program detects a lot of trickle leaks. To not overwhelm utility personnel with leak notifications, we've established this condition so the utility can filter notifications by a true GPM flow. For example, if 0.25 gpm is considered an 'actionable' leak rate from a utility perspective, WaterScope® will only notify utility personnel of leaks greater than 0.25 gpm. The threshold can then be lowered or raised as needed.
- **Intermittent Leak** – The intermittent leak is designed to identify leaking toilets, or any other fixture in a home that runs intermittently for extended periods of time. The utility can configure the trigger as to not have irrigation events and/or constant leaks trigger the flag.
- **High Usage** – The high usage flag is a configurable daily consumption value. If usage exceeds the daily value, an alert is generated.
- **Backflow** – The backflow alert will trigger if a configurable amount of water runs in reverse over a specified period of time. It is also a useful flag for meters that were mistakenly installed backwards.
- **Zero Use** – The zero-use condition will trigger if NO water is used over a configurable period. This flag is useful for rental/vacant properties at the homeowner level, but for the utility can be used as a revenue protection alarm for the larger size meters. 30 days seems like a long period of time, especially for larger meters. The user can configure this alarm by meter size.

- **High Meter Flow** – This alert will notify the utility if flow rates exceed the high-end capacity of the meter. Can be helpful for right sizing an application.
- **High/Low Temperature** – The Metron Prism measures the daily high and low ambient temperature. The sensor is built into the register, so the temperature reflects the meter level as opposed to the temperature at the pit lid level. The ultrasonic Spectrum Wave will detect water temperature and send an instant alert if temperature thresholds are hit.
- **Unauthorized Use** – The utility can upload a list of meters that have been shut-off for non-payment and WaterScope® will alert to cases where the homeowner has turned the water back on.
- **Unexpected Use** – This condition is designed for the homeowner so they may receive alerts if water is used unexpectedly. Use cases would be rental/vacant properties, snowbirds, and vacations.
- **Watering Event** – If the town intends to implement watering restrictions now or in the future the Watering Event condition can help monitor those restrictions. Restrictions can be mandatory/voluntary, based on time of day, and the days in a week. The Metron VN system is the only one that offer this as the Prism is the only device that can identify indoor vs outdoor use based on the flow rate.
- **Emergency Transmit** – The emergency transmit feature is meant to catch real time leaks. The condition is configurable by meter, and triggers if a configurable amount of flow occurs over a configurable amount of time. In that event the VN will wake up in real time and send an emergency text to the homeowner.

SEAMLESS INTEGRATION & OPEN ARCHITECTURE

Metron's system is designed with open architecture to ensure compatibility with existing and future systems. Data can be transferred to the existing billing and customer information systems in standard, non-proprietary formats, and the platform's API allows for easy integration with GIS, asset management, and reporting tools.

WaterScope® Utility extends the WaterScope platform with integrated work order and asset management capabilities, enabling maintenance teams to execute field tasks, update asset records, and sync detailed service data back to WaterScope — providing the core functionality of a WOMS.

LONG-TERM MAINTENANCE AND SUPPORT

Metron's commitment extends beyond deployment. Our maintenance support includes:

- **Issue resolution and escalation**
- **Comprehensive repair and replacement**
- **Ongoing software upgrades**
- **Unlimited support and training**

4. TECHNOLOGY SOLUTION OVERVIEW

A FUTURE-READY AMI SYSTEM FOR THE TOWN OF JEROME

Metron proposed solution is centered on a **Cellular Long-Term Evolution Machine Type Communication (LTE-M)** AMI system built for reliability, scalability, and future growth. It combines best-in-class metering hardware, multi-carrier cellular connectivity, secure cloud-based software, and advanced analytics, all integrated into a single platform.

This solution has been field-proven in deployments nationwide and is designed to deliver **98.5%+ read success**, continuous data visibility, and actionable insights that empower utilities to operate more efficiently, engage customers proactively, and manage water resources responsibly.

CELLULAR LTE-M NETWORK ARCHITECTURE

Our LTE-M network architecture is designed from the ground up to meet the requirements for two-way communication, reliability, and performance. It operates without the need for repeaters, collectors, or proprietary networks — simplifying deployment and reducing infrastructure and maintenance costs.
Key design features include:

- **Two-Way Licensed Communication**: Endpoints transmit and receive data on a licensed frequency, ensuring secure and interference-free communication.
- **Multi-Carrier Redundancy:** Each endpoint connects automatically to the strongest available carrier, switching seamlessly if signal quality changes.
- **Future-Proof Design:** Additional carriers can be added to the network without field reprogramming or hardware changes, ensuring the system remains adaptable over the next 15+ years.

By leveraging existing cellular infrastructure, the Town of Jerome avoids the capital and maintenance costs associated with proprietary networks while gaining coverage and reliability.

WATERSCOPE® DATA PLATFORM

Metron's WaterScope® platform is the central hub for data collection, processing, visualization, and integration. Delivered as a secure, cloud-hosted service, WaterScope® provides real-time visibility into metering data and system performance while seamlessly integrating with the Town's existing systems.
Core Platform Capabilities:

- **Real-Time Monitoring:** Access 1-minute consumption data, endpoint performance, and system diagnostics via a web-based dashboard.
- **Data Processing and Storage:** Store and manage up to a minimum of 60 months of historical data, easily retrievable for analysis, reporting, and compliance.
- **Advanced Analytics:** Automated detection and alerting for leaks, no-flow, backflow, and high-usage events.
- **Customer Engagement Portal:** A pre-integrated web portal gives customers access to their usage data, estimated billing costs, and leak notifications. Users can set consumption budgets and receive alerts as they approach usage thresholds.
- **Integration Ready:** WaterScope® interfaces with billing, GIS, and asset management systems through open standards, ensuring data flow and compatibility with future applications.

SECURITY AND DATA INTEGRITY

Metron understands that data security is mission critical. Our information security program is built around industry best practices and aligned with **ISO** and **NIST** frameworks.
Security Features Include:

- **Secure Hosting:** All data is hosted in redundant, geographically dispersed data centers with enterprise-grade security controls.
- **Encryption:** All data is encrypted in transit and at rest using advanced protocols.
- **Access Controls:** Role-based access, multi-factor authentication, and detailed audit logging protect against unauthorized access.

- **Disaster Recovery and Backups:** Continuous backups and disaster recovery systems ensure data availability and integrity even in the event of system disruptions.

The Town of Jerome will retain full ownership of all data collected through the AMI system. Metron's role is to securely host, manage, and deliver this data back to the town in the format and frequency required.

SYSTEM DIAGNOSTICS AND MONITORING

The system continuously monitors its own performance at every level — from endpoint battery voltage to network connectivity and provides detailed diagnostic reports through the WaterScope® platform. This monitoring enables the Town and Metron support teams to quickly identify and resolve issues before they affect performance.

- **Read Verification:** The system verifies receipt of data from every meter daily.
- **Automated Alerts:** Any meter failing to report for five consecutive days automatically triggers a work order.
- **Network Health:** Cellular signal strength, endpoint connectivity, and backhaul performance are continuously monitored.
- **System-Wide Performance:** Daily read rate tracking ensures the system meets or exceeds the 98.5% threshold.

WORK ORDER AND ASSET MANAGEMENT

Metron's WaterScope® Utility app extends the functionality of WaterScope into the field, giving maintenance teams a powerful mobile tool to manage assets, execute work orders, and capture field data. Crews can view meters needing attention (leaks, high use, missed reads), navigate to locations, capture serial numbers and photos, update GPS data, and sync records automatically to WaterScope — even when offline. Maintenance managers can generate tasks directly within WaterScope, dispatching prioritized routes and work orders to field staff, who complete inspections, repairs, or replacements with full visibility into asset history. This seamless integration creates a secure, centralized record of field actions and provides the Town of Jerome with the core capabilities of a work order and asset management system without requiring a separate platform.

WATER METER PERFORMANCE AND CAPABILITIES

Metron's water meters are designed for accuracy, reliability, and longevity. Built from NSF/ANSI 61 certified materials and tested to AWWA C715-18, AWWA C712, and AWWA C710 standards, they deliver precise measurements across a wide range of flows and environmental conditions.

Meter Performance Features:

- **High-Resolution Measurement:** Our Spectrum™ Single Jet and Wave ultrasonic meters detect low-flow leaks and accurately measure over a wide dynamic range.
- **Durable Construction:** Our meters are constructed with either reinforced composite (polyamide 12) and/or ASTM C875 bronze. The Prism register is full encapsulated and contains a lithium D-cell battery, all to ensure strength and a long life.
- **Guaranteed Accuracy:** All meters are factory-tested and guaranteed for high accuracy.
- **Environmental Protection:** IP68-rated designs for meters and registers withstand submersion and environmental exposure.

Together with our LTE-M integrated endpoints and WaterScope® platform, Metron's meters form the foundation of a water intelligence network that will serve reliably for decades.

5. PROJECT TEAM QUALIFICATIONS

A TEAM BUILT FOR TURNKEY SUCCESS

Metron has assembled a highly qualified project team with the experience, technical expertise, and proven track record necessary to deliver a successful AMI implementation and long-term asset management program for the Town of Jerome. Our team brings together seasoned professionals in engineering, software development, field services, and customer support — all dedicated to delivering on the Town's objectives from planning through full-scale operation.

Our approach ensures that all project elements — from design and deployment to training and maintenance — are aligned, integrated, and executed seamlessly.

PROJECT LEADERSHIP AND MANAGEMENT

Metron will assign a dedicated **Project Manager** to oversee all aspects of the town's project. This individual will serve as the Town's primary point of contact and will be responsible for scope, schedule, quality, and communication.

Key responsibilities include:

- Developing and maintaining the overall project schedule and work plan.
- Coordinating all project activities across Metron teams, Town stakeholders, and subcontractors.
- Overseeing field deployment and ensuring adherence to safety and regulatory standards.
- Managing risk, change orders, and issue resolution proactively.

Metron's project managers are certified professionals with extensive experience leading complex AMI projects. They are supported by a team of specialists in metering technology, software integration, data security, and utility operations.

ENGINEERING AND TECHNICAL SUPPORT

Metron's engineering team will be responsible for system design, configuration, and integration. With decades of combined experience in water metering, communication systems, and software development, our engineers will ensure the solution is optimized for the Town's specific needs and infrastructure.

Engineering support will include:

- Network propagation studies.
- System design, including endpoint placement and communication planning.
- Configuration and integration of WaterScope® with the Town's Caselle billing system.
- Design of remote antenna and above-grade endpoint installations, if needed.
- Ongoing technical support for software, data analytics, and integration.

FIELD SERVICES AND INSTALLATION TEAM

Metron will manage and oversee all field deployment activities through a certified installation partner. This team will be responsible for meter replacement, endpoint installation, remote antenna deployment, and customer coordination.

All field technicians will receive project-specific training and will work under Metron's direct supervision.

SUPPORT, TRAINING, AND CUSTOMER ENGAGEMENT

Metron's customer support and training teams will ensure Town staff and end users are fully equipped to operate the new AMI system. We provide comprehensive training at project launch and refresher sessions as needed.

Training and support services include:

- **Utility staff training:** Hands-on instruction on WaterScope® functionality, system monitoring, and data analysis.
- **Field team training:** Proper installation procedures and system testing requirements.

Our dedicated support team remains available for ongoing assistance via phone, email, and remote sessions — ensuring Town staff have the help they need when they need it.

6. TRAINING, SUPPORT & CUSTOMER ENGAGEMENT

COMMITMENT TO LONG-TERM SUCCESS THROUGH EDUCATION AND SUPPORT

Metron believes that the success of any AMI program extends beyond the technology itself — it depends on the knowledge and readiness of the people who use and manage the system every day. Comprehensive training and ongoing support are integral components of our AMI solution for the Town of Jerome.

Our training programs are structured to empower staff, field personnel, and customers with the skills and information they need to fully leverage the capabilities of the AMI system.

UTILITY STAFF TRAINING

Metron provides comprehensive training for utility staff responsible for operating and managing the AMI system. These sessions are designed to ensure staff are fully proficient in system use, data interpretation, and troubleshooting.

Training includes:

- **WaterScope® Platform Training:** Detailed instruction on navigating the platform, accessing consumption data, creating alerts, generating reports, and integrating with other utility systems.
- **System Monitoring and Diagnostics:** Training on interpreting endpoint diagnostics, monitoring network health, and responding to alerts.
- **Data Analytics and Insights:** How to leverage WaterScope® analytics for leak detection, anomaly identification, and demand forecasting.
- **Reporting and Compliance:** Guidance on generating reports for internal use, regulatory compliance, and customer communication.

Training is delivered through a combination of on-site workshops, virtual sessions, and comprehensive user manuals.

FIELD TECHNICIAN TRAINING

Metron ensures that all field personnel — including those from our installation partner — receive thorough training on equipment installation, and endpoint configuration. This ensures every field activity is performed to the highest standards of quality, safety, and compliance.

Field training includes:

- **Installation Procedures:** Proper handling, installation, and commissioning of meters and endpoints.
- **Quality Assurance:** Verification steps to ensure all devices are installed correctly and reporting successfully before leaving the site.

ONGOING TECHNICAL SUPPORT

Metron's commitment to the Town of Jerome continues well beyond the initial deployment. Our dedicated support team is available to provide timely, expert assistance for any questions or issues that arise.

Our support services include:

- **Remote Support:** Assistance via phone, email, or web conferencing for troubleshooting, configuration, or data inquiries.
- **Software Updates and Training:** Training sessions aligned with major WaterScope® updates to ensure staff remain current on new features and capabilities.

CUSTOMER ENGAGEMENT AND EDUCATION

Customer engagement is a vital part of any AMI deployment, and Metron provides the tools and resources to help the Town of Jerome communicate effectively with water customers throughout the transition and beyond.

Our WaterScope® customer portal is a web-based platform that empowers customers to understand and manage their water usage. Features include:

- **Real-Time Consumption Data:** Customers can view hourly, daily, and monthly water use.
- **Budget and Usage Alerts:** Customers can set consumption budgets and receive notifications when usage approaches or exceeds targets.
- **Leak Detection Alerts:** Automatic alerts notify customers of potential leaks, helping them address issues early and reduce water loss.
- **Billing Transparency:** Customers gain insight into how usage affects billing, improving trust and satisfaction.

Metron also supports Town-led outreach campaigns, providing communication templates, educational materials, and customer FAQ documents to help explain the benefits of AMI technology and encourage portal adoption.

CONTINUOUS IMPROVEMENT AND KNOWLEDGE TRANSFER

Our partnership approach ensures that Town staff are always equipped with the latest tools and information. Through continuous education and support, Metron ensures the Town of Jerome's team is capable and prepared to maximize the value of its AMI investment, both on day one and throughout the life of the program.

7. COMPLIANCE, SAFETY, & RISK MANAGEMENT

COMMITMENT TO SAFETY AND REGULATORY COMPLIANCE

Metron is committed to the highest standards of safety, quality, and regulatory compliance in every aspect of project delivery. Metron ensures that the Town's AMI program is implemented safely, efficiently, and in full accordance with all applicable regulations.

All field activities performed by Metron and our installation partner will comply with **Occupational Safety and Health Administration (OSHA)** standards, **Davis-Bacon Act** wage requirements, and all state and municipal regulations governing water utility infrastructure projects. Safety is integrated into every stage of our work from planning and design through deployment, commissioning, and maintenance.

HEALTH AND SAFETY INSTALLATION PROGRAM

Metron maintains a comprehensive safety and health program that governs all field operations. This program includes:

- **Job Hazard Analysis:** Conducted prior to the start of each task to identify potential hazards and define mitigation measures.
- **Safety Meetings:** Daily safety briefings conducted before work begins on site.
- **Training and Certification:** All field personnel receive OSHA training and are certified in confined space entry, trench safety, and other required competencies.
- **Personal Protective Equipment (PPE):** Strict PPE policies ensure field teams are properly equipped for all tasks.
- **Incident Reporting and Investigation:** All incidents and near-misses are documented and reviewed to prevent recurrence.

Our installation partner will be required to adhere to the same safety policies and procedures and will receive project-specific safety orientation and training before beginning work in the field.

REGULATORY AND CONTRACTUAL COMPLIANCE

Metron ensures full compliance with all contractual and regulatory obligations associated with the AMI program. Our processes include regular compliance checks and documentation reviews to confirm adherence to applicable standards and reporting requirements.

We also coordinate closely with Town staff and regulatory agencies to ensure all required permits, inspections, and approvals are secured in a timely manner. All equipment supplied as part of the project will meet or exceed applicable AWWA, NSF/ANSI, and FCC standards.

SUPPLY CHAIN RISK MITIGATION AND DELIVERY ASSURANCE

Metron understands that reliable delivery of equipment and materials is critical to the success of any AMI deployment. In an era of global supply chain disruptions, we have implemented proactive strategies to mitigate risks and ensure timely delivery of all project components.

Our approach includes:

- **Strategic Inventory Planning:** Core components — including meters, endpoints, and installation kits — are incorporated into standard inventory cycles, allowing Metron to maintain buffer stock for immediate deployment.
- **Multiple Sourcing Options:** Key materials are sourced from multiple suppliers to minimize dependency on any single source, if needed.
- **Close Supplier Partnerships:** Metron maintains strong relationships with logistics partners to secure priority production and shipping schedules.
- **Advanced Forecasting:** We use demand forecasting tools and historical data to anticipate material needs and plan procurement schedules well in advance.

While unforeseen disruptions can impact lead times, these measures significantly reduce risk and allow Metron to remain agile and responsive to changing conditions. Our proven supply chain resilience ensures that the Town's project will remain on schedule from procurement through final commissioning.

INSURANCE AND LIABILITY COVERAGE

Metron carries comprehensive insurance coverage that meets or exceeds all requirements for municipal infrastructure projects. Certificates of insurance are provided to the Town prior to the start of work, demonstrating compliance with all contractual and regulatory requirements. Our installation partner will also be required to provide proof of insurance and maintain coverage throughout the project duration.

RISK MANAGEMENT AND QUALITY ASSURANCE

Metron employs a structured risk management framework throughout the project lifecycle. Risks are identified, assessed, and mitigated through proactive planning, ongoing monitoring, and responsive corrective actions. This approach minimizes the likelihood of schedule delays, cost overruns, and performance issues. Quality assurance is built into every stage of the project. Our processes ensure that materials, workmanship, and system performance meet stringent quality standards. Each meter, endpoint, and software component undergoes rigorous testing and validation before deployment, and system performance is verified through acceptance testing before final handoff.

8. REFERENCES & PAST PERFORMANCES

PROVEN SUCCESS ACROSS MUNICIPAL AMI PROJECTS

Metron has successfully delivered advanced water metering and AMI solutions to municipal utilities across the United States. Our decades of experience and deep understanding of water utility operations allow us to design, deploy, and maintain solutions that consistently meet or exceed performance expectations.
Our deployments range from small pilot programs to full-scale system-wide implementations serving thousands of endpoints. In each case, we focus on accuracy, reliability, integration, and long-term partnership — the same priorities we bring the Town of Jerome's AMI project.

PAST PROJECTS & REFERENCES

Reference 1: (Municipal Utility) Town of Camp Verde, AZ
Client Name: Town of Camp Verde
Client Project Name: Meter Changeout Project
Client Reference Name & Title: Jeff Low – Utilities Director
Client Phone Number: 928-469-9063
Client Email: jeff.low@campverde.az.gov
Location of Work: Camp Verde, Arizona
Total Endpoints: 2,200
Initial Timeframe for Duration and Completion of Work: 1 year to complete all work including installation and billing
Scope of Work / Description of Work Performed (including systems integrated): Metron supplied cellular AMI water meters for the district's service area. The Town of Camp Verde handled all self-installation, supported by Metron's technical team for configuration and ongoing system support.
Comments: The Town of Camp Verde has had a successful time with the Metron product with a strong read rate and capturing thousands of dollars of unrecognized revenue.

Reference 2: (Municipal Utility) Avra Water Company
Client Name: Avra Water Company
Client Project Name: Water Infrastructure Finance Authority Meter Replacement Project
Client Reference Name & Title: Cathy Kuefler – Administrative Manager
Client Phone Number: 520-780-8689
Client Email: cath@avrawater.com
Location of Work: Tucson, Arizona
Total Endpoints: 2,600
Initial Timeframe for Duration and Completion of Work: 1 year
Scope of Work / Description of Work Performed (including systems integrated): Metron supplied 1,400 Cellular enabled registers and meters to Avra Water co-op. Avra has been conducting their own installation of the product to combat a failing Sensus drive by system.
Comments: Avra has had a successful Time with the Metron product with a strong read rate and capturing Thousands of dollars of unrecognizes revenue.

Reference 3: (Rural Utility) BDM Rural Water, SD
Client Name: BDM Rural Water
Client Project Name: AMI Deployment
Client Reference Name & Title: Rodney Kappes – General Manager
Client Phone Number: 605-448-5417
Client Email: rodneyk@bdmruralwater.com
Location of Work: Day County, South Dakota
Total Endpoints: 2,300+
Initial Timeframe for Duration and Completion of Work: Completed
Scope of Work / Description of Work Performed (including systems integrated):
Metron supplied cellular AMI water meters for the district's service area. BDM handled all self-installation, supported by Metron's technical team for configuration and ongoing system support.
Comments: Successful deployment enabled reliable meter reads across a rural service territory with minimal field maintenance.

Reference 4: (Municipal Utility) Evergreen Metro District, CO
Client Name: Evergreen Metro District
Client Project Name: AMI Upgrade
Client Reference Name & Title: Kevin Rosemeyer – Water Director
Client Phone Number: 303-301-5500
Client Email: krosemeyer@evergreenmetro.org
Location of Work: Evergreen, Colorado
Total Endpoints: 4,500
Initial Timeframe for Duration and Completion of Work: One-year upgrade process
Scope of Work / Description of Work Performed (including systems integrated):
Metron performed a full upgrade from a previous drive-by AMR system to a cellular AMI network to improve meter reading efficiency and data visibility. Meters were supplied and installed by Metron, including those in indoor applications across hilly terrain.
Comments: The deployment improved operational efficiency and real-time data access, resulting in high customer satisfaction.

Reference 5: (Municipal Utility) Town of Erie, CO
Client Name: Town of Erie, Colorado
Client Project Name: AMI Upgrade
Client Reference Name & Title: Chris Biggs – Meter Supervisor
Client Phone Number: 303-243-2520
Client Email: cbiggs@erieco.gov
Location of Work: Erie, Colorado
Total Endpoints: 3,900+ and ongoing
Initial Timeframe for Duration and Completion of Work: 2023 to Present
Scope of Work / Description of Work Performed (including systems integrated):
The Town transitioned from a mix of non-Metron AMI and older meter types to a standardized deployment using Metron cellular AMI meters and endpoints across all meter sizes. Metron supplied the meters and supported installation efforts.
Comments: Ongoing project aimed at improving system visibility, data access, and customer engagement.

CONSISTENT RESULTS AND LASTING PARTNERSHIPS

Metron's AMI solutions consistently deliver measurable benefits for our clients, including:

- **High Read Success:** Sustained read rates above 98.5%, even in challenging environments.
- **Improved Revenue Recovery:** Enhanced meter accuracy and real-time leak detection reduce non-revenue water.
- **Operational Efficiency:** Direct-to-cloud connectivity and automated analytics reduce manual labor and streamline operations.
- **Customer Engagement:** Customer-facing tools improve transparency, satisfaction, and trust.
- **Long-Term Reliability:** Systems are designed for 20+ years of service life with minimal field maintenance.

Our approach is focused on partnership. We collaborate closely with clients before, during, and after deployment to ensure their unique needs are met and we remain engaged long after installation to ensure continued system performance and customer satisfaction.

9. APPENDICES & SUPPORTING DOCUMENTATION

9.1. METRON ADVANCED METERING INFRASTRUCTURE (AMI) OVERVIEW

Metron's Advanced Metering Infrastructure (AMI) solution leverages existing cellular networks (Verizon/AT&T) to provide 1-minute, time-synchronized consumption data—without the need for additional infrastructure costs. This cellular-based architecture ensures ease of deployment and scalability across both rural and urban environments. Whether serving 200 endpoints or 100,000+, the outcome is consistent: immediate AMI capability with no additional infrastructure required.

Municipalities benefit by avoiding propagation studies, property lease negotiations, or the maintenance burdens of fixed-network equipment. There is no need to install or maintain costly reading infrastructure. Simply install a Prism® register or meter today and begin accessing real-time consumption data through our WaterScope® portal tomorrow.

CLOUD STORAGE & SYSTEM EFFICIENCY

All consumption data is securely stored within Microsoft Azure, removing the need for on-site servers while offering virtually unlimited scalability. Endpoint transmissions are randomized throughout the day to avoid network congestion, ensuring reliable data delivery.

WATERSCOPE® WEB PORTAL

Our high-resolution data is accessed through Metron's WaterScope platform—nominated as a finalist for the 2022 IoT "Best Utility and Energy Solution" worldwide. WaterScope provides utilities, business owners, and homeowners with web-based and mobile access to consumption data at no added cost. We also provide mobile applications for both utility and consumer use, ensuring full transparency and accessibility.
Metron offers an all-in pricing model—unlimited software access, cellular coverage, and support are bundled into the cost of the meter. This approach eliminates recurring fees and simplifies budgeting. Every component of the AMI ecosystem, from endpoint to portal, is developed and supported in-house. Customers have one point of contact for service and support, eliminating third-party complexity.

METRON'S AMI TECHNOLOGY AND SUPPORT FRAMEWORK

- **WaterScope® Platform**: Real-time analytics and alerting for leak detection, high usage, and more. Hosted on Microsoft Azure for high availability, security, and scalability.
- **Universal Endpoints**: Prism™ and Prism R registers retrofit to most existing meters and offer over 20 years of battery life. Endpoints transmit during off-peak hours to optimize network use.
- **Consumer and Utility Portals**: Robust tools for understanding usage trends, budgeting water consumption, and detecting leaks. Both portals are accessible via web and mobile applications.
- **Integration Capabilities**: Supports flat file transfers, API, FTP, and VPN—ensuring easy alignment with existing billing or customer systems.
- **Project Management**: A structured methodology with dedicated teams, comprehensive training, and proactive support throughout the life of the deployment.
- **Innovative Features**: Metron was first to market with cellular AMI and delivers 1-minute interval data, enabling granular analytics such as fixture-level consumption and peak flow reporting.

METRON SYSTEM ARCHITECTURE AND AMI HARDWARE OVERVIEW

Metron's AMI architecture uses a radically different design philosophy. The Prism® register contains its own integrated cellular communication module, eliminating the need for a separate endpoint device. This configuration drastically reduces battery usage by removing frequent wake-ups for internal polling.
The result: unmatched data resolution and battery longevity.

- **Ultrasonic Meters**: Highly accurate, with no moving parts—ideal for long-term, maintenance-free service.
- **Single-Jet Meters**: Cost-effective and reliable for residential and light commercial use.
- **Hybrid Meters**: Combine mechanical and ultrasonic technology for specific or challenging applications.

The Prism™ register can be retrofitted to most existing mechanical meters, providing full AMI capability without meter replacement. The register stores 1-minute intervals over a rolling 45-day period (227 days for 5-minute commercial applications). If a daily transmission fails, the data is backfilled upon reconnection or can be retrieved locally via IrDA.

Prism™ Register Functionality and Design

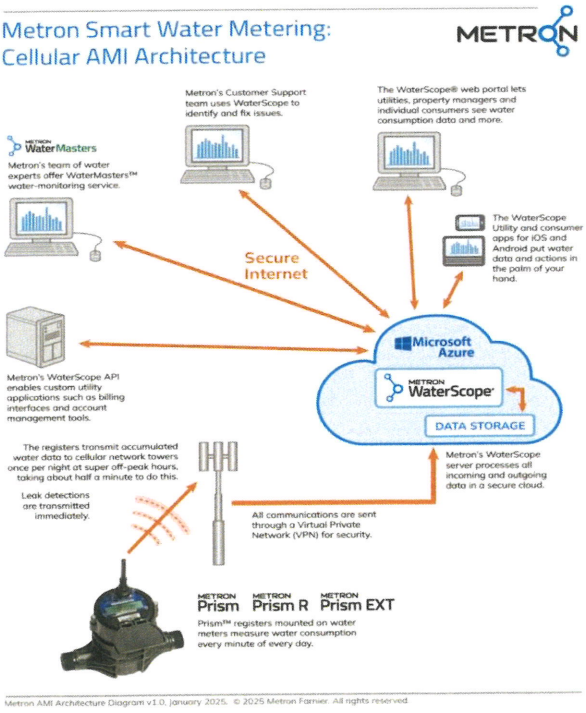
- **Data Transmission**: Each register sends a single, daily, time-synchronized transmission containing all usage data for the previous 24 hours. This allows utilities to perform system-wide analytics such as peak demand or non-revenue water loss with consistent, aligned data.
- **Two-Way Communication**: Supports remote firmware updates and programming.
- **Installation Flexibility**: Available antenna types include pit mount and paddle, with 5', 12', or 20' cable options. Our two-part design allows damaged cables to be repaired independently, saving cost.
- **Durability**: Fully submersible (IP68) and functional in temperatures from -0°F to 140°F. The standard warranty includes 10 years full, and 10 years prorated coverage.

Future-Readiness: Our solution is designed with scalability in mind, accommodating the utility's growth and future technological advancements. This future-readiness ensures a long-term, sustainable investment. Metron is continually enhancing the functionality and efficiency of our platform and welcomes the opportunity to collaborate on future features and custom integrations. We are happy to discuss these opportunities further once a mutual NDA is in place.

Over the next three years, Metron will continue to:

- Expand **WaterScope** analytics and reporting tools, including our latest addition of **WaterMasters™** a subscription-based monitoring service that provides continuous oversight of your water system.
- Integrate **AI-driven leak prediction and water usage forecasting**
- Enhance **mobile application** features for utilities and consumers

METRON SYSTEM ARCHITECTURE DIAGRAM



9.2. PROPAGATION STUDY

DUAL TELECOM PROVIDER STRATEGY:

Metron maintains active partnerships with both **Verizon** and **AT&T**, ensuring broad and resilient network coverage across all deployment environments. Our metering devices operate on the **LTE-M (Long-Term Evolution for Machines)** cellular band—**a low-power, wide-area network specifically designed for IoT devices**, including smart meters. LTE-M runs in parallel to the 5G network but remains independent of it, ensuring reliable performance today while staying future-ready.

As cellular providers expand their capabilities to **5G, 6G, and beyond**, Metron's solution will continue to operate seamlessly on the LTE-M network. We are committed to evolving alongside our technology partners, ensuring the long-term viability of every device we install. This guarantees that meters deployed today will remain compatible and functional for **20+ years** into the future, protecting utility investments over time. We leverage a **multi-carrier setup** to enhance network reliability. **Verizon** serves as our primary provider, offering robust nationwide coverage. **AT&T** provides automatic failover support, stepping in to maintain uninterrupted service in the rare event of a Verizon disruption. This dual-carrier approach ensures **constant connectivity and operational continuity**, regardless of local conditions or carrier-specific issues.

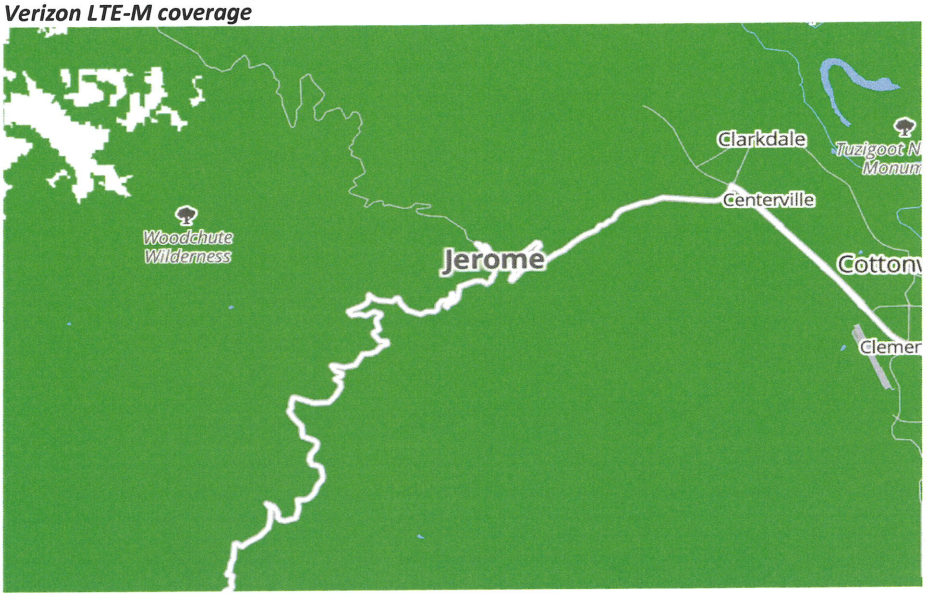
One of the key advantages of Metron's **cellular-based AMI solution** is its **elimination of costly and complex infrastructure**. Our system requires **no repeaters, no towers, and no proprietary mesh networks**—dramatically reducing deployment time, maintenance costs, and operational overhead. This not only simplifies installation but also removes long-term risks associated with managing and maintaining dedicated communications hardware.

The result is a highly **scalable, low-maintenance, and future-proof AMI network** that delivers reliable performance in both urban and rural settings, including hard-to-reach areas with challenging terrain. Cellular metering allows utilities to **focus on data-driven decision-making** rather than infrastructure management, accelerating the path to smarter water systems and improved customer engagement.

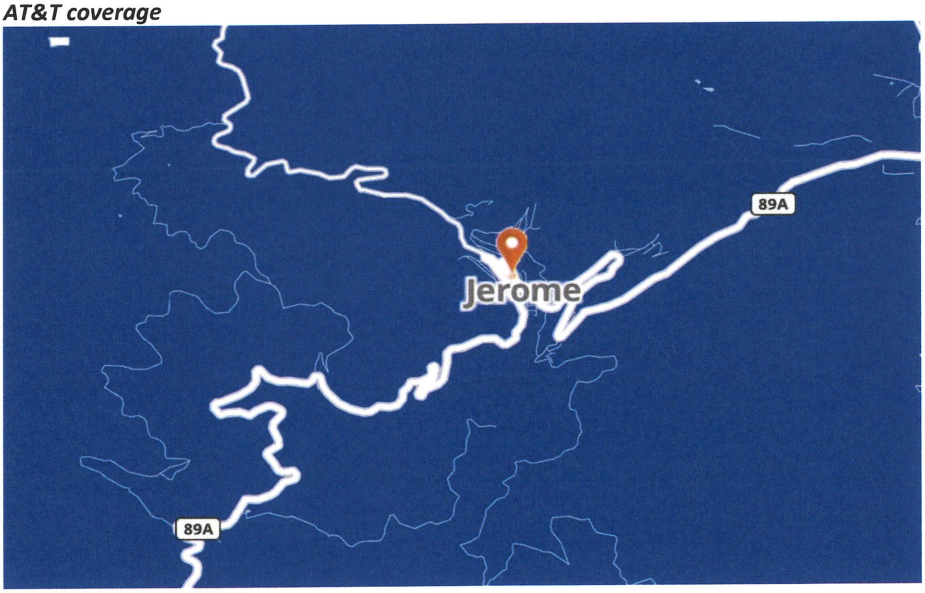
System testing is a continuous process that takes place from the start of the project until final completion to ensure read reliability as well as customer satisfaction. While Verizon has provided a propagation study ensuring 100% coverage of the Town's cellular network and communication to proposed endpoints, Metron also recommends, if needed, the use of interchangeable antennas to optimize signal. Should the need arise at the time of installation when the field installer is verifying the Received Signal Strength Indicator (RSSI), installers will be equipped with antennas to ensure a continuous reliable cellular connection.

In addition to paddle antennas and RSSI being checked at the time of installation, Metron is continuously monitoring system health reports to identify any anomalies or missed readings immediately after the time of installation. This ensures that each account is positioned to perform from project inception through the life of the system.

Verizon LTE-M coverage



AT&T coverage



9.3. METRON ENDPOINTS – THE PRISM REGISTER

The Metron system is constructed in a very different way than other AMI systems. The Metron Prism register endpoint has the communications built into the register. There are several advantages to this design, with battery life (20+ years) and data resolution being the most significant. Typical AMI systems have an endpoint that wakes up every hour, or sometimes 15-minutes, to communicate with the meter to obtain updated usage information. That is a very battery intensive operation and is the limiting factor in data resolution. Because the Metron Prism register has eliminated that constant communication (i.e. battery drain), we can capture and store the usage intervals down to a single minute. This gives the utility true GPM calculation and unrivaled water usage analytics never before available. The most unique design feature of the Prism cellular register is its universal compatibility. The Prism register can be retrofitted to the utility's existing mechanical meters. No need to replace your meter to gain access to what the Prism cellular register offers.

PRISM REGISTER OPERATION

The register stores the 1-minute intervals throughout the course of the day while the communications aspect is essentially in sleep mode. Then, one time per day, the register will wake up and send the equivalent of a text message over the existing cellular network with time-synchronized midnight-to-midnight consumption data. The data is time-synced so the utility can do macro level analytics such as water loss, time of use, peak flow, etc. on a system wide basis. No more apples to oranges comparison.

The Prism register stores up to 45 days of 1-minute interval data for residential applications and 227 days of 5-minute interval for commercial applications. Should a daily transmission fail, the actual missing data will be backfilled upon the next successful connection. This data may also be retrieved locally via an IrDA communication. The Prism offers full two-way functionality, which allows for over-the-air programming and over-the-air firmware updates. (IrDA as well)

The Prism can be installed in pits or indoors and there are multiple antenna options to ensure connectivity. The pit mount antenna secures through a pre-drilled 2 ¼" hole for deeper meter sets. The paddle antenna (recommended) can be mounted to the underside of the lid. Each option comes in 5', 12', or 20' cable lengths. Our 2-part design allows for cut cables to be remedied without having to replace the entire register, saving the utility in cost/repair.

The Prism is fully submersible (IP68) and operates between -0 to 140 degrees Fahrenheit. Storage is between -20 to 140 degrees. The industry standard warranty is for 20yrs; a full 10-year, as well as an additional 10 years prorated.



WaterScope Dashboard 1-minute

9.4. METRON'S HEADEND SYSTEM – WATERSCOPE®

The Metron head end system, WaterScope, is a web-based platform that is accessed via an internet connection, username, and password. WaterScope is maintained by a group of internal software engineers which means there are no third-party licensing requirements. Metron gladly takes customer feedback and suggestions to continue to make WaterScope as useful to a water utility as possible. The platform is constantly improving but the improvements occur without any interruption of day-to-day operations and at no cost to the utility. There are also no recurring charges for the first ten years incurred by the utility for access and no limitations to the number of users. Anybody and everybody within the City can have login access and all users can be logged in simultaneously.

CONDITIONS - NOTIFICATIONS

As the endpoint transmissions are delivered in the middle of the night the 1-minute analytics are analyzed for several different utility defined conditions. The conditions are configurable, and the utility has the option to opt in for auto generated notifications. Those conditions are:

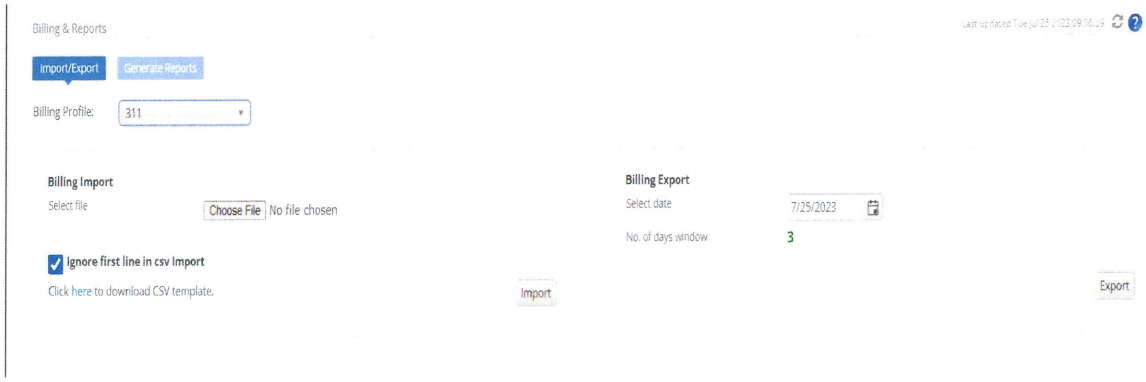
- **Leak** – A leak flag is triggered if there were 1440 1-minute intervals that had consumption above 0. Metron feels that if the meter can't register 0 gallons for at least 1-minute in a 24-hour period there is no question there is a leak.
- **Threshold Leak** – The Metron residential meter is accurate below 1/50th of a gallon per minute. Due to this, the program detects a lot of trickle leaks. In an effort to not overwhelm utility personnel with leak notifications, we've established this condition so the utility can filter notifications by a true GPM flow. For example, if 0.25 gpm is considered an 'actionable' leak rate from a utility perspective, WaterScope will only notify utility personnel of leaks greater than 0.25 gpm. The threshold can then be lowered or raised as needed.
- **Intermittent Leak** – The intermittent leak is designed to identify leaking toilets, or any other fixture in a home that runs intermittently for extended periods of time. The utility can configure the trigger as to not have irrigation events and/or constant leaks trigger the flag.
- **High Usage** – The high usage flag is a configurable daily consumption value. If usage exceeds the daily value, an alert is generated.
- **Backflow** – The backflow alert will trigger if a configurable amount of water runs in reverse over a specified period of time. It is also a useful flag for meters that were mistakenly installed backwards.
- **Zero Use** – The zero-use condition will trigger if NO water is used over a configurable period of time. This flag is useful for rental/vacant properties at the homeowner level, but for the utility can be used as a revenue protection alarm for the larger size meters. 30 days seems like a long period of time, especially for larger meters. The user can configure this alarm by meter size.
- **High Meter Flow** – This alert will notify the utility if flow rates exceed the high-end capacity of the meter. Can be helpful for right sizing an application.
- **High/Low Temperature** – The Spectrum Wave will detect water temperature and send an instant alert if temperature thresholds are hit. The Metron Prism measures the daily high and low ambient temperature. The sensor is built into the register, so the temperature reflects the meter level as opposed to the temperature at the pit lid level.
- **Unauthorized Use** – The utility can upload a list of meters that have been shut-off for non-payment and WaterScope will alert to cases where the homeowner has turned the water back on.
- **Unexpected Use** – This condition is designed for the homeowner so they may receive alerts if water is used unexpectedly. Use cases would be rental/vacant properties, snowbirds, and vacations.
- **Watering Event** – If the City intends to implement watering restrictions now or in the future the Watering Event condition can help monitor those restrictions. Restrictions can be mandatory/voluntary, based on time of day, and the days in a week. The Metron VN system is the only one that offer this as the Prism is the only device that can identify indoor vs outdoor use based on the flow rate.
- **Emergency Transmit** – The emergency transmit feature is meant to catch real time leaks. The condition is configurable by meter, and triggers if a configurable amount of flow occurs over a configurable amount of time. In that event the Prism will wake up off schedule and send an emergency text to the homeowner.

NOTE – Some insurance companies are willing to provide a rebate to the homeowner if they opt in for the emergency leak option. This only occurs because of the 1-minute data intervals Metron provides and the real time call in.

BILLING INTEGRATION & REPORTS

The WaterScope program is very flexible with regard to integrating with utility billing vendors. Typically, the integration occurs without the utility having to make any changes. There are also no resolution or multiplier requirements that need to be sent to the WaterScope program.

The most common integration method is a file transfer (text or csv). This file is used to populate the WaterScope site with pertinent information such as the Account Number, Customer Name, and Customer Address. Below is a screenshot of the file transfer screen within WaterScope.



WaterScope supports API integrations as well as FTP and VPN file transfers. For more see *webapi.waterscope.us/HelP*

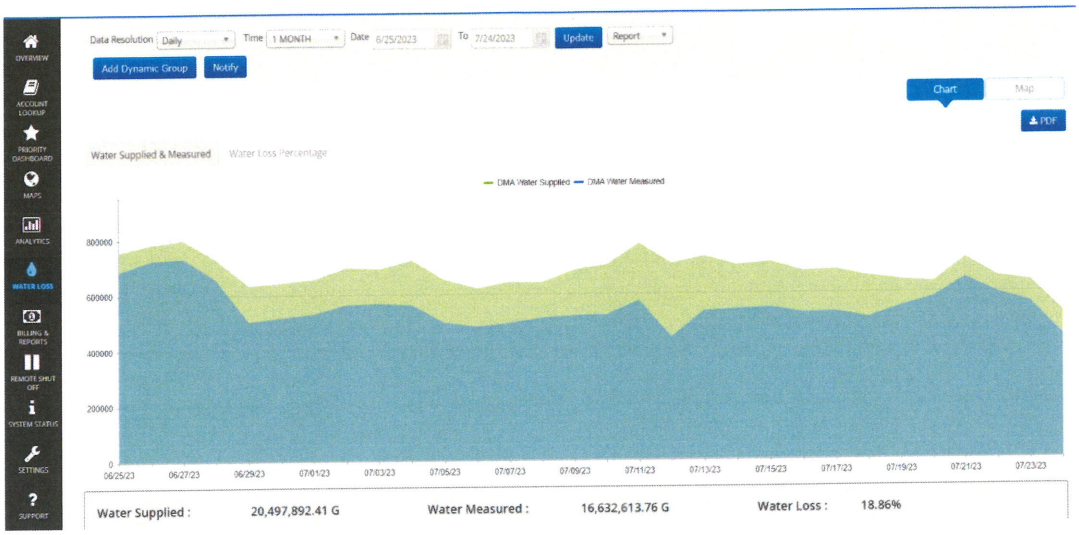
WaterScope offers several integrated reports. There are no third-party requirements to generate the reports, and the user may export unlimited numbers of them. The following outlines currently available reports:

- **Billing Usage** – This report returns a consumption value between a configurable date range.
- **Read Report** – Provides the current read on selected meters. The user has the option to view the full LCD read, or the scaled billing read.
- **Consumption by Meter Size** – Returns a report for aggregated consumption by meter size for the selected range of meters.
- **Comparative Report** – Returns comparative usage for a single meter, group of meters, or all meters for a configurable number of years.
- **Single Meter Consumption** – Returns interval data for a single meter over a configurable date range. The intervals can also be configured by the minute, hourly, daily, or monthly. This same report can be generated by the homeowner per consumer user access.
- **Historic Read Report** – Allows the user to view either the full LCD read or scaled billing read for a configurable date range. The report can be generated by a single meter, group of meters, or all meters.
- **Endpoint Configuration Report** – Displays current programming values of the Prism for a single meter, group of meters, or all meters.
- **Account Daily Consumption** – Returns daily consumption values for a single meter, group of meters, or all meters over a configurable date range.
- **Consumption Report** – Similar to the account daily report, but this one lets the user view consumption in interval data. Intervals can view hourly, daily, or monthly for a single meter, group of meters, or all meters for a specified date range.

MACRO LEVEL ANALYTICS

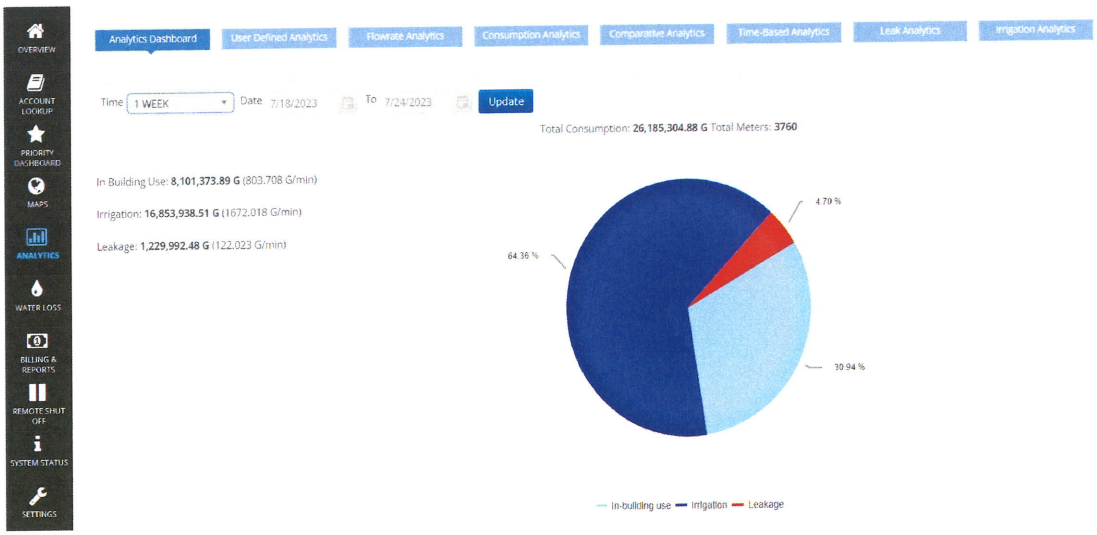
WaterScope offers a number of different macro level analytics. The more prominent ones being District Metering, time of use, flow rate analytics, and comparative analytics.

District Metering – The district metering groups can be configured regionally as well as system wide. The utility can easily identify the supply meter(s) and then subsequently assign the demand meters downstream. Adding/removing meters from a DMA group is also very user friendly. Below is a screenshot of the analytic



NOTE: *WaterScope also has the ability to monitor cooling towers. Should the City have any downstream cooling towers the building maintenance group could have the ability to monitor for cycles of concentration, faulty valves, etc.*

Analytics Dashboard – The analytics dashboard gives the utility a customized view of how the water is being consumed within the utility. The breakdown is indoor vs outdoor vs leak. This is a system wide total. The timeframe can easily be edited to reflect a month or a past week's usage:



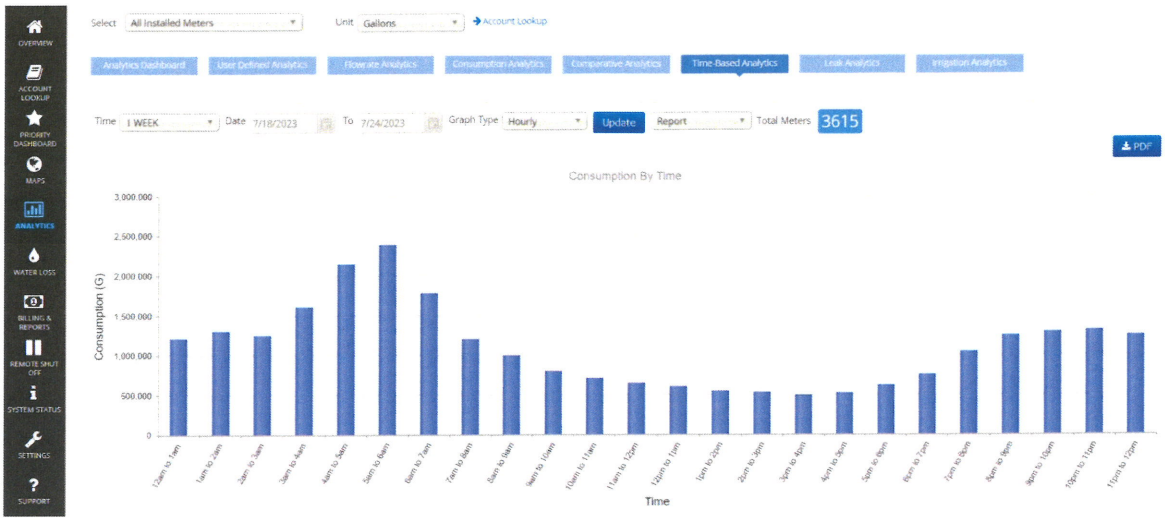
Flowrate Analytics – The flowrate analytics page allows the utility to view total consumption by flow rate, either system wide, by a group of meters (i.e., irrigation meters), by meter size, meter type, etc.



Comparative Analytics – View consumption differences from week to week, month to month, or by a custom date range for system wide consumption or by a utility defined group.



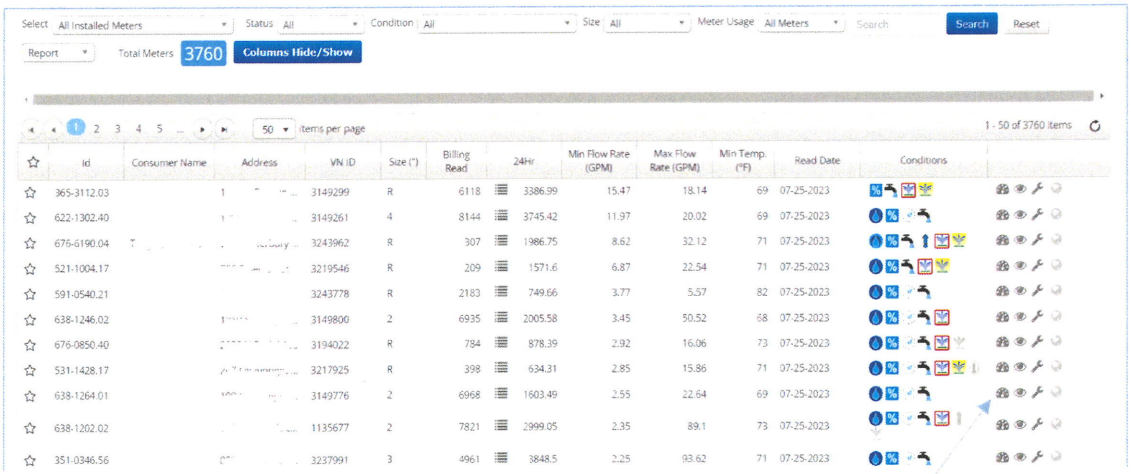
Time Based Analytics – The utility can utilize time-based analytics to see at what times per day the majority of water is being used. This could be especially useful during summer months to ensure that water supplied is keeping up with demand during irrigation.



MICRO LEVEL ANALYTICS

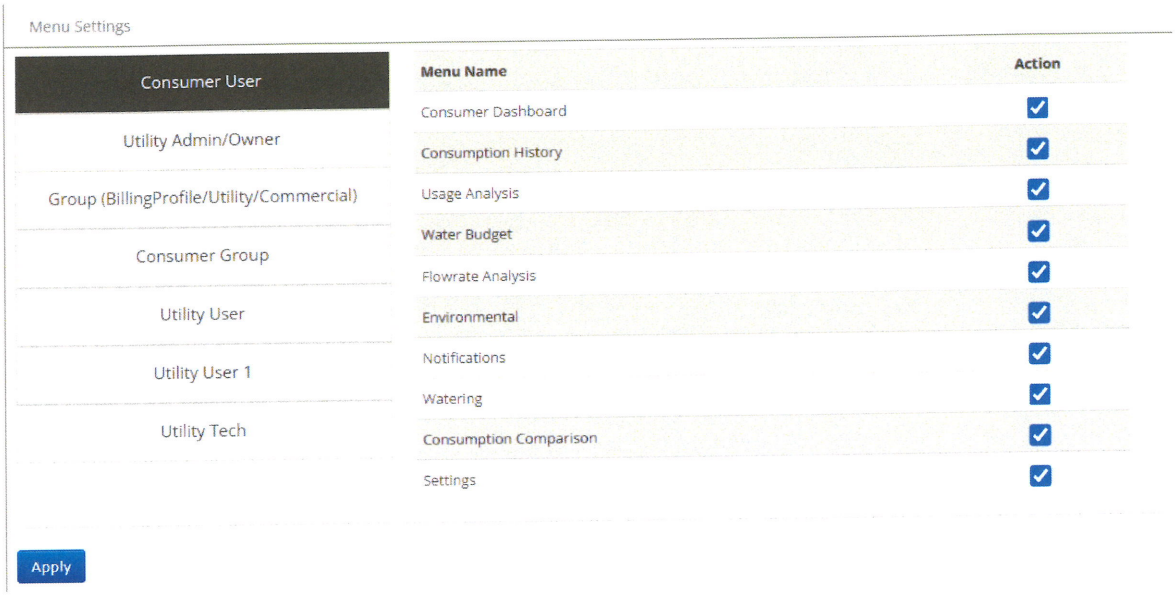
Aside from the different flag conditions mentioned prior, there are a number of consumption-based analytical options for the single meter. The Account Lookup screen is the utility bridge to each individual meter. On the account lookup screen, the utility can view the Account Number, Name, Address, Size, 24-Hour consumption, minimum leak rate, maximum leak rate, and low temperature. The user has the option to configure this screen to only display columns of importance to that user.

Users can easily filter by condition, size, type, group, etc. It is also very easy to lookup a particular meter via the Search option. Users can also view single meter configuration, signal strength values, current read, as well as enter notes for specific accounts. Notes are accessible to all users within the utility.



To access the consumption details for an individual meter, click the dashboard icon.

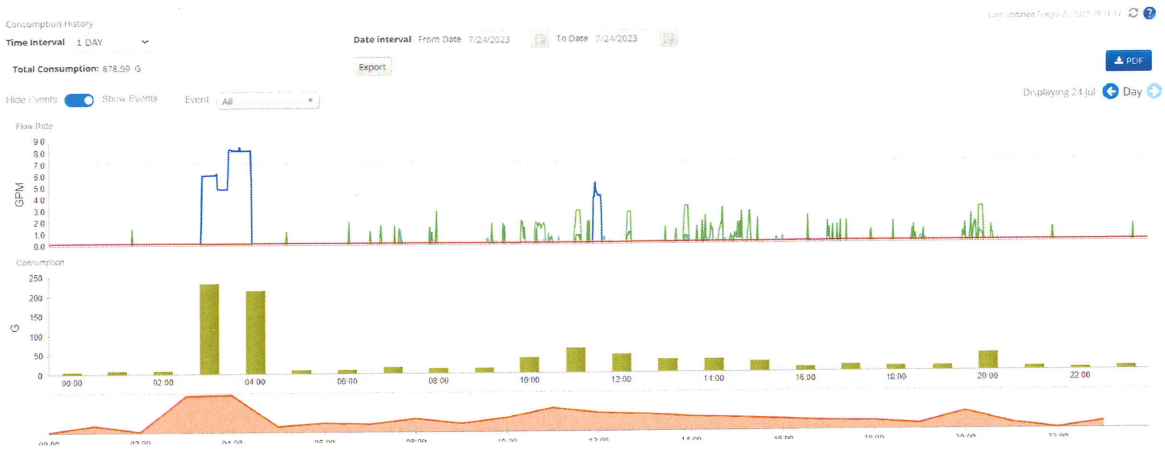
There are a number of different single meter analytics pages available to both the utility and the end user. The utility can ultimately determine what access and what analytical screens are made available to the end users by a simple configuration:



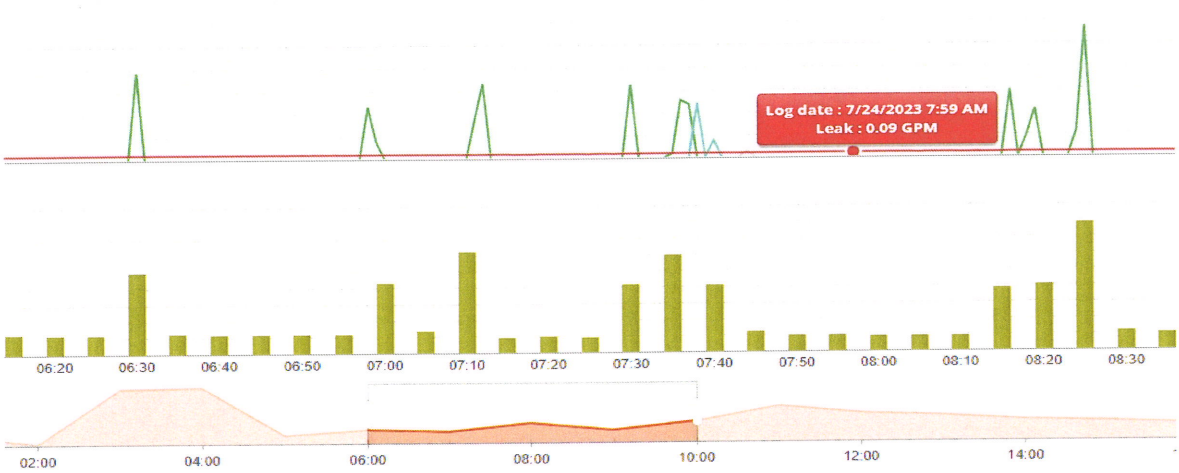
Consumer Dashboard – The consumer dashboard gives a quick summary of things like the current billing read, the past 24 hours consumption, month to date consumption, daily average, as well as a graphical representation of the past 24 hours consumption.



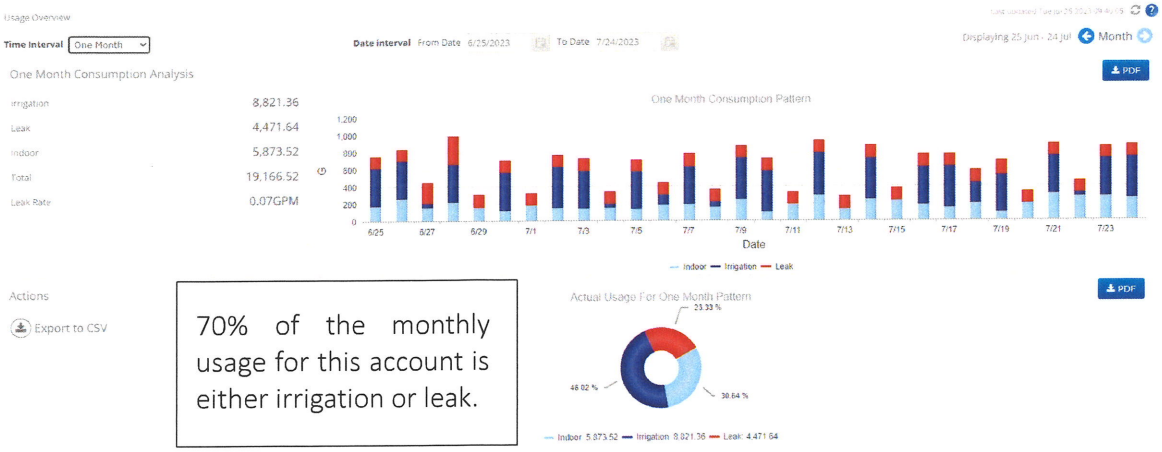
Consumption History – The consumption history allows the user to view the past day, week, month, year, or a custom time period (i.e., start-stop actual billing dates). The WaterScope program analyzes the data in 1-minute intervals and based on the flow rate and duration of time, designates the usage for things such as irrigation, toilet flushes, sink use, etc.



This page is very useful to the utility and end user to view leaks. In the example below the red line outlines a leak running at 0.09 gpm.



Usage Overview – The usage overview page presents the different types of consumption (indoor, outdoor, leak) so both the utility and end user can see how much water is being used in the different categories. When an end user can quantify how much water is potentially being wasted on a leak, or potential over-irrigating, it helps them understand the bill and adjust as necessary.



70% of the monthly usage for this account is either irrigation or leak.

Water Budget – The water budget feature allows the end user to track monthly usage compared to a goal they have set themselves, or that has been set by the utility. That
monthly usage goal can reflect billing tiers, average use within the utility, or seasonal expectations. The tiers within the budget are ultimately controlled by the utility. The screen displays total use per day, indoor vs outdoor, as well as a trend graph for month to date. The data is displayed statistically and graphically.

Statistically:

Daily Budget	225.81 G
Cycle Daily Average	351.77 G
Last 24 Hr	375.14 G
Cycle Budget	7000 G

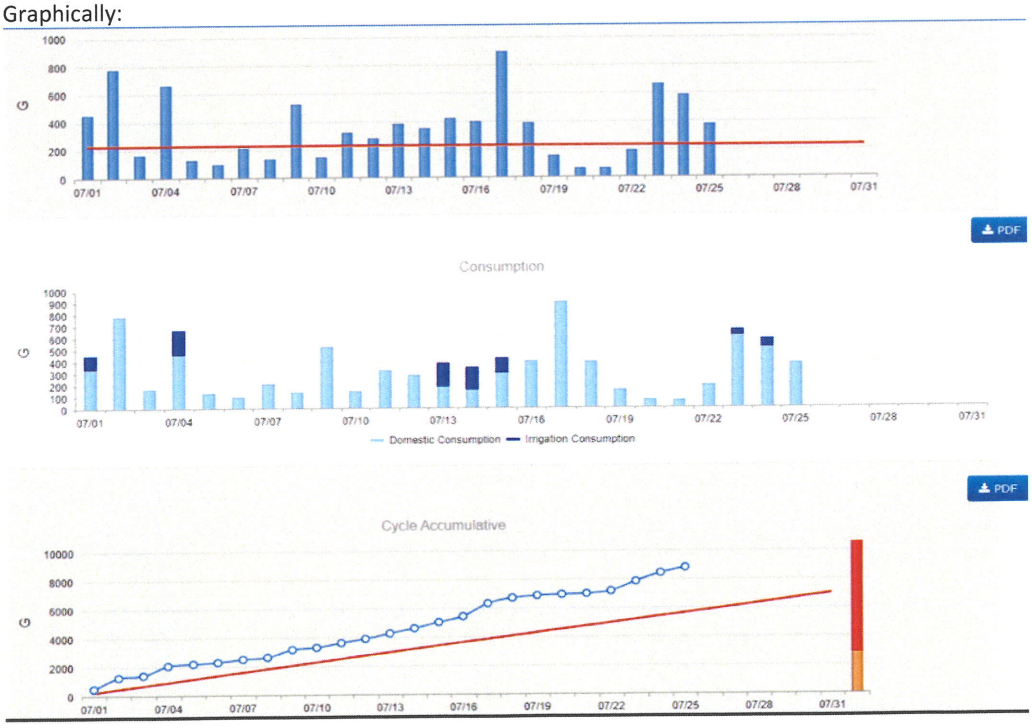
You are 25 days into this cycle
which is 80.65% into the month

You have used 909.56 G for Irrigation

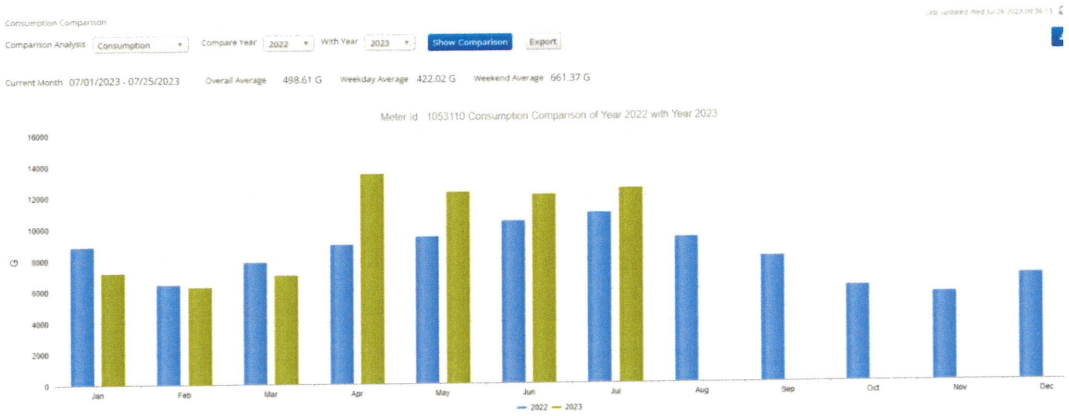
You have used 8794.21 G so far this cycle
which is 125.63% of your water budget

Your Water Budget is
Wasteful

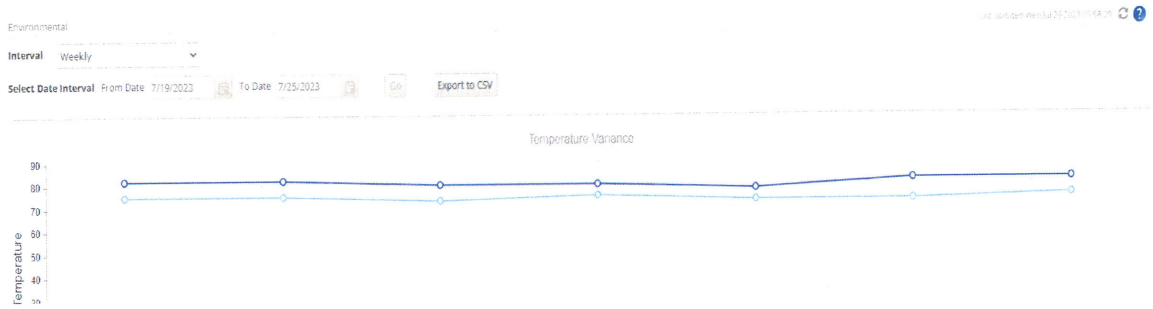
Graphically:



Consumption Comparison – The user may view comparative consumptions year over year either by a total monthly volume, or average usage per day over a given month for a single meter.



Environmental – The user can view daily maximum ambient temperature, as well as daily minimum ambient temperature. Alerts may be setup for both. Monitoring this is particularly beneficial in the winter months.



Watering – Should the City decide to implement Watering Restrictions, the Watering calendar lets the homeowner know what days are available for them to irrigate.

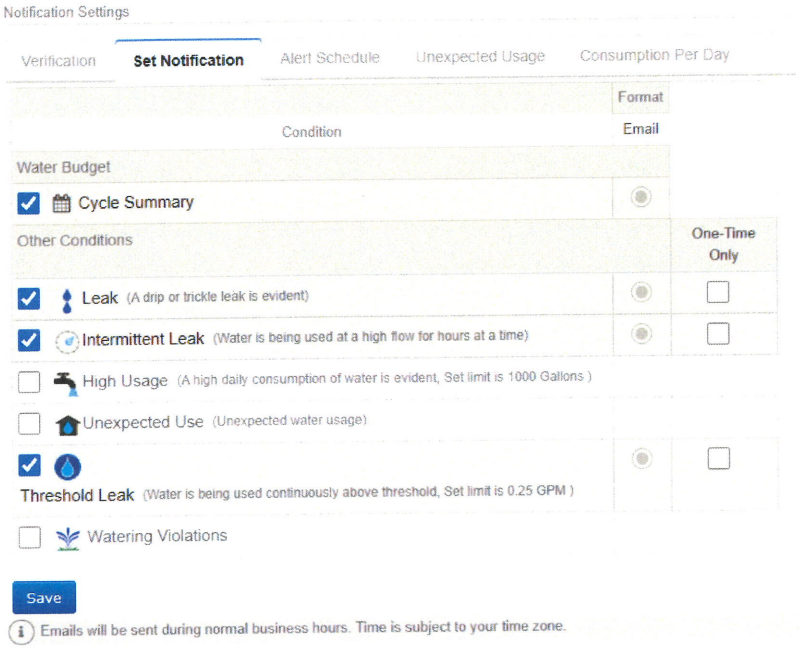


CONSUMER CONFIGURATION

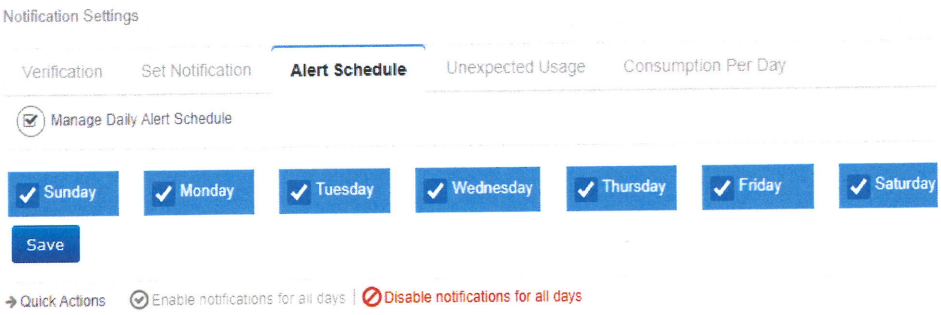
Verification – The consumer can opt in for email, text, or both to receive alerts. They may also add additional emails and phone numbers to the account.



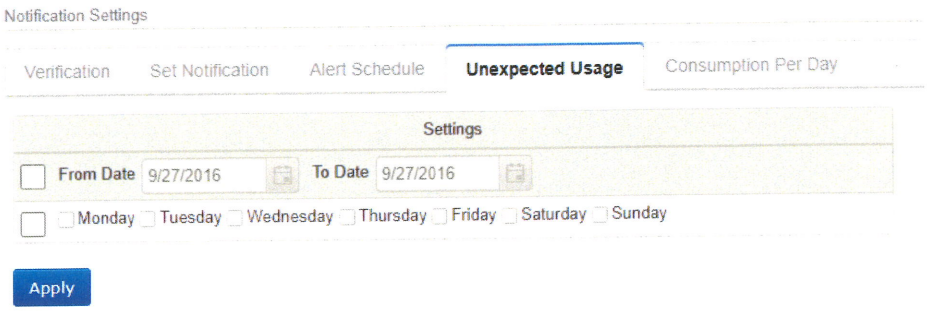
Set Notifications – Allows the homeowner to choose which flag conditions to receive notifications for. There is a brief explanation to the homeowner on what will trigger each condition.



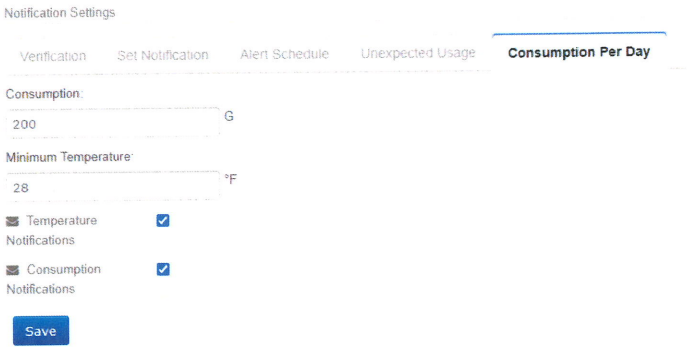
Alert Schedule – The consumer can define what days alerts will come in. 7 days a week is the default.



Unexpected Usage – The consumer can set an unexpected usage date range, or per the days of the week. This is designed to detect unexpected usage for things like rental properties, snowbirds, or when a consumer goes on vacation. It is also beneficial for businesses that may be closed certain days of the week.



Consumption Per Day – The consumer can set daily consumption alerts, as well as low temperature alerts. The notification is only sent if daily usage exceeds the consumer defined threshold, or the temperature falls below the consumer defined value.



HEAD END SYSTEM IN SUMMARY

The WaterScope® web portal seems to not only meet but exceed the expectations of what the County expects in a head end system. With numerous different conservation tools both at a micro and macro level, WaterScope will provide the tools to the County to help manage the system efficiently, effectively, and transparently.

9.5. CONSUMER PORTAL OVERVIEW

The WaterScope package includes a fully incorporated consumer portal. The consumers can access their usage information either via the web portal or the mobile app. The mobile app is available for both Apple (iOS) and Android. Both the app and the web portal are maintained by Metron so there will be interruption to either the City or the homeowner when enhancements and patches are made to the program.

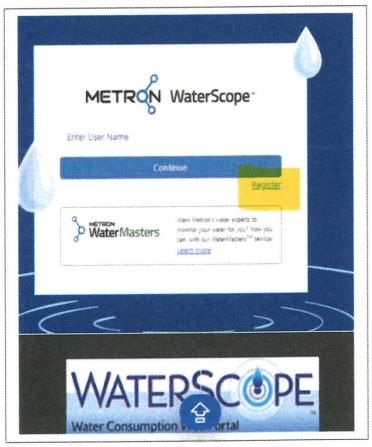
Signup for the consumer portal is very simple. The homeowner simply enters their Prism serial number along with the matching account number and as long as the two match WaterScope will allow the signup. The authentication between the Prism and account number is to prevent a homeowner from inadvertently signing up for another meter.

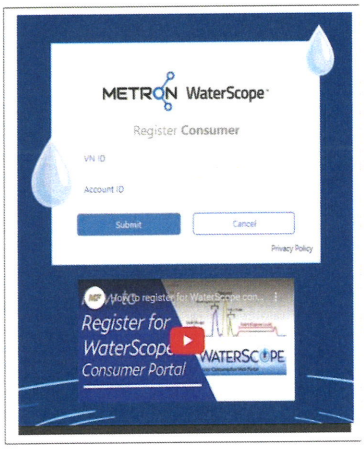
CONSUMER PORTAL WEB VERSION

The web version of the consumer portal reflects the exact same screens that were discussed on the Micro level of the head end system. This is very beneficial when the City customer support staff engages with a homeowner as it allows both sides to view the same exact information. The City has the ability to customize what screens the consumer has access to. The homeowner then has the option to decide which alerts they would like to receive. The following will cover the consumer web version with signup process and available analytics.

SIGN-UP

To signup, a consumer user must have the Prism's VN ID as well as the account number. The account number will be the City account number maintained within the billing software. They will begin by clicking 'Register', the next screen will prompt for the VN ID and Account number:

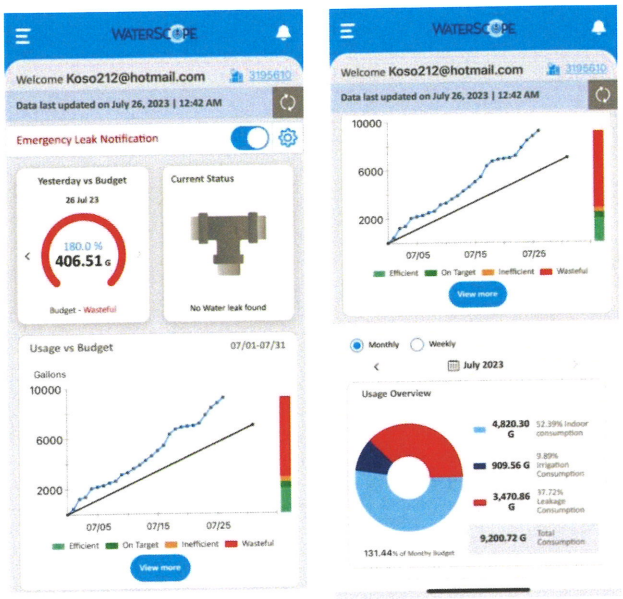




CONSUMER PORTAL MOBILE VERSION

WaterScope offers many of the same benefits in the web version in both an iOS and Android app version. The signup process is the same, enter a VN ID with matching account number and the consumer may continue along the registration process. Upon registration completion, the user will access to the following:

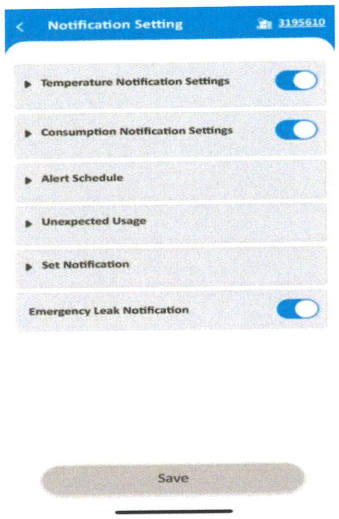
Dashboard – The dashboard screen will show the consumer the prior day's usage, current leak status, an up-to-date water budget, and the usage breakdown.

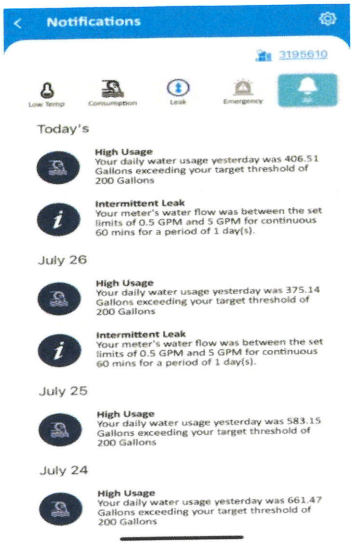


Usage Overview – The usage overview slide allows the consumer to view more granular data. They have the ability to analyze the usage monthly, weekly, daily, and hourly (1-minute view). The consumer can also view the same time intervals but for indoor, outdoor, and leak, respectively.



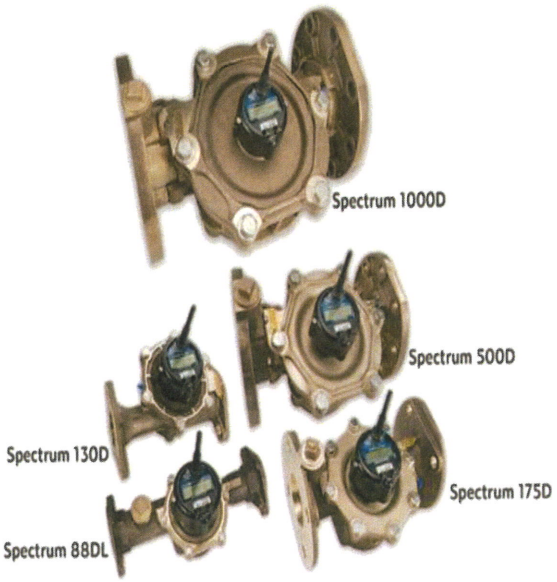
Notifications – The consumer can choose which notifications to opt in for, much like in the web version. They may also view a notification history.





9.6. WATER METERS

Metron offers a full line of water meters ranging from 5/8" to 8" and prides itself on the low-flow capability of our meter line. The Spectrum Jet single-jet family is the widest ranged, single-measuring element meter available to U.S. utilities. With its simplistic design coupled with minimal accuracy degradation, revenue stays steady throughout the life of the meter and eliminates the testing and maintenance normally required for commercial meters that offer this type of performance. Set it and forget.

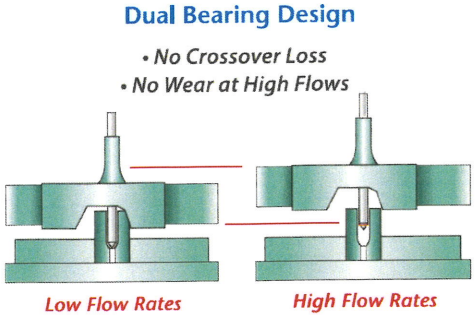




SINGLE-JET OPERATION

The Spectrum Jet meters are velocity-type meters that incorporate a single tangential jet which flows across the impeller. The impeller is offset from the water flowing through the tangential jet such that the water travels perpendicular to the rotational axis of the impeller. Using an exclusive twin pivot design the meter combines excellent sensitivity at low flow rates and friction free operation at high flow.

Incoming water rotates a suspended impeller that is magnetically linked to the register. A low friction tungsten carbide bearing supports the impeller at low flow rates while a tungsten carbide thrust bearing provides support at high flow rates. This unique "dual bearing" design provides unparalleled accuracy and durability at both high and low flows.



LOW FLOW ACCURACY

For comparative context, a typical 1.5"-2" PD meter has a new meter accuracy low flow listed as 1-1.5 gpm. The Metron 1.5" and 2" Single-Jets offer a low flow accuracy of ¼ gpm. The difference in captured usage between ¼ gpm to 1.5gpm generates a rapid ROI, additional revenue and higher accountability for the customer. Please refer to product spec sheets for specifics on all meter sizes.

Our Spectrum PD 5/8x3/4" rotary piston PD meter provides high level accuracy down to 1/50th+ of a gpm making it the most accurate mechanical residential meter in the industry and matches or surpasses most solid-state meters. The same holds true for the larger Spectrum Jet commercial meters.

Note: Unlike most static meters, the top-load design allows for quick in line OEM chamber replacement for end of life or repair which restores low flow accuracy back to new meter specification and can be done at considerably less cost than having to buy a new meter. This is *not* a "throw away" meter and can provide the utility *decades* of reliable and accurate consumption data.

Metron's single-jet meter line paired with high resolution 1-minute or 5-minute data analytics, and the WaterScope web portal gives water utilities a system with the unrivalled ability to not only monitor and manage a distribution system from a supply aspect but also provide transparency and extensive customer service analytics previously unavailable to the U.S. water utility industry. A win-win for both the customer and utility.

SPECTRUM WAVE ULTRASONIC METER

The Spectrum Wave ultrasonic meter is an advanced water metering instrument. Its measuring unit is based on a "See Through" ultrasonic technology. With this concept, the two sensors, used alternatively for the transmission and the reception of the ultrasonic signal into the water pipe, are installed on each end of a straight section of the water pipe. With such a mechanical configuration, the water flow remains free of any mechanical structure that would increase the drop of pressure inside the meter. The meter provides a very wide range with low flow accuracy to 0.05 gpm which will capture the highest levels of revenue.

The Spectrum Wave meter is equipped with a built-in cellular module and internal antenna which provides seamless integration into the WaterScope water management system. The meter does have an external antenna port for challenging environments, but in most residential applications, the utility will not need to deal with any external cables. An industry standard 3-wire encoder output can also be optionally ordered.



Spectrum Wave Ultrasonic Meter

*For more in-depth information, please refer to **Metron Meter Datasheets**.

9.7. TRAINING INFORMATON

We are committed to providing as much training as the utility needs/wants. Trying to learn a new system in just a day or two can be overwhelming so we typically phase in the training from the simplest form to the more advanced over time.

ONGOING TRAINING AND SUPPORT

The entire training and support costs are included in the up-front bundle so there will be no additional fees for training current users on new features, or for new utility staff that start employment after the project is completed.

Training documents are online and can be easily downloaded and printed into paper form.
Metron prioritizes comprehensive training sessions tailored to different groups within the utility, including field personnel, administration staff, and customer service representatives. While these are the standard groups, additional training can be arranged upon the utility's request.
At the project's outset, a brief training session is conducted to provide utility personnel with a fundamental understanding of Metron's meters and systems:

- **Field Training**: Covers topics such as Meters, Registers, Antennas, Local Communication, and Configuration.
- **Administration Training**: Introduces users to the WaterScope platform, providing initial login credentials and familiarizing them with essential functionalities.
- **Customer Service Training**: Like administration training, it includes an introduction to the WaterScope platform, initial login credentials, and focuses on customer service-related functionalities.
- **Billing Training**: Includes WaterScope platform introduction, initial login credentials, and discussions on system interface for billing purposes.

As the project nears completion, Metron collaborates with the utility to schedule comprehensive training sessions tailored to each category mentioned above. These sessions delve deeper into meter functionalities and system operations, ensuring utility personnel are proficient in utilizing Metron's technology to its fullest extent. Additionally, the training schedule and content are customized to meet the specific needs and preferences of the utility, ensuring optimal knowledge transfer and skill acquisition.

TRAINING SUMMARY

- Continuous access to training for all current and future utility staff.
- Live support and refresher courses available on request.
- No additional cost for new employees.

9.8. PRODUCT DATASHEETS

METRON Spectrum JET

METRON

Residential Spectrum Jet Meters

Product Datasheet

Applications

The Spectrum Jet single-jet meter is the widest range single measuring element meter available to North American utilities. Spectrum Jet residential meters are designed for extremely wide range and long-term accuracy. The single-jet technology is highly impervious to dirt, sand or grit in the water system. The combination of design simplicity, superior grade materials, and high quality manufacturing standards allows for years of virtually new meter performance with no maintenance.

Spectrum Jet residential meters are available in composite (reinforced plastic) and lead-free bronze models across all common residential sizes.

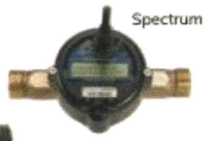
Coupled with the advanced Prism cellular registers, Spectrum Jet single-jets are the meters of choice for your revenue assurance and water loss programs.



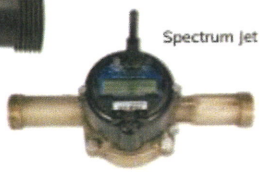
Spectrum Jet 15D, 25D and 30D



Spectrum Jet 30DL

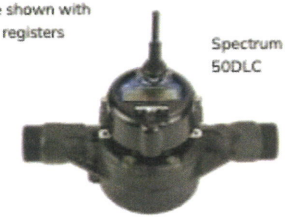


Spectrum Jet 30DB



Spectrum Jet 50DL

All meters are shown with Prism cellular registers installed



Spectrum Jet 50DLC

Operations

Incoming water rotates a suspended impeller that is magnetically linked to the register. A low friction tungsten carbide bearing supports the impeller at low flow rates while a tungsten carbide thrust bearing provides the support at high flow rates. This unique "dual bearing" design provides unparalleled accuracy and durability at both high and low flows.

To maintain accuracy, the meter must be installed horizontally (±10°) in the direction of water flow.

All Spectrum Jet Model D meters utilize Prism registers. These sealed electronic registers provide a high resolution interface to the meter and have multiple cellular, AMR, AMI and SCADA outputs. All registers are attached with a robust tamper-resistant housing.

Materials

All residential Spectrum Jet Model-D meters are designed and manufactured to meet or exceed AWWA C712 standard design and performance specifications. All models are maintained with NSF-61G lead-free certifications.

Standards

AWWA C712 – Single-jet meters

NSF-61G – Drinking water system components health effects

Design Features

- High accuracy – exceeding high and low range of AWWA residential standards
- Starting flow below 1/16 gpm
- Excellent performance in adverse water conditions
- Advanced materials for long-term durability
- Unaffected by sand or small debris in line
- No straight pipe requirements upstream or downstream of meter
- High resistance to freezing
- Lightweight, compact design for simple installations
- No strainer requirement
- Compatible with all Metron Prism registers and associated AMR/AMI capabilities

Mechanical Specifications

Spectrum Jet 15D - AWWA ⅝ x ½" (15mm) Short

Construction	Threads	Lay Length
Composite	¾" NPSM	3.9" (100mm)

Spectrum Jet 25D - AWWA ⅝ x ½" (15mm)

Construction	Threads	Lay Length
Composite	¾" NPSM	7.5" (190mm)

Spectrum Jet 30D - AWWA ⅝ x ¾" (15x20mm)

Construction	Threads	Lay Length
Composite	1" NPSM	7.5" (190mm)

Spectrum Jet 30DB - AWWA ⅝ x ¾" (15x20mm)

Construction	Threads	Lay Length
Lead-free brass body + Composite plates	1" NPSM	7.5" (190mm)

Spectrum Jet 30DL - AWWA ¾ x ¾" (20mm)

Construction	Threads	Lay Length
Composite	1" NPSM	9.0" (230mm)

Spectrum Jet 50DL - AWWA 1" (25mm)

Construction	Threads	Lay Length
Lead-free brass	1.25" NPSM	10.75" (273mm)

Spectrum Jet 50DLC - AWWA 1" (25mm)

Construction	Threads	Lay Length
Lead-free brass	1.25" NPSM	10.75" (273mm)

Materials

Spectrum Jet 25/30Dx Models

Composite Body & Top-plate	Brass Body & Top-plate	Impeller	Impeller Bearing	Impeller Pivot	Impeller Shaft
Reinforced Nylon (Polyamide 12)	EcoBrass™ - Lead Free Brass	Polypropylene	Nivaflex	Sapphire	Tungsten Carbide

Spectrum Jet 50DL/50DLC Models

Body	Impeller	Impeller Bearings	Impeller Shaft
Low-lead Bronze: ASTM C875	Polypropylene	Tungsten Carbide	AISI 303 Tungsten Carbide Tip

Register Housing: Thermoplastic

Markings

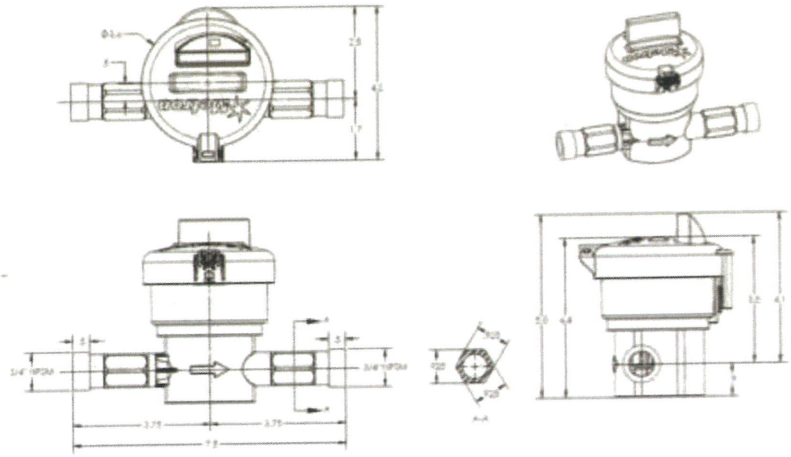
Engraved on Meter Body:

- Model
- Serial Number
- Date of Manufacture
- NSF-6
- Direction of Flow

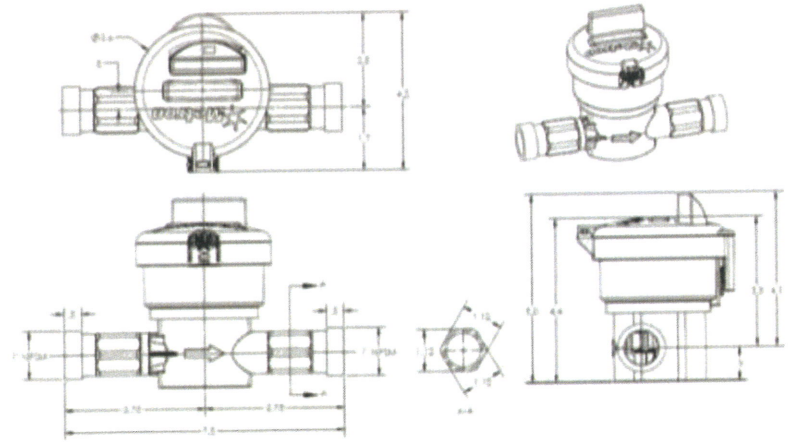
Dimensions

Spectrum Jet 15D - ⅝" Short: Contact Metron

Spectrum Jet 25D - ⅝"

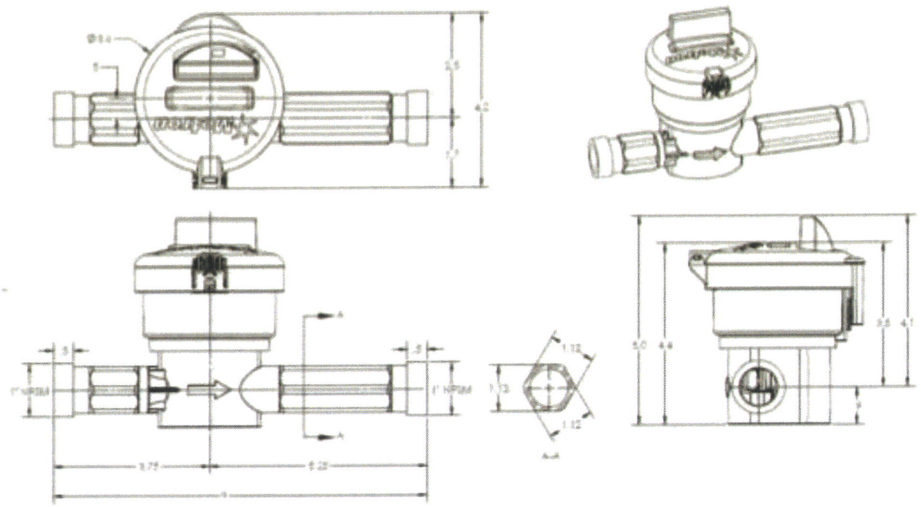


Spectrum Jet 30D and 30DB - ⅝ x ¾"

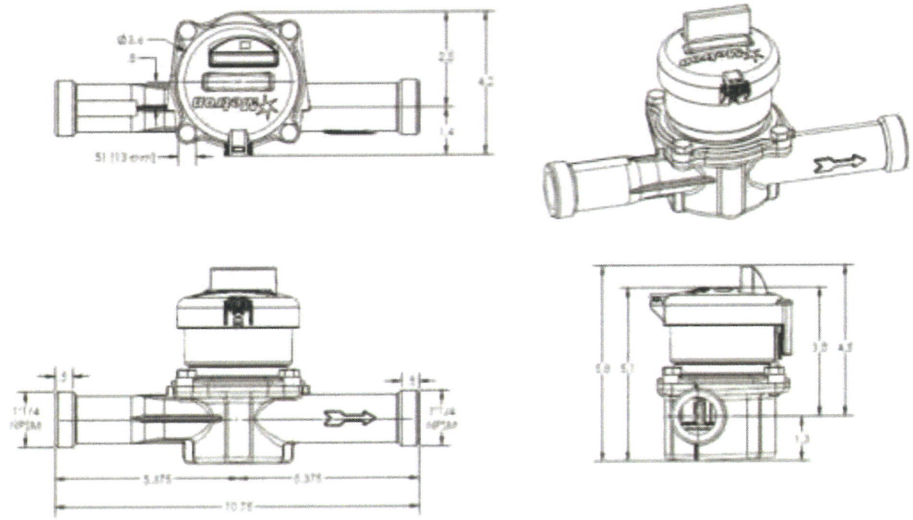


Dimensions

Spectrum Jet 30DL - ¾"

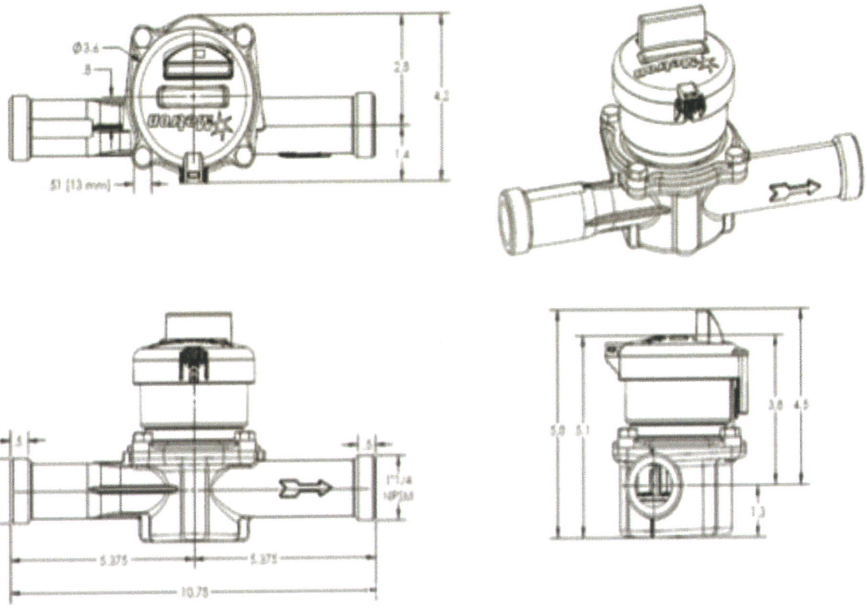


Spectrum Jet 50DL - 1"



Dimensions

Spectrum Jet 50DLC - 1"



Flow & Pressure Specifications

Spectrum Jet 15D - ⅝ Short Model

Operating Range (98.5 to 101.5%)	0.088 to 15 gpm	0.02 to 3.4 m³/hr
Low Flow (95% min)	0.06 gpm	0.014 m³/hr
Max Continuous Duty[1]	15 gpm	3.4 m³/hr
Max Intermittent[2]	20 gpm	4.5 m³/hr
Pressure Loss at Max Continuous	10 psi	0.69 bar
Max Operating Pressure	230 psi	15.9 bar
Max Operating Temperature	140° F	60° C

Notes:

1. Starting flow rate for reference only
2. Max Continuous defined by AWWA as flow rate which can be maintained 24 hrs/day x 7 days/week
3. Max Intermittent defined as flow rate which can be maintained 1 hr/day average

Flow & Pressure Specifications

Spectrum Jet 25D - ⅝" Model

Operating Range (98.5 to 101.5%)	0.125 to 20 gpm	0.028 to 4.5 m³/hr
Low Flow (95% min)	0.0625 gpm	0.0142 m³/hr
Max Continuous Duty[1]	20 gpm	4.5 m³/hr
Max Intermittent[2]	30 gpm	6.8 m³/hr
Pressure Loss at Max Continuous	22 psi	1.51 bar
Max Operating Pressure	230 psi	15.9 bar
Max Operating Temperature	140° F	60° C

Spectrum Jet 30D/30DB - ⅝ x ¾" Model

Operating Range (98.5 to 101.5%)	0.125 to 30 gpm	0.028 to 6.8 m³/hr
Low Flow (95% min)	0.0625 gpm	0.0142 m³/hr
Max Continuous Duty[1]	30 gpm	6.8 m³/hr
Max Intermittent[2]	40 gpm	9.1 m³/hr
Pressure Loss at Max Continuous	13 psi	0.9 bar
Max Operating Pressure	230 psi	15.9 bar
Max Operating Temperature	140° F	60° C

Spectrum Jet 30DL - ¾" Model

Operating Range (98.5 to 101.5%)	0.125 to 30 gpm	0.028 to 6.8 m³/hr
Low Flow (95% min)	0.0625 gpm	0.0142 m³/hr
Max Continuous Duty[1]	30 gpm	6.8 m³/hr
Max Intermittent[2]	40 gpm	9.1 m³/hr
Pressure Loss at Max Continuous	13 psi	0.9 bar
Max Operating Pressure	230 psi	15.9 bar
Max Operating Temperature	140° F	60° C

Notes:

1. Starting flow rate for reference only
2. Max Continuous defined by AWWA as flow rate which can be maintained 24 hrs/day x 7 days/week
3. Max Intermittent defined as flow rate which can be maintained 1 hr/day average

METRON

METRON Spectrum JET

METRON

Small Commercial Spectrum Jet Meters

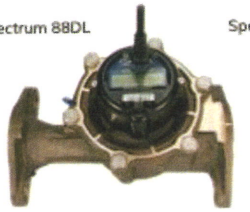
Product Datasheet



Spectrum 88DL



Spectrum 88DLT



Spectrum 130D

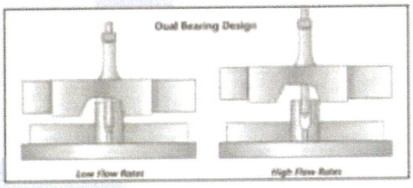
Applications

The Spectrum Jet single-jet meter is the widest ranged, single-measuring element meter available to U.S. utilities. The operation of the single jet element allows the meter to be applied in the vast majority of potable cold water, small commercial applications. These meters are designed with a very high range, including low flow performance equaling or exceeded all other metering technologies. Coupled with the advanced Prism registers, the Spectrum Jet single-jets are the meter of choice for your revenue assurance and water loss programs.

The Spectrum Jet Model-D meters are top-loading, chamber designs which allow for field maintenance and repairs.

Operations

Incoming water rotates a suspended impeller that is magnetically linked to the register. A low friction tungsten carbide bearing supports the impeller at low flow rates while a tungsten carbide thrust bearing provides the support at high flow rates. This unique "dual bearing" design provides unparalleled accuracy and durability at both high and low flows.



To maintain accuracy, the meter must be installed horizontally (±10°) in the direction of water flow. The Spectrum Jet 88DL and 88 DLT come with an integral test port on the outlet. Although regular maintenance is not required, the Spectrum Jet Model D meters have a top-loading measurement chamber for simple access without removing the meter from service. The chamber is bolted to the meter body and secured with a tamper seal.

All Spectrum Jet Model D meters utilize Prism registers. These sealed electronic registers provide a high resolution interface to the meter and have multiple cellular, AMR, AMI and SCADA outputs. All registers are attached with a robust tamper-resistant housing.

Design Features

- High accuracy below AWWA standards
- Wide range—1000:1 turndown
- Superior low flow registration
- Compact and light
- Convenient options for various lengths and connections
- Low pressure drop
- No regular maintenance
- Excellent performance in adverse water conditions
- Unaffected by sand or small debris in line
- No straight pipe requirements – upstream or downstream
- No strainer requirement
- 5-year flange-to-flange warranty
- 20-year warranty on meter body
- Compatible with all Prism registers and associated AMR/AMI capabilities.

Materials

All Spectrum Jet Model-D meters are designed and manufactured to meet or exceed AWWA C712 standard design and performance specifications. All models are maintained with NSF-61G lead-free certifications.

Standards

AWWA C712 – Single-Jet Meters

NSF-61G – Drinking Water System Components Health Effects

Mechanical Specifications

Spectrum Jet 88DL - 1 ½" (40mm)

Flanges	Lay Length	Dimensions	Weight	Test Plug	Test Port
Oval 2-bolt	13" (330mm)	See Drawing	9.95lb (4.5kg)	1" Integral	Integral 1" NPT Threads

Spectrum Jet 88DLT - 1 ½" (40mm)

Connection	Lay Length	Dimensions	Weight
Female 1 ½" / 11 ½ NPT Integral Threads	12 ⅝" (319mm)	See Drawing	8.15lb (3.69kg)

Spectrum Jet 130D - 2" (50mm)

Flanges	Lay Length	Dimensions	Weight	Test Plug	Test Port
Oval 2-bolt	9¼" (300mm)	See Drawing	13lb (5.8kg)	Available on Spool	Lead-free Flanged Spools for 15 ¼" & 17" LL

*Contact Metron for information on brass spools and couplers.

Materials

Body & Top-plate	Impeller	Impeller Bearings	Impeller Shaft	Register Housing
ASTM C874 - Lead Free Bronze	Polypropylene	Nylon with Carbon Fiber	AISI 303, Tungsten Carbide Tip	Thermoplastic

Tamper Features

Meter Body	Register
Wire + Lead Seal Between Meter Body and Top-Plate	Tamper-resistant Screw

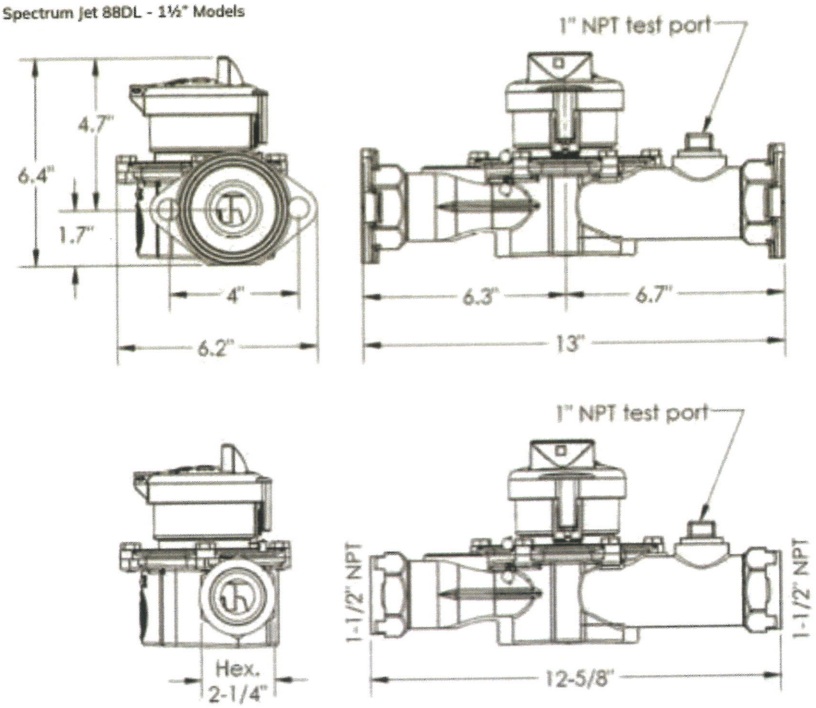
Markings

Engraved on Meter Body:

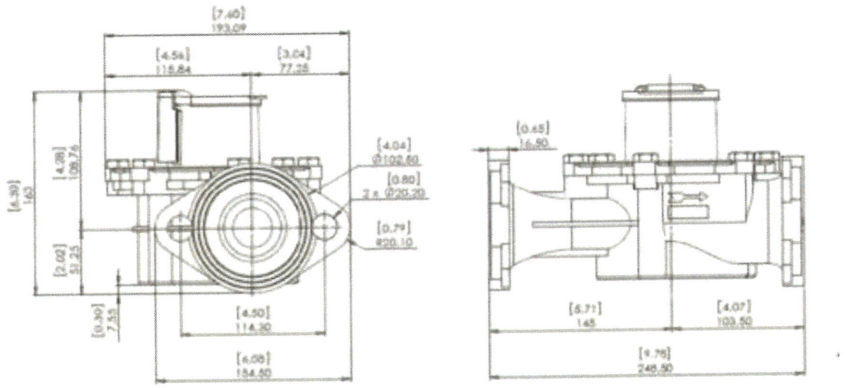
- Model
- Serial Number
- Date of Manufacture
- NSF-6
- Direction of Flow

Dimensions

Spectrum Jet 88DL - 1½" Models



Spectrum Jet 130D - 2" Model



Flow & Pressure Specifications

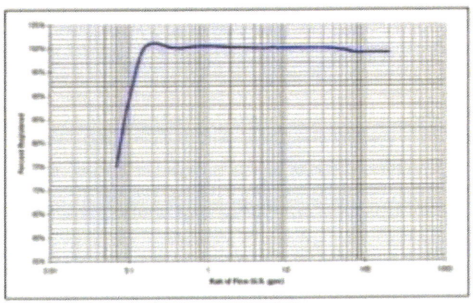
Spectrum Jet 88DL / 88DLT - 1 ½" Models

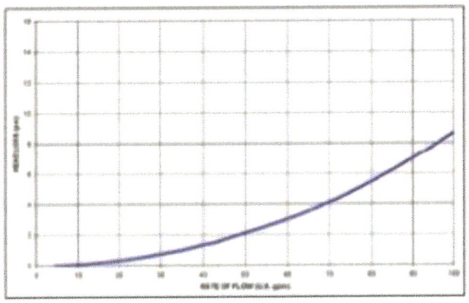
Operating Range (98.5 to 101.5%)	0.5 to 105 gpm	0.11 to 24 m³/hr
Low Flow (95% min)	0.25 gpm	0.057 m³/hr
Max Continuous Flow[1]	88 gpm	20 m³/hr
Max Intermittent Flow[2]	105 gpm	24 m³/hr
Pressure Loss at Max Continuous	7.25 psi	0.5 bar
Max Operating Pressure	230 psi	15.9 bar
Max Operating Temperature	120° F	48.9° C

Spectrum Jet 130D - 2" Model

Operating Range (98.5 to 101.5%)	0.75 to 165 gpm	0.17 to 37.5 m³/hr
Low Flow (95% min)	0.25 gpm	0.057 m³/hr
Max Continuous Flow[1]	130 gpm	29.5 m³/hr
Max Intermittent Flow[2]	165 gpm	37.5 m³/hr
Pressure Loss at Max Continuous	7.25 psi	0.5 bar
Max Operating Pressure	230 psi	15.9 bar
Max Operating Temperature	120° F	48.9° C

Spectrum Jet 88DL / 88 DLT



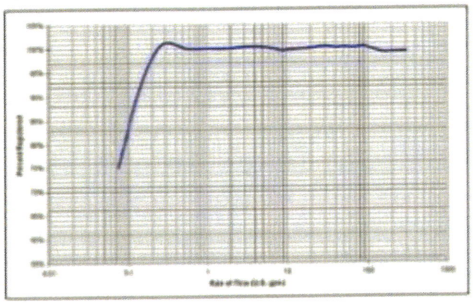


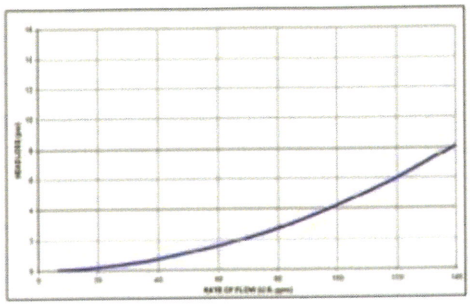
Notes:

1. Max Continuous defined by AWWA as flow rate which can be maintained 24 hrs/day x 7 days/week
2. Max Intermittent defined as flow rate which can be maintained 1 hr/day average

Flow & Pressure Specifications

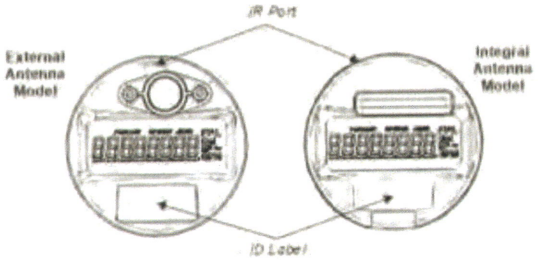
Spectrum Jet 130D

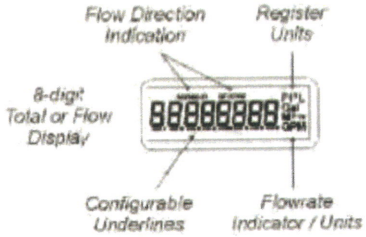




Registers

The Prism electronic register is the water industry's new standard for register performance. The Prism offers maximum resolution, a multitude of standard features, on-board datalogging and a variety of cellular, AMI, AMR and SCADA output options. The Prism is designed for all environments and incorporates the largest battery available for utility applications. The Prism can be deployed on any Metron Spectrum Jet water meter.





USG Configuration
1 Gallon Resolution

USG - Commercial Meters (x 1)

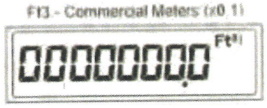


USG Flowrate - All Meters (x0.01)

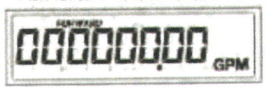


Ft3 Configuration
0.1 Ft3 Resolution

Ft3 - Commercial Meters (x0.1)

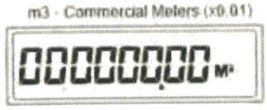


Ft3 Flowrate - All Meters (x0.01)

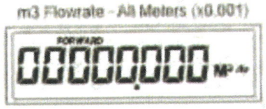


m3 Configuration
0.01 m3 Resolution

m3 - Commercial Meters (x0.01)



m3 Flowrate - All Meters (x0.001)



Warranty

Please contact your Metron representative for formal warranty certificates.

Legal

Due to updated regulations and product improvements, Metron-Farnier reserves the right to change the product specifications without notice.

METRON

METRON Spectrum JET

METRON

Large Commercial Jet Spectrum Meters

Product Datasheet

Spectrum Jet 175D





Spectrum Jet 500D

Spectrum Jet 1000D



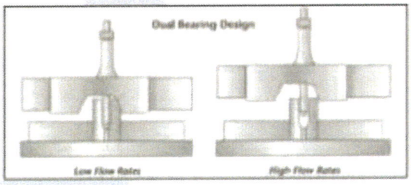
Applications

The Spectrum Jet single-jet meter is the widest ranged, single measuring element meter available to U.S. utilities. The operation of the single jet element allows the meter to be applied in the vast majority of potable cold water, reclaim water and well applications. Coupled with the advanced Prism registers, the Spectrum Jet single-jets are the meter of choice for your revenue assurance and water loss programs.

The large Spectrum Jet meters come in a selection of configurations for 3-inch, 4-inch and 6-inch applications. The meter has a very wide range so there is no compromise at either low or high flows. All Spectrum Jet Model-D meters are top-loading, chamber designs which allow for field maintenance and repairs.

Operations

Incoming water rotates a suspended impeller that is magnetically linked to the register. A low friction tungsten carbide bearing supports the impeller at low flow rates while a tungsten carbide thrust bearing provides the support at high flow rates. This unique "dual bearing" design provides unparalleled accuracy and durability at both high and low flows.



To maintain accuracy, the meter must be installed horizontally (±10°) in the direction of water flow. Each of the meters come with an integral test port on the outlet flange. Although regular maintenance is not required, the Spectrum Jet Model D meters have a top-loading measurement chamber for simple access without removing the meter from service. The chamber is bolted to the meter body and secured with a tamper seal.

All Spectrum Jet Model D meters utilize Prism registers. These sealed electronic registers provide a high resolution interface to the meter and have multiple cellular, AMR, AMI and SCADA outputs. All registers are attached with a robust tamper-resistant housing.

Design Features

- High accuracy below AWWA standards
- Wide range—1000:1 turndown
- Superior low flow registration
- Compact and light
- Convenient options for various lengths and connections
- Low pressure drop
- No regular maintenance
- Excellent performance in adverse water conditions
- Unaffected by sand or small debris in line
- No straight pipe requirements – upstream or downstream
- No strainer requirement
- 5-year flange-to-flange warranty
- 20-year warranty on meter body
- Compatible with all Prism registers and associated AMR/AMI capabilities.

Materials

All Spectrum Jet Model-D meters are designed and manufactured to meet or exceed AWWA C712 standard design and performance specifications. All Models are maintained with NSF-61G lead-free certifications.

Standards

AWWA C712 – Single-Jet Meters

NSF-61G – Drinking Water System Components Health Effects

Large Commercial Spectrum Jet Meters datasheet v3.0 September 2024. © Metron. Information is subject to change without notice.

Mechanical Specifications

Spectrum Jet 175D - 3" (80mm)

Flanges	Lay Length	Dimensions	Weight	Z-Plate Strainer*	SS Spacer Spools	Test Port
Round 4-bolt	11.8" (300mm)	See Drawing	32lb (14.5kg)	Available (6" LL)	Hard-flanged or adjustable	Integral 1" NPT Threads

Spectrum Jet 500D - 3" (80mm)

Flanges	Lay Length	Dimensions	Weight	Z-Plate Strainer*	SS Spacer Spools	Test Port
Round 4-bolt	13.75" (349mm)	See Drawing	41lb (18.6kg)	Available (6" LL)	Hard-flanged or adjustable	Integral 1" NPT Threads

Spectrum Jet 500D - 4" (80mm)

Flanges	Lay Length	Dimensions	Weight	Z-Plate Strainer*	SS Spacer Spools	Test Port
Round 8-bolt	13.75" (349mm)	See Drawing	48lb (21.7kg)	Available (7.5" LL)	Hard-flanged or adjustable	Integral 1" NPT Threads

Spectrum Jet 1000D - 4" (100mm)

Flanges	Lay Length	Dimensions	Weight	Z-Plate Strainer*	SS Spacer Spools	Test Port
Round 8-bolt	17.75" (349mm)	See Drawing	78lb (35.4kg)	Available (7.5" LL)	Hard-flanged or adjustable	Integral 1" NPT Threads

Spectrum Jet 1000D - 6" (150mm)

Flanges	Lay Length	Dimensions	Weight	Z-Plate Strainer*	SS Spacer Spools	Test Port
Round 8-bolt	17.75" (349mm)	See Drawing	89 lb (40.4kg)	Available (8.9" LL)	Hard-flanged or adjustable	Integral 1" NPT Threads

*Contact Metron for information on brass spools and couplers.

Materials

Body & Top-plate	Impeller	Impeller Bearings	Impeller Shaft	Register Housing
ASTM C875 - Lead Free Bronze	Polypropylene	Tungsten Carbide	AISI 303, Tungsten Carbide Tip	Thermoplastic

Tamper Features

Meter Body	Register
Wire + Lead Seal Between Meter Body and Top-Plate	Tamper-resistant Screw

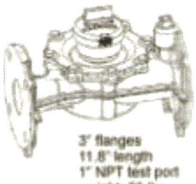
Markings

Engraved on Meter Body:

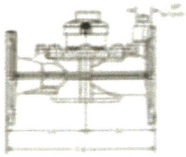
- Model
- Serial Number
- Date of Manufacture
- NSF-61G
- Direction of Flow

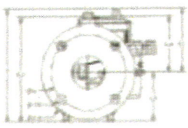
Dimensions

Spectrum Jet 175D - 3" Model



3" flanges
11.8" length
1" NPT test port
weight: 32 lbs

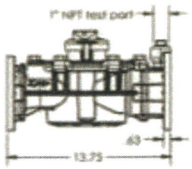


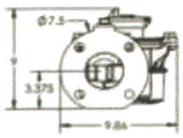


Spectrum Jet 500D - 3" Model



3" flanges
13.75" length
1" NPT test port
weight: 41.1 lbs
static volume: 2.9 l

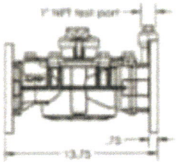


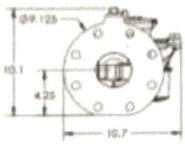


Spectrum Jet 500D - 4" Model



4" flanges
13.75" length
1" NPT test port
weight: 47.8 lbs
static volume: 2.9 l

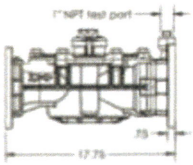


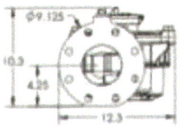


Spectrum Jet 1000D - 4" Model



4" flanges
17.75" length
1" NPT test port
weight: 77.8 lbs
static volume: 5.9 l

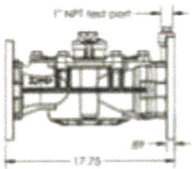


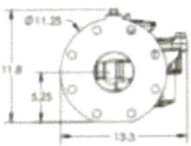


Spectrum Jet 1000D - 6" Model



6" flanges
17.75" length
1" NPT test port
weight: 88.9 lbs
static volume: 5.9 l





Flow & Pressure Specifications

Spectrum Jet 175D - 3" Models

Operating Range (98.5 to 101.5%)	0.75 to 350 gpm	0.34 to 113.5 m³/hr
Low Flow (95% min)	0.5 gpm	0.17 m³/hr
Max Continuous Flow[1]	175 gpm	79.5 m³/hr
Max Intermittent Flow[2]	245 gpm	113.5 m³/hr
Peak Test Flow[3]	350 gpm	136 m³/hr
Pressure Loss at Max Continuous	7.25 psi	0.5 bar
Max Operating Pressure	230 psi	15.9 bar
Max Operating Temperature	120° F	48.9° C

Spectrum Jet 500D - 3" and 4" Models

Operating Range (98.5 to 101.5%)	1.5 to 500 gpm	0.34 to 113.5 m³/hr
Low Flow (95% min)	0.75 gpm	0.17 m³/hr
Max Continuous Flow[1]	350 gpm	79.5 m³/hr
Max Intermittent Flow[2]	500 gpm	113.5 m³/hr
Peak Test Flow[3]	600 gpm	136 m³/hr
Pressure Loss at Max Continuous	7.25 psi	0.5 bar
Max Operating Pressure	230 psi	15.9 bar
Max Operating Temperature	120° F	48.9° C

Spectrum Jet 1000D - 4" and 6" Models

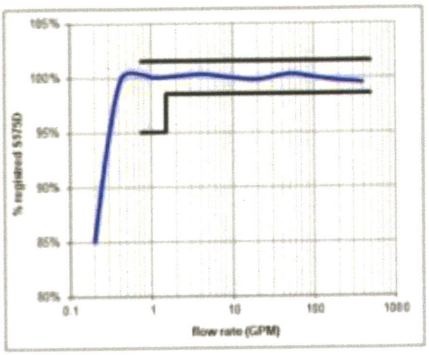
Operating Range (98.5 to 101.5%)	2.0 to 1000 gpm	0.34 to 113.5 m³/hr
Low Flow (95% min)	1.0 gpm	0.17 m³/hr
Max Continuous Flow[1]	600 gpm	79.5 m³/hr
Max Intermittent Flow[2]	1000 gpm	113.5 m³/hr
Peak Test Flow[3]	1100 gpm	136 m³/hr
Pressure Loss at Max Continuous	7.25 psi	0.5 bar
Max Operating Pressure	230 psi	15.9 bar
Max Operating Temperature	120° F	48.9° C

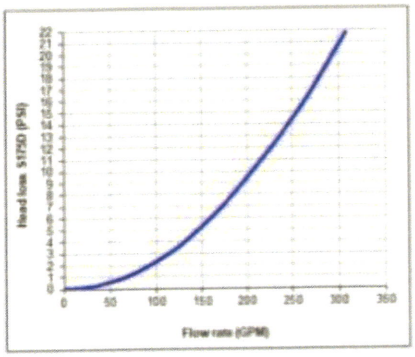
Notes:

1. Max Continuous defined by AWWA as flow rate which can be maintained 24 hrs/day x 7 days/week
2. Max Intermittent defined as flow rate which can be maintained 1 hr/day average
3. Peak Test flow defined as absolute max flow rate which can be maintained for brief periods under stable conditions while maintaining a minimum of 20 psi downstream of the meter.

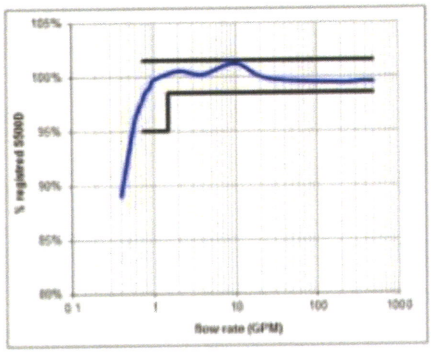
Flow & Pressure Specifications

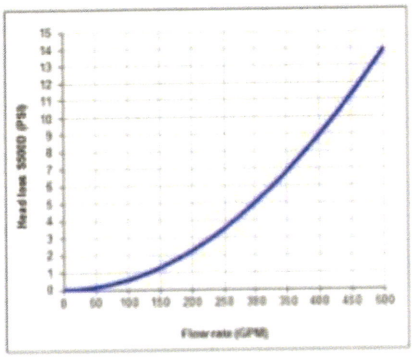
Spectrum Jet 175D



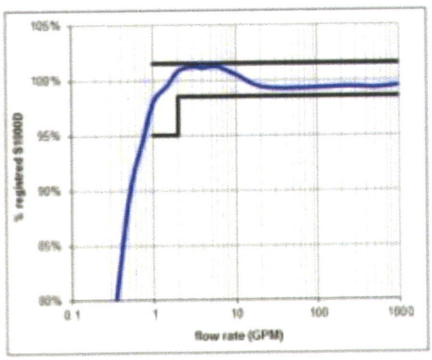


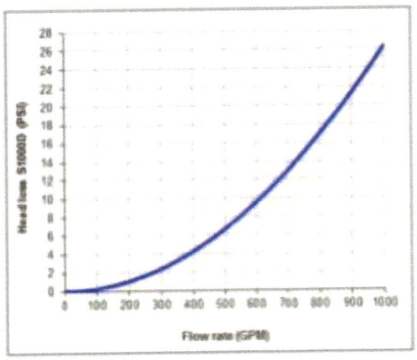
Spectrum Jet 500D





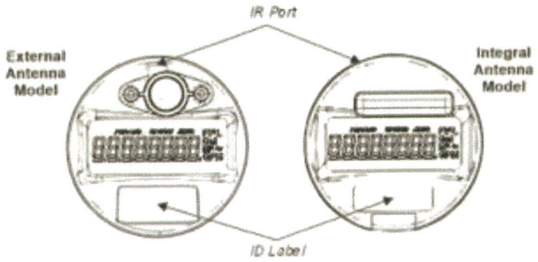
Spectrum Jet 1000D

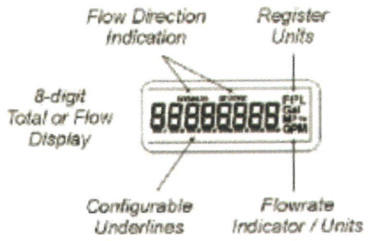




Registers

The Prism electronic register is the water industry's new standard for register performance. The Prism offers maximum resolution, a multitude of standard features, on-board datalogging and a variety of cellular, AMI, AMR and SCADA output options. The Prism is designed for all environments and incorporates the largest battery available for utility applications. The Prism can be deployed on any Metron Spectrum Jet water meter.



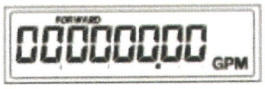


USG Configuration
1 Gallon Resolution

USG - Commercial Meters (x1)



USG Flowrate - All Meters (x0.01)



Ft3 Configuration
0.1 Ft3 Resolution

Ft3 - Commercial Meters (x0.1)

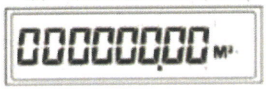


Ft3 Flowrate - All Meters (x0.01)



m3 Configuration
0.01 m3 Resolution

m3 - Commercial Meters (x0.01)



m3 Flowrate - All Meters (x0.001)



Warranty

Please contact your Metron representative for formal warranty certificates.

Legal

Due to updated regulations and product improvements, Metron-Farnier reserves the right to change the product specifications without notice.

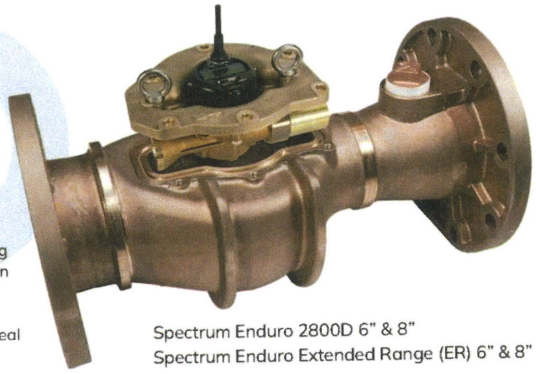
METRON

METRON Spectrum ENDURO

METRON

Spectrum Enduro Meters

Product Datasheet



Spectrum Enduro 2800D 6" & 8"
Spectrum Enduro Extended Range (ER) 6" & 8"

Applications

The Spectrum Enduro 6" and 8" water meters are single element, wide range industrial meters. They utilize a top-loading chamber to insert a small diameter Spectrum Jet meter within the flow stream. This unique system allows for unparalleled accuracy and durability at both high and low flows within a compact meter body. The Spectrum Enduro meters are an ideal solution for most industrial metering applications.

Operations

Water enters the meter passing over an in-line water conditioner that directs the water through a small diameter Spectrum Jet meter that proportionally measures the total water flow. This incoming water rotates a suspended impeller in the measuring chamber. A low friction pivot bearing supports the impeller at low flow rates while an upper thrust bearing provides the support at high flow rates. The impeller has an attached magnet at its top for the register interface.



All bearing materials are fortified for minimal wear during high-flow stress. The impeller shaft utilizes tungsten tips to minimize wear and ensure long-term accuracy. The Spectrum Enduro meters come with integral flanges (either 6" or 8").

To maintain accuracy, the meter must be installed horizontally (±10°) in the direction of water flow. Spectrum Enduro meters come with an integral test port on the outlet. Although regular maintenance is not required, the meters have a top-loading measurement chamber for simple access without removing the meter from service.

All Spectrum Enduro meters utilize Prism registers. These sealed electronic registers provide a high resolution interface to the meter and have multiple output options. All registers are attached with a robust tamper-resistant housing.

Design Features

- High accuracy
- Wide range – 1000:1 turndown
- Superior low flow registration
- Minimal pressure loss
- Long-term durability
- Low and high flow models to accommodate variety of industrial applications
- No regular maintenance
- Small, compact design for simple installations
- Excellent performance in adverse conditions
- Unaffected by sand or small debris in line
- No straight pipe requirements upstream or downstream of meter
- Strainers available for FM Fire Service
- 5-year flange-to-flange warranty

Materials

All Spectrum Enduro meters are designed and manufactured to meet or exceed AWWA C712 standards design specifications. They also meet or exceed AWWA C701 standards Class II turbine meter performance.

Standards

AWWA C712 – Single-Jet Meters

NSF-61G – Drinking Water System Components Health Effects

Mechanical Specifications

Spectrum Enduro 2800	6-inch (150mm)	8-inch (200 mm)
Flanges	Round 8-bolt	Round 8-bolt
Lay Length	24" (610 mm)	24" (610 mm)
Dimensions	See drawing	See drawing
Weight	121 lb (54.88 kg)	142 lb (64.4 kg)
Test Port	Integral 2" NPT threads	Integral 2" NPT threads

Spectrum Enduro 3600	6-inch (150mm)	8-inch (200 mm)
Flanges	Round 8-bolt	Round 8-bolt
Lay Length	24" (610 mm)	24" (610 mm)
Dimensions	See drawing	See drawing
Weight	121 lb (54.88 kg)	142 lb (64.4 kg)
Test Port Integral	2" NPT threads Integral	2" NPT threads

Strainers: Fireflow-rated strainers available. Contact Metron for additional information

MATERIALS

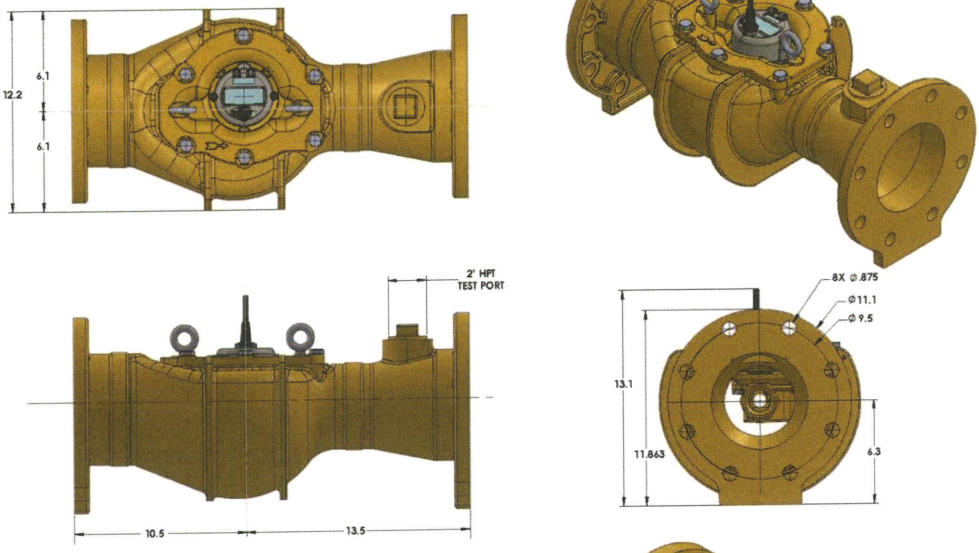
Body & Top-plate:	ASTM C917 - Lead Free Brass
Impeller:	Polypropylene
Impeller Bearings:	Tungsten Carbide
Impeller Shaft:	AISI 303, Nivaflex tip
Register Housing:	Thermoplastic

MARKINGS

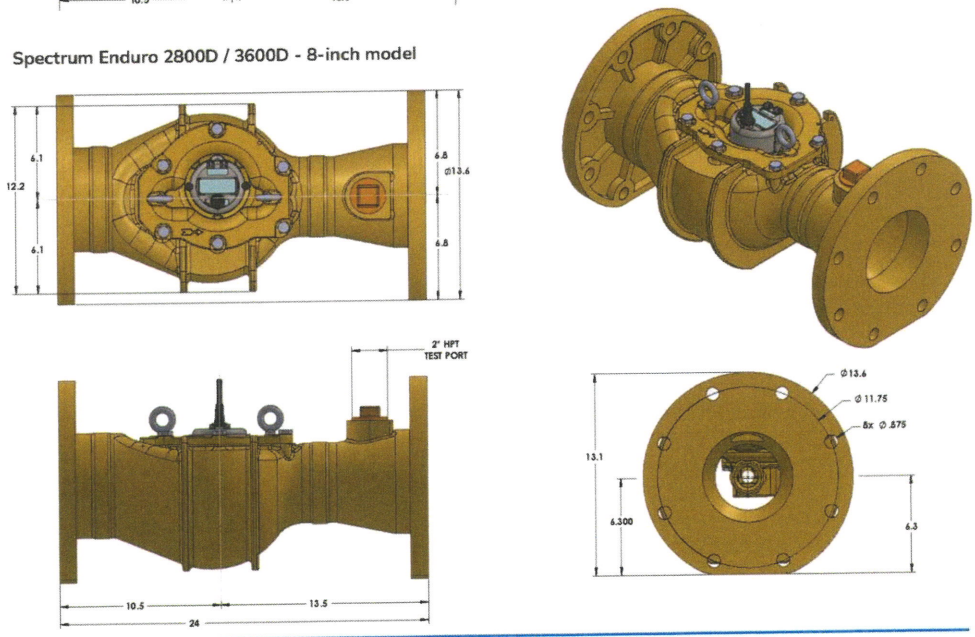
Engraved on meter body: Model, Serial Number, Date of Manufacture, NSF-61G, Direction of Flow arrow

DIMENSIONS

Spectrum Enduro 2800D / 3600D - 6-inch model



Spectrum Enduro 2800D / 3600D - 8-inch model



Flow & Pressure Specifications

Spectrum Enduro 2800D – 6" and 8" Model

Operating Range (98.5 to 101.5%)	6 to 2800 gpm	(1.38 to 636 m3/hr)
Low Flow (95% min)	4.4 gpm	(1 m3/hr)
Max Continuous Flow[2]	2400 gpm	(545 m3/hr)
Max Intermittent Flow[3]	2800 gpm	(636 m3/hr)
Pressure Loss at Max Continuous	6.40 psi	(0.44 bar)
Max Operating Pressure	230 psi	(15.9 bar)
Max Operating Temperature	120 °F	(48.9 °C)

Spectrum Enduro 3600D – 6" and 8" Model

Operating Range (98.5 to 101.5%)	14 to 3600 gpm	(3.2 to 818 m3/hr)
Low Flow (95% min)	8 gpm	(1.82 m3/hr)
Max Continuous Flow[2]	2800 gpm	(636 m3/hr)
Max Intermittent Flow[3]	3600 gpm	(818 m3/hr)
Pressure Loss at Max Continuous	11 psi	(0.76 bar)
Max Operating Pressure	230 psi	(15.9 bar)
Max Operating Temperature	120 °F	(48.9 °C)

Notes

1 Starting flow rate for reference only

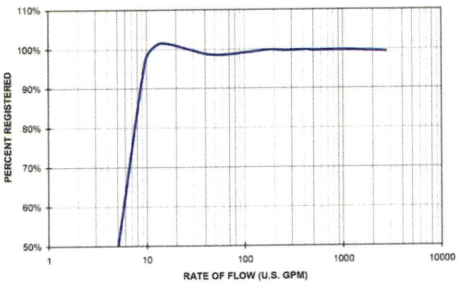
2 Max Continuous defined by AWWA as flow rate which can be maintained 24 hrs/day x 7 days/week

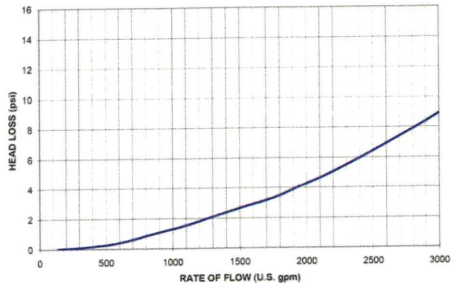
3 Max Intermittent defined as flow rate which can be maintained 1 hr/day average

Flow Accuracy

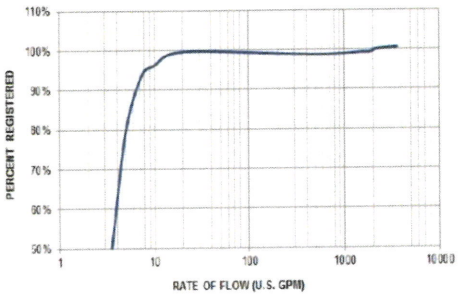
Pressure Drop

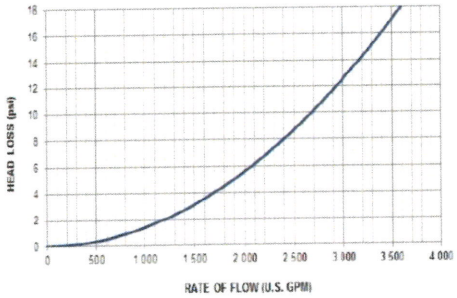
Spectrum Enduro 2800D





Spectrum Enduro 3600D





Registers

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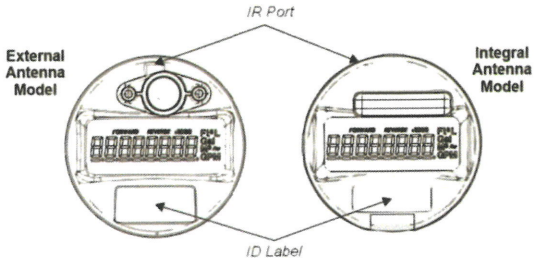
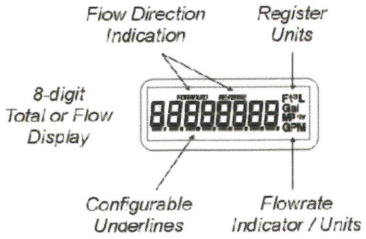
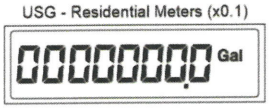




USG Configuration
0.1 Gallon Resolution

USG - Residential Meters (x0.1)

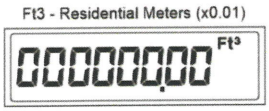


USG Flowrate - All Meters (x0.01)

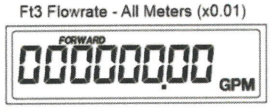


Ft3 Configuration
0.01 Ft3 Resolution

Ft3 - Residential Meters (x0.01)



Ft3 Flowrate - All Meters (x0.01)



m3 Configuration
0.001 m3 Resolution

m3 - Residential Meters (x0.001)



m3 Flowrate - All Meters (x0.001)



Warranty

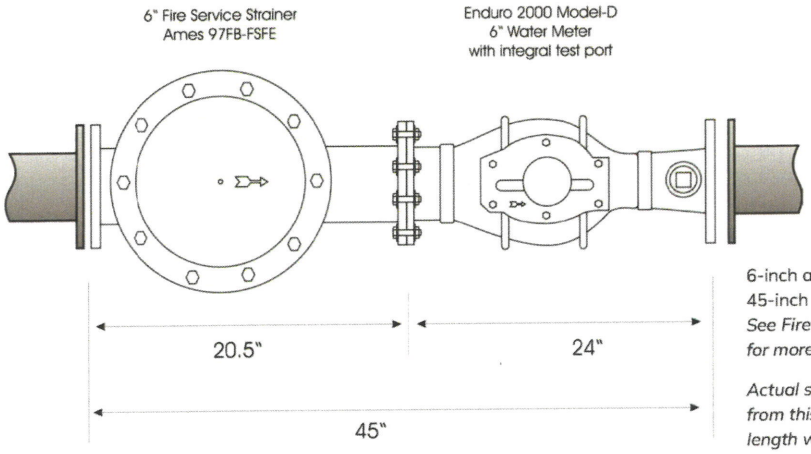
Please contact your Metron representative for formal warranty certificates.

Legal

Due to updated regulations and product improvements, Metron reserves the right to change the product specifications without notice.

Fire Service Configurations

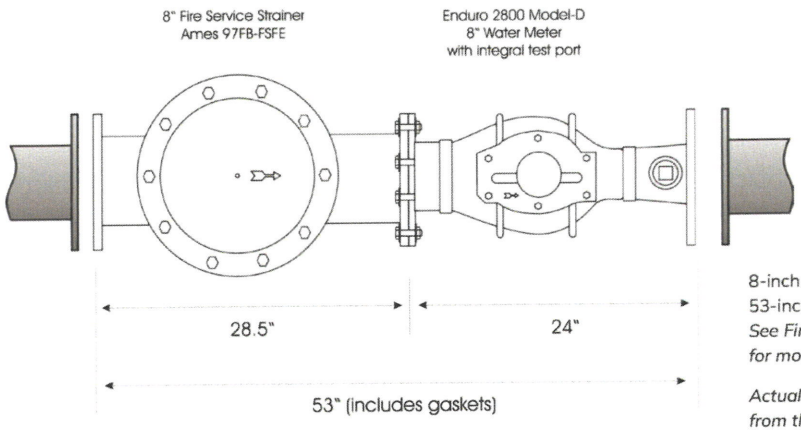
FSA6



6-inch assembly
45-inch LL
See Fire Service Brochure for more information.

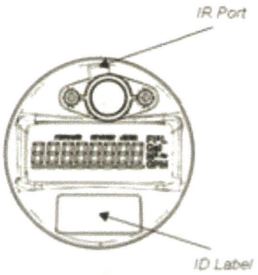
Actual strainer may differ from this drawing, but its length will be as shown.

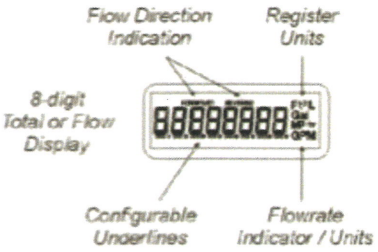
FSA8



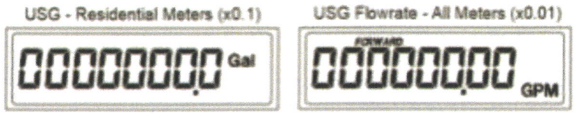
8-inch assembly
53-inch LL
See Fire Service Brochure for more information.

Actual strainer may differ from this drawing, but its length will be as shown.

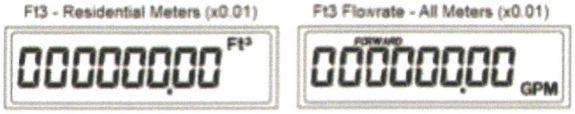




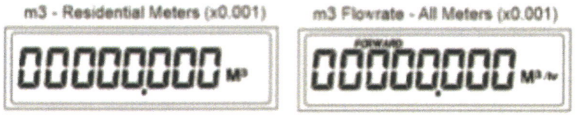
USG Configuration
0.1 Gallon Resolution



Ft3 Configuration
0.01 Ft3 Resolution



m3 Configuration
0.001 m3 Resolution



METRON

METRON
Prism



Prism Cellular Register

Product Datasheet

The Prism is a cellular digital register which mounts on all Metron Spectrum water meters[1]. It can also be adapted to many other traditional water meters providing instant AMI upgrades to deployed meters.

The Prism register senses the meter's magnetic element down to ¼ turn resolution, and stores data at 1-minute intervals, thereby enabling the most advanced water usage data and analytics in the industry. It utilizes the Verizon Wireless™ network to securely and reliably deliver readings, high resolution interval data and diagnostic data to WaterScope®, Metron's cloud-based meter data management system (MDMS). Utilities and consumers can access water usage data via the powerful WaterScope web portal and via email and text notifications.

Design

Construction: The Prism register is a compact, fully encapsulated package designed for all environments.

Meter Attachment: A standard plastic meter housing provides a robust and tamper-resistant attachment to all Metron water meters. Metron can also provide attachment housings for many other meter types.

Outputs: The Prism register can be supplied with a 3-wire standard AMR output. The output cable can be ordered in different lengths and with Itron or Nicor waterproof connectors.

Antennas: The Prism register has an antenna port which can accommodate either a local antenna or a remote antenna for extension through walls or outside pits/vaults.

Activation: All Prism units come from the factory activated and provisioned on the Verizon Wireless network. Consumption data on the WaterScope web portal can be accessed within 24 hours of installation.

Operation

The Prism register has an internal sensor which tracks the meter's measuring element and stores consumption every log interval. The unit will also perform on-board measurement diagnostics regularly. Once per day during super off-peak hours (1am to 6am local time), the unit will negotiate a secure channel with the Verizon Wireless tower and transmit a daily packet with the current meter read, the daily interval logs and other diagnostic data. Following the transmission, the unit waits for any commands from the cloud server (such as configuration or data backfill) prior to returning to normal operational mode.

1 Except Spectrum Wave, which has an integrated register

Specifications

Operational

Cellular channel carrier: Method: FCC/IC:	Verizon Wireless LTE Cat-M License exempt
Secondary comms:	Proprietary InfraRed port
Onboard Storage:	5 min intervals: 227 days 1 min intervals: 45 days
LCD:	8 digits
Display:	Duplicates meter/register Configurable digit underlines
Units:	gallons (US), ft^3 or m^3
Battery: Type: Lifetime:	One 19Ahr non-replaceable Lithium Thionyl Chloride 10 years nominal

Physical

Dimensions: (w/o antenna)	3.6W x 3.6H x 2.5D inches (91W x 91W x 63.5D mm)
Weight:	0.70 lb (0.31 kg)
Storage temperature:	-20° to 140° F (-6° to 60° C)
Operating temperature:	-0° to 140° F (-18° to 60° C)
Humidity:	0 to 100% RH condensing

Fully submersible (IP-68)

Compatibility

The Prism is compatible with a wide range of industry registers and electronic meters.

Metron: Spectum Jet, Spectrum PD, Spectrum Enduro, Spectum Hydrant, Challenger

Metron has tested meters from other meter manufacturers and offers compatibility with many meters with magnetic measuring elements. The following shows a sample of the types of meters. Consult with your Metron representative for questions on compatibility or testing.

Badger, **Sensus**, **Neptune**, **Mueller**: PD meters, turbine meters

Master Meter, **Elster**, **Zenner**, **RG3**, **Hendey**: PD meters

Warranty

Please contact your Metron representative for formal warranty certifications.

Functionality

Configuration: Configuration can be performed via the local InfraRed (IR) port with Metron's IR bridge. The IR bridge can be coupled via USB to a Win10 computer with the Communicator software or be operated in a standalone mode.

Configuration Options
- Index Ratio (meter calibration)
- LCD Configuration
- Measurement units
- Log Interval
- 3-wire output digits

Data resolution:	per Index Ratio
Data intervals:	5-minute or 1-minute
Data backfill:	Automatic from MDMS
OTA updates:	Available
Onboard time:	Synced with Verizon
Security:	VPN and encryption (contact Metron for info)

Flags/Alerts:

Consumption
- Leak / Threshold Leak / Intermittent Leak
- High Usage / Zero Usage
- Backflow
- Unexpected / Unauthorized Usage
- High/Low Temp
- Watering Event

Diagnostic
- Low Signal Strength

Disclaimers

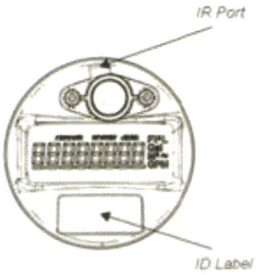
Transportation: The Prism Register contains a lithium battery and thus is prohibited from shipment by AIR. Please conform with all shipping regulations for lithium batteries.

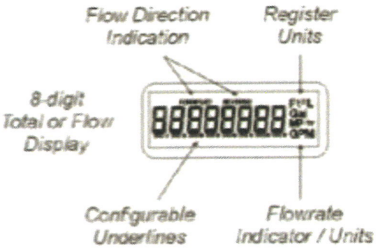
Safety: The Prism operates with radio frequency (RF) during its cellular communications. Metron can provide a whitepaper covering the potential health effects of smart meters.

Disposal: The battery inside the Prism is not replaceable and removal should never be attempted. The Prism units should be disposed of in accordance with local regulations.

Legal

Waterscope is a registered trademark of Metron-Farnier, LLC. All other trademarks and company names listed in this document are the property of the associated companies.





USG Configuration
0.1 Gallon Resolution

USG - Residential Meters (x0.1)



USG Flowrate - All Meters (x0.01)



Ft3 Configuration
0.01 Ft3 Resolution

Ft3 - Residential Meters (x0.01)



Ft3 Flowrate - All Meters (x0.01)



m3 Configuration
0.001 m3 Resolution

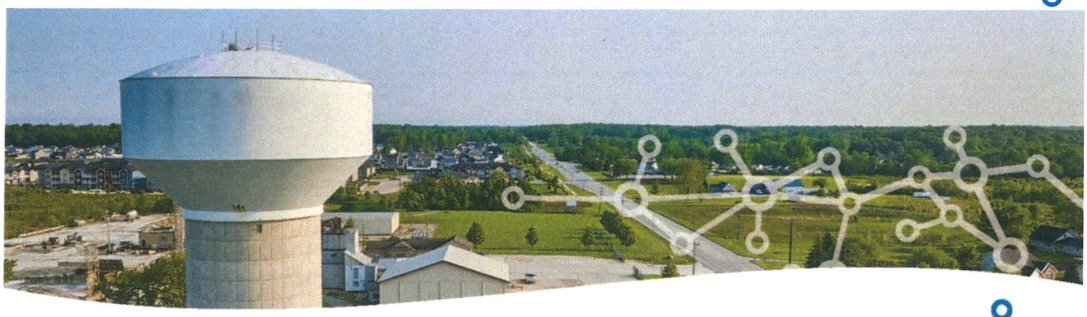
m3 - Residential Meters (x0.001)



m3 Flowrate - All Meters (x0.001)



METRON



METRON

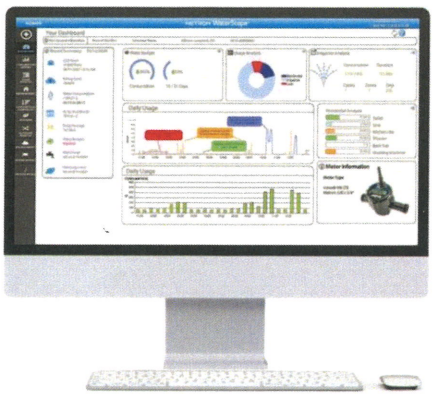
WaterScope® for Water Utilities

Water Usage Reporting, Analytics and Billing

With Metron's smart meters deployed across your district in residential, commercial, industrial and educational applications, the WaterScope Suite is your set of tools for understanding and acting on your customers' water usage.

Get accurate and detailed daily reports on leaks, high usage, zero usage, unauthorized usage, infrastructure losses, freeze alerts, and more. Easy integration with any billing system means on-time billing that reflects actual water use.

WaterScope turns information into action, simplifying the business of water.



The WaterScope Suite

METRON WaterScope CLASSIC

Designed for meter management, system status and billing integration, the industry favorite WaterScope Classic offers a deep dive into the usage data of every Metron meter and monitor in your district.

METRON WaterScope PLUS

Water data turned into business intelligence. WaterScope PLUS is a sophisticated dashboard for property and portfolio managers, providing intuitive data on financial and operational performance.

METRON WaterScope UTILITY

Designed to make field techs more productive, the WaterScope Utility app for iOS and Android allows them to identify meters with issues, see a route map, capture serial numbers when repairing or replacing meters, update GPS coordinates, and much more.

METRON WaterScope DATALINK

We've built an API to allow application developers to access the power of WaterScope's database and analytic tools. With deep integration like this, the sky's the limit for billing, property management and ESG applications.

Water Utilities

Powered by Microsoft® Azure, WaterScope is reliable, highly-available and scalable. **WaterScope Classic's** powerful analytics and reporting features give you the tools to run your water business efficiently, with as much insight into where the water goes as you need.

Here are a few examples of what WaterScope can do for you:

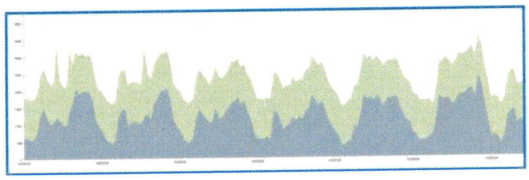
- Capture accurate usage data for every customer
- Generate billing data easily
- Identify leaks in your infrastructure
- Identify meters that aren't reading over cellular
- Find water being used at properties marked as unoccupied
- Identify residents flouting watering restrictions
- Identify residents with the most serious leaks
- Analyze usage trends, such as seasonal



WaterScope PLUS turns water data into business intelligence.

Installation and Maintenance Teams

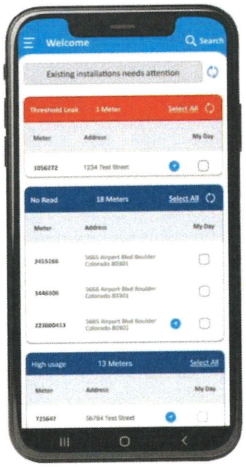
Our **WaterScope Utility** app for iOS and Android streamlines your field teams' activities by allowing you to easily create and assign work orders directly from reports of, for example, leaks or missed reads. Out in the field, technicians can use WaterScope Utility when installing and repairing Metron meters, with step-by-step procedures, including taking photographs and capturing GPS locations. Replaced meters or registers are updated instantly in WaterScope, eliminating paperwork.



Analyzing infrastructure water losses in **WaterScope Classic**

Benefits are:

- Easy assigment and management of work orders
- Efficient use of technicians' time
- Instant updating of meters IDs in WaterScope
- Reduction in human errors



WaterScope Utility streamlines installation and maintenance tasks.

Customers

Utilities can provide customers with individual logins to WaterScope Classic or WaterScope PLUS, allowing them to track their own water usage.

Benefits are:

- Empowering customers to conserve water
- Improved customer relations
- Leak alerts

Learn more on our website: metron-us.com

Call 303.449.8833 to speak to a member of our sales team, or email us at: hello@metron-us.com

WaterScope for Utilities – April 2025 v1.0. Information is subject to change without notice.

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WaterScope® Utility app

Productivity in the Palm of your Hand

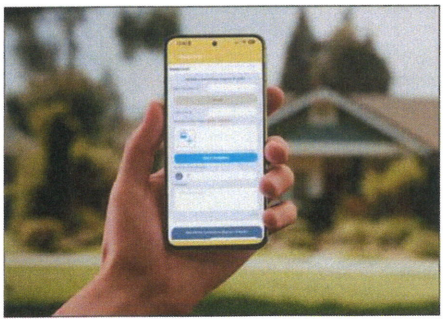
WaterScope Utility is an innovative iOS and Android app tailored to the unique needs of water utilities' maintenance teams. Drawing on Metron's decades of experience partnering with hundreds of municipal and rural utilities across North America, WaterScope Utility efficiently digitizes frontline operations, enabling teams to seamlessly record, share, and access geo-tagged data and insights, communicate with their office, and streamline workflows with intelligent alerts.

With all data dependably stored on the worker's device and automatically uploaded to Metron's central WaterScope servers, WaterScope Utility provides seamless connectivity for field teams operating in all locations, whether urban or remote. Maintenance managers can create work orders in WaterScope — such as a list of all the Metron meters in a city section that haven't transmitted their reads for a few days — allowing the maintenance crew to follow efficient routes to get those meters inspected and repaired.

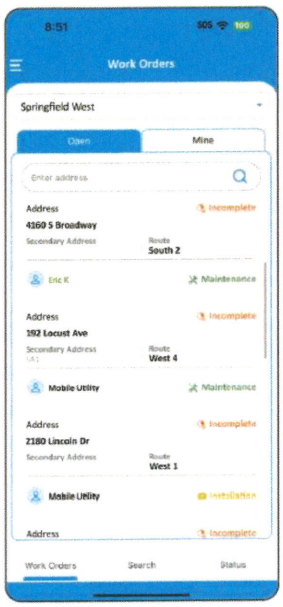
Managers can determine how data is shared across workers' devices, creating a powerful on-the-go knowledge repository — complete with smart-meter data, notes, maps, and photos taken by field teams — while also ensuring that sensitive customer information is kept fully secure.

Using WaterScope Utility, field team members can identify meters with issues, see a route map, capture serial numbers when repairing or replacing meters, update GPS coordinates if not accurate, and plan their activities for the day.

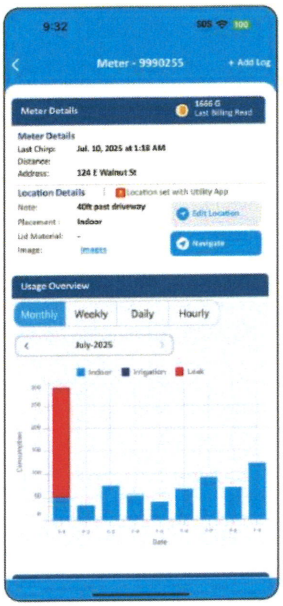
- See which meters require attention for leaks, high use, irrigation violations, etc.
- View meter details: address and location, recent consumption, map-based navigation to meter.
- Schedule work orders from WaterScope. Tasks will show up in the app.
- Install / replace, maintenance, manual meter read, record location, fix leaks, missing reads etc.
- Save detailed records of field actions.
- Send manual meter reads to WaterScope instantly.
- View status of scheduled work in WaterScope.
- View recorded data in WaterScope, such as before/after photographs.



WaterScope Utility features a rich set of workflows which make your field teams productive and efficient, from route planning to logging activities and capturing photos of issues and work done.



Work orders are managed centrally and appear on technicians' phones for execution.



The status and recent usage of a meter can be easily viewed in the app.

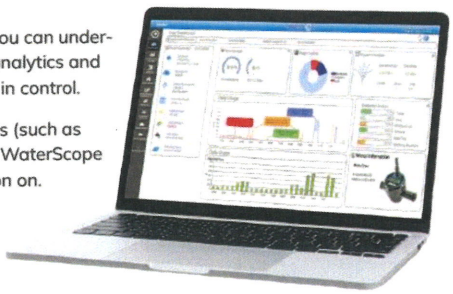


Photographs of installations and repairs can be taken in-app, going straight into WaterScope.

WaterScope®

Accurate, 1-minute water consumption data isn't useful unless you can understand it. That's where WaterScope comes in. With AI-powered analytics and actionable reporting, WaterScope puts utilities – and residents – in control.

Offering leak alerts, usage summaries and details, violation alerts (such as irrigating on off-days) and easy integration with billing systems, WaterScope turns water consumption data into something you can take action on.



METRON WaterScope®

Learn more on our website: metron-us.com

Call 303.449.8833 to speak to a member of our sales team, or email us at: hello@metron-us.com

METRON

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9.9. WARRANTY DOCUMENTATION

METRON LIMITED WARRANTIES

WARRANTY (10/1/2025)

Metron Farnier, LLC ("Metron") provides the limited warranties described in this document only to the original purchaser of Metron products directly from Metron or from an authorized Metron distributor ("Client").

Metron warrants its products from the date of shipment for the length of time shown below (the "Warranty Period") to (i) function in accordance with Metron's published specifications and functionality (which Metron may change from time to time to keep current), (ii) be free from defects in material and workmanship and (iii) to the best of Metron's knowledge, to be in compliance with all applicable laws, rules and regulations. To make a warranty claim, Client must notify Metron in writing (including email), obtain a Return Material Authorization (RMA), and return the nonconforming product to a Metron service center. Upon inspection and confirmation of the warranty claim, Metron will either repair, replace the nonconforming product or credit the customer at no cost to Client (except Client's shipping cost to return the products to Metron). Metron's standard warranty for any products shown below is twelve months from date of shipment.

WARRANTY EXCLUSIONS

THE WARRANTIES AND REMEDIES ARE EXCLUSIVE TO THE ORIGINAL PURCHASER AND ARE NOT TRANSFERRABLE. OTHER THAN METRON'S EXPRESS WARRANTIES DESCRIBED IN THIS DOCUMENT, METRON MAKES NO OTHER EXPRESS OR IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY, SATISFACTORY QUALITY, FITNESS FOR A PARTICULAR PURPOSE, OR NONINFRINGEMENT. METRON MAY REDUCE THE WARRANTY PERIOD FOR SPECIFIC PRODUCTS IN AREAS OF HIGH RISK. (Contact your Metron representative for specifications on areas of high risk.)

Metron's warranties shall not apply (a) to products exposed to conditions outside the normal working conditions of a typical water distribution system including, but not limited to, extreme weather (such as freezing) or unusually harsh or uncommon installation environments; (b) if the products are operated outside of Metron's operating environment specifications; (c) to damage caused by circumstances beyond Metron's control including, but not limited to acts of God, vandalism, negligence, misuse or misapplication, product tampering/alteration, careless or improper handling/installation/repair, excessive operating conditions (pressure or flow) outside the product specifications, foreign particles in the water or aggressive/poor water quality conditions; (d) if Client self-installed or altered the product in a manner not approved by Metron in writing in advance or (e) if Client improperly repaired the product. In addition, Metron makes no warranty that the products will operate in an uninterrupted or error-free fashion at all times. Metron has no control over the performance, reliability, or availability of cellular or Internet communications.

WARRANTY LIABILITY LIMITATION

METRON'S TOTAL LIABILITY FOR ANY CLAIMS ARISING OUT OF OR RELATED TO THESE WARRANTIES ("CLAIMS") SHALL BE LIMITED TO DIRECT DAMAGES. METRON SHALL NOT BE LIABLE FOR ANY INDIRECT, INCIDENTAL, SPECIAL, CONSEQUENTIAL, OR CONTINGENT DAMAGES INCLUDING WITHOUT LIMITATION, ANY REVENUE OR PROFITS LOST BY CLIENT OR ITS AFFILIATES FROM ANY END USER(S), (EVEN IF THEY ATTEMPT TO CATEGORIZE LOST REVENUE OR PROFITS AS DIRECT DAMAGES) OR DAMAGES RESULTING FROM DELAY OR LOSS OF USE OF THE METRON PRODUCT(S) OR RESULTING FROM MISCALCULATION OF WATER USAGE OR THE COSTS OF FIELD LABOR FOR AUDITING OR

REPLACEMENT. METRON'S TOTAL LIABILITY FOR DIRECT DAMAGES CLAIMS SHALL NOT EXCEED THE TOTAL AMOUNT PAID OR PAYABLE BY CUSTOMER TO METRON FOR THE PRODUCT GIVING RISE TO THE CLAIM, REGARDLESS OF WHETHER THE CLAIM IS IN TORT, NEGLIGENCE, STRICT LIABILITY, CONTRACT, STATUTE OR OTHERWISE AND EVEN IF THE DAMAGES WERE NOT FORESEEABLE.

METRON'S EXPRESS PRODUCT WARRANTIES

Spectrum™ Jet Meters (formerly Spectrum meters)

Performance Guarantee (Based on AWWA Standard C712).
Metron warrants the Spectrum Jet meter components for the applicable period or registration listed below, whichever occurs first.
In addition, Metron warrants the meter body against failure for twenty (20) years.

Residential Spectrum Jet single-jet meters

Meter Size	Model	Meter Warranty
5/8"	Spectrum Jet 25D / 25DB	10 Years
5/8"x3/4"	Spectrum Jet 30D / 30DB	10 Years
3/4"	Spectrum Jet S30DL	10 Years
1"	Spectrum Jet 50DL / 50DLC	10 Years

Small commercial Spectrum Jet single-jet meters

Meter Size	Model	Meter Warranty
1.5"	Spectrum Jet 88DL / 88DLT	5 Years
2"	Spectrum Jet 130D	5 Years

Large commercial Spectrum Jet single-jet meters

Meter Size	Model	Meter Warranty
3"	Spectrum Jet 175D	5 years
3"	Spectrum Jet 500D	5 years
4"	Spectrum Jet 500D	5 years
4"	Spectrum Jet 1000D	5 years
6"	Spectrum Jet 1000D	5 years

Spectrum PD 5/8" x 3/4" positive displacement residential meter (formerly Altair meter)

Performance Guarantee (Based on AWWA Standard C710).
Metron warrants the residential Spectrum PD meter components for ten (10) years.
In addition, Metron warrants the meter body against failure for twenty (20) years.

Spectrum Wave 5/8" x 3/4" ultrasonic residential meters (formerly Astria meter)

Performance Guarantee (Based on AWWA Standard C715)
Metron warrants the residential Spectrum Wave meter components for ten (10) years.

Materials & Workmanship

From the date of original shipment from Metron or an authorized distributor of Metron, this Warranty covers the residential Spectrum Wave meters from defects in materials and workmanship (separate from the battery) as follows:

Manufacturer's Defects: Twenty (20) years after shipment, as follows:
Metron will repair or replace, at its discretion, a non-performing Product at no cost during the first ten (10) years of the warranty and at prorated price discounts during the last ten (10) years of the warranty. Metron will apply these prorated price discounts to the Product list prices in effect at the time of Product return and according to the following prorated price discount schedule:

Warranty Period (years)	Replacement Credit (% of current list price)
1-10	100%
11-12	75%
13-15	50%
16	40%
17	30%
18	20%
19-20	10%

The warranty does not include the communication via the embedded radio. The Spectrum Wave meter with embedded radio capabilities is running a firmware able to adapt the usage of radio to the level of power in battery, a first threshold will decrease the frequency of emission, a second one will stop it in order to dedicate power supply to metrology.

Spectrum Enduro 2800D & 3600D water meters (formerly Enduro meters)

Performance Guarantee (Based on AWWA Standard C701)
Metron warrants that new industrial Spectrum Enduro 6" 2800D and 8" 3600D meters from the date of original shipment for five (5) years.

Spectrum Hydrant 3" hydrant water meters (formerly Voyager meters)

Performance Guarantee (Based on AWWA Manual M-6 Chapter 5 Table 5.3)
Metron warrants that new Spectrum Hydrant meter (listed below) from the date of original shipment for a period of one (1) year.

Warranty Exclusion
Warranty coverage does not include physical damage to the hydrant meters due to misuse or negligent handling.

Prism LTE Electronic Register (formerly Innov8-VN LTE register)

Metron warrants the Prism LTE register for twenty (20) years as shown below.

Warranty Period (years)	Replacement Credit (% of current list price)
0-10	100%
11-13	40%
14-16	30%
17-18	20%

19-20	10%

Warranty Exclusions

- *Cabled Outputs.* The Prism register is available with encoder and pulse output options which apply additional and unspecified loads on the batteries. For these register options, the Prism's Warranty Period is limited to five (5) years from the original date of shipment.
- High Risk Areas. Please contact your Metron representative to confirm whether your intended installation is in a high-risk area which will reduce the standard Warranty Period and for availability and cost of a High Risk Premium Warranty Extension.
- Cellular/Internet Service. Metron has no control over the performance, reliability, availability or security of cellular or Internet service.

Prism R LTE Electronic Remote (formerly Innov8-VNr)

Metron warrants the current (single battery) Prism R LTE Electronic Remote for fifteen (15) years as shown below.

Warranty Period (years)	Replacement Credit (% of current list price)
0-5	100%
6-7	40%
8-9	30%
10	20%

Warranty Exclusions

- *Cabled Outputs.* The Prism R register is available with encoder and pulse output options which apply additional and unspecified loads on the batteries. For these register options, the Prism R's Warranty Period is limited to five (5) years from the original date of shipment.
- High Risk Areas. Please contact your Metron representative to confirm whether your intended installation is in a high-risk area which will reduce the standard Warranty Period and for availability and cost of a High Risk Premium Warranty Extension.
- Cellular/Internet Service. Metron has no control over the performance, reliability, availability or security of cellular or Internet service.

Prism EXT Monitors (formerly WaterSignal®-VN)

Metron warrants the Prism EXT monitor for a period of seven (7) years.

Warranty Exclusions

- *Cabled Outputs.* The Prism EXT Monitor is available with encoder and pulse output options which apply additional and unspecified loads on the batteries. For these register options, the Prism EXT Monitor's Warranty Period is limited to five (5) years from the original date of shipment.
- High Risk Areas. Please contact your Metron representative to confirm whether your intended installation is in a high-risk area which will reduce the standard Warranty Period and for availability and cost of a High Risk Premium Warranty Extension.
- Cellular/Internet Service. Metron has no control over the performance, reliability, availability or security of cellular or Internet service.





Bidder: Metron Farnier, LLC and affiliates controlled by or under common control with Metron.

Metron Sensors and Data Services.

Metron sells the metering, monitoring and data transmission equipment ("Sensors") to utility customers ("Utility") for installation on Utility property or in Utility buildings or residences. Information from the Sensors is monitored, processed and analyzed through Metron's proprietary data monitoring and analytics services ("Data Services") including consumption information (for billing), usage analysis, and leak detection and made available to the Utility by subscription to a user-addressable dashboard and through notifications. Metron provides Sensors and licenses the Metron Data Services software through subscriptions for each site owned or managed by the Utility specified in the Request for Proposal.

Ownership and Data Use/Management.

A. Utility owns all rights to the proprietary information it provides, including property types and addresses, and administrator and end-user personal information ("Utility Data"). Utility is responsible for obtaining any necessary consents for disclosure and transmission of any personal information in the Utility Data and any consequences or results of any transmission or publication of any private information that is not intended for public availability. Within thirty (30) days after termination or expiration of this Agreement, Utility may request that Metron provide a file of Utility Data. Utility grants Metron the right to access, copy, transmit, reformat, and display Utility Data to create and provide the Metron Data Services which may include personal information as necessary for Utility to bill its end-users. Utility agrees that Metron may analyze Utility Data for the purpose of improving Metron Data Services, or to provide generalized data on the use or attributes of content types and may provide additional Service analytics. Utility also agrees that Metron may also create generalized examples of types of Utility Data to demonstrate the Metron Data Services analytics capabilities. Utility's subscription to access and use the Metron Data Services through Metron software does not include ownership rights to any Metron Data Services. Metron will utilize reasonable, currently available measures to remove end-user personal information from the generalized data.

B. Metron owns all design rights to the Sensors and Metron Data Services, and to any modifications or improvements and all related intellectual property rights. Metron also owns the metrics and analytics data related to Utility Data or Utility's use of the Metron Data Services. Metron's Data Services ownership includes all (a) pre-existing works and materials or works, (b) works of general applicability to the data analytics and software development industries, and (c) any concepts, approaches, knowledge, experience, skills, techniques, methodologies, designs, processes, tools, know-how or ideas already

Metron
5665 Airport Blvd, Boulder, CO 80301, USA
Phone: 303.449.8833
Fax: 303.449.1464





possessed by Metron prior to the Agreement or resulting from Metron's work under the Agreement or which may be used by Metron to improve Metron's business offerings for other Utilities, provided that it does not contain any Utility confidential information or Utility Data. Metron may use any suggestions, ideas, enhancement requests, feedback, recommendations, or other non-proprietary information ("Feedback") to improve the Data Services without charge, royalties, or other obligation to the source, and Metron's use of Feedback does not give Utility or its end-users any property rights to the Metron Data Services. To the extent that Metron's transformative formatting, reorganization, and analytics of Utility Data may be considered copyrightable by Metron (excluding Utility Data itself), Utility and Metron agree to cross-license Utility's rights to Utility Data and Metron's rights to its transformations and analytics to each other to provide the Metron Data Services for the duration of the Agreement. Upon termination of this Agreement the cross-license shall expire and Metron can no longer use Utility Data and Utility can no longer use Metron's analytics and Data Services.

C. Restrictions. Utility may not modify or create derivative works from the Metron Data Services, reverse engineer, decompile, or disassemble the Sensors or Metron Data Services; or otherwise use the Metron Data Services except as expressly described in the Agreement.

D. Metron and Utility may correspond and convey information and documentation, including intellectual property such as Utility Data and Metron Data Services via cellular data transmission and the Internet. Neither party has control over the performance, reliability, availability or security of cellular or Internet communications and therefore neither party shall be liable for any loss, damage, expense, harm or inconvenience resulting from the loss, delay, interception, corruption, or alteration of any Internet data transmissions due to any reason beyond that party's reasonable control.

Sensor Warranty.

A. Metron warrants to Utility that (i) the Sensors will be free from material defects in materials and workmanship and will perform substantially in accordance with the applicable warranties described in the proposal and (ii) the Data Services will materially perform as described in the proposal. For nonconforming Sensors or Data Services reported by Utility during the applicable Warranty Period and not subject to a warranty exclusion, Utility's sole and exclusive remedy will be for Metron to promptly repair or replace nonconforming Sensors and/or re-perform nonconforming Data Services at no additional cost to Utility.

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Phone: 303.449.8833
Fax: 303.449.1464

9.10. CERTIFICATE OF INSURANCE (COI)

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 10/2/2025

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 Securance Corporation Agency 10205 Westheimer Rd., Ste. 1100 Houston TX 77042	CONTACT NAME: John Munson PHONE (A/C, No, Ext): 312-420-0747 FAX (A/C, No): 713-785-6722 E-MAIL ADDRESS: jmunson@securancecorp.com

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : Hartford Fire Insurance Co.	19682
INSURER B : Trumbull Insurance Company	27120
INSURER C : Hartford Casualty Ins. Co.	29424
INSURER D : Obsidian Specialty Insurance Company	16871
INSURER E :	
INSURER F :	

INSURED: METRON0-01
Metron Farnier LLC
Metron Sustainable Services, Inc.
WaterSignal LLC, Transparent Technologies, Inc.
5665 Airport Blvd, Suite 105
Boulder CO 80301

COVERAGES **CERTIFICATE NUMBER:** 1647431297 **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	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE X OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: X POLICY PRO-JECT LOC OTHER:	Y	Y	61UUNBC5FFG	7/1/2025	7/1/2026	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG $	$ 1,000,000 $ 300,000 $ 5,000 $ 1,000,000 $ 2,000,000 $ 2,000,000 $
B	AUTOMOBILE LIABILITY X ANY AUTO OWNED AUTOS ONLY HIRED AUTOS ONLY SCHEDULED AUTOS NON-OWNED AUTOS ONLY	Y	Y	61UENBC5FU8	7/1/2025	7/1/2026	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident) $	$ 1,000,000 $ $ $ $
C	X UMBRELLA LIAB X OCCUR EXCESS LIAB CLAIMS-MADE DED X RETENTION $ 10,000	Y	Y	61RHUBE3SU4	7/1/2025	7/1/2026	EACH OCCURRENCE AGGREGATE $	$ 5,000,000 $ 5,000,000 $
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y / N: N (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	N / A	Y	61WEAY0M8P	7/1/2025	7/1/2026	X PER STATUTE OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $ 1,000,000 $ 1,000,000 $ 1,000,000
D	Technology E&O & Cyber Liability	Y		OBD-PT-SFRG4TEEA	1/24/2025	1/24/2026	Each claim/aggregate	$3,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
Certificate holder is Additional Insured per written agreement. Policies are Primary and Non-Contributory in favor of certificate holders per written agreement. Policies include Waiver of Subrogation per written agreement. Referenced forms: HG00010916, HA99161221.

CERTIFICATE HOLDER

Portage County Water Resources Department
Shannon Kautzman, Director of Internal Services
Portage County Internal Services Director
Portage County Administration Bldg
449 S. Meridian St.
Ravenna OH 44266

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
Deborah D Hubbard

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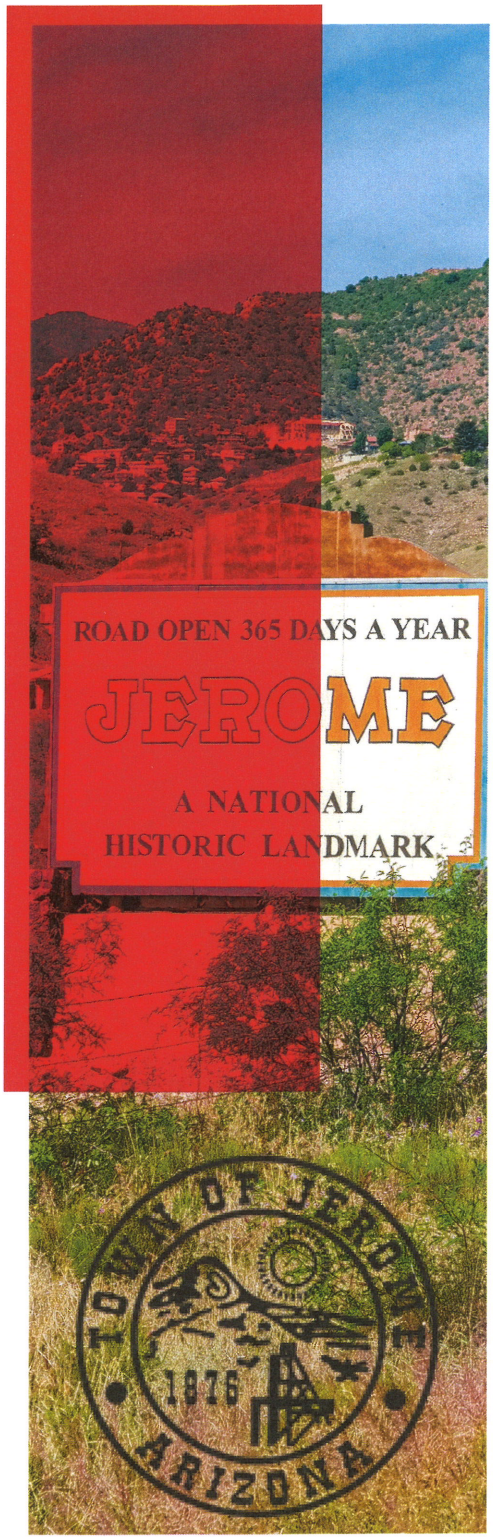

kamstrup | FORTILINE SMART UTILITY SOLUTIONS

Jerome, Arizona

REQUEST FOR PROPOSAL FOR ADVANCED METERING INFRASTRUCTURE SYSTEM

PREPARED FOR: Brett Klein, Town Manager/Town Clerk
DUE: November 5, 2025 | 12:00 PM Local Time

PRIMARY: Rhonda Duran
Rhonda.Duran@fortiline.com
M: (602) 245-8060

SECONDARY: Joe Ferguson
Joe.Ferguson@fortiline.com
M: (704) 754-3288

BRANCH MANAGER:
Robert Bonnewell
Robert.Bonnewell@fortiline.com
6400 Lear Lane
Prescott, AZ 86301
P: (928) 224-1097

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03 Project Management

04 Experience & References

05 Appendix

FORTILINE
SMART UTILITY SOLUTIONS

Town of Jerome, Arizona
Request for Proposal for Advanced Metering Infrastructure System
600 Clark St. Jerome, AZ 86331

Fortiline Waterworks is pleased to present this Letter of Transmittal and our response to the RFP referenced above. Our response is based upon a detailed review of the requirements and assembled in order to exceed the needs and desires of the Town of Jerome for a turn-key Advanced Metering Infrastructure (AMI) system to replace it's existing metering system.

Jerome's desire to move to more accurate and reliable technology shows vision, an understanding of AMI's ability to improve customer service and a desire to conserve valuable water resources by reducing waste. Incorporated in 1997, Fortiline has over 70 locations serving 23 states and is the third largest full-service provider to the water, wastewater, utility, and construction industries in the country. Our experience enables us to anticipate and address the Town of Jerome's specific needs, ensuring a seamless and responsive partnership throughout the life of the system.

We are excited to collaborate with Kamstrup to present the Town of Jerome a range of exceptional water meters. As a global supplier of ultrasonic water meters, having made their first in 1991, Kamstrup now sells their meters in over 80 countries around the world. Kamstrup's US headquarters is located in Cumming, GA.

Kamstrup meters have proven to be highly reliable in the field, with a historic global failure rate of less than 0.5%. Combined with a starting low flow rate of 0.008 gpm and guaranteed new meter accuracy for the 20-year warrantied life of the meter, it's easy to see why utilities name Kamstrup as their brand of choice.

Fortiline's partnership with Kamstrup allows us to bring a long-term AMI solution that is accurate and reliable while maximizing the value of Jerome's's investment. Together, with our proven expertise, Fortiline and Kamstrup are uniquely equipped to meet all of the Town of Jerome's needs outlined in this response by delivering reliable, efficient, and tailored support every step of the way.

We further certify that this proposal has been prepared and submitted independently and without collusion, consultation, or agreement with any other individual or entity submitting a proposal pursuant to this RFP.

Should you have any questions about the proposal please feel free to contact Rhonda Duran at (602) 245-8060 or Rhonda.Duran@fortiline.com.

Thank you for your consideration,

Fortiline Smart Utility Solutions

01 FORTILINE EXECUTIVE SUMMARY

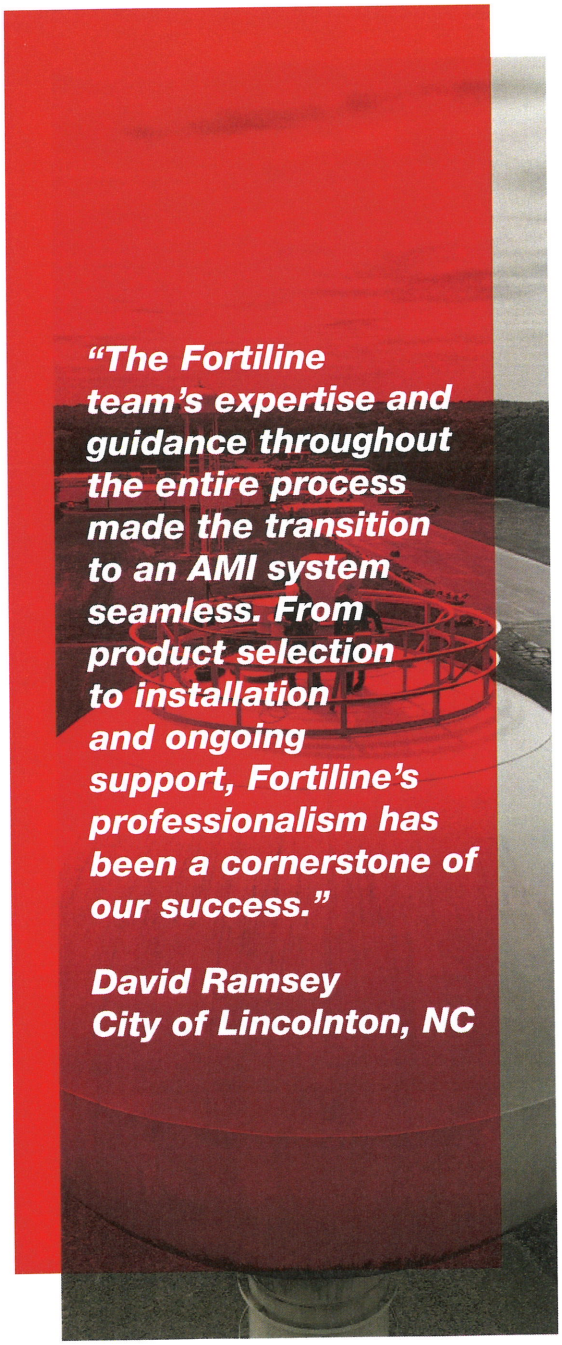
Bringing the Town of Jerome a Total Metering Solution

The Town of Jerome's commitment to modernizing their water distribution system is evident in their Water Meter Replacement Project RFP. The Town's current meter system has aged past the point of accuracy and reliability. Updating Jerome's water distribution system will not only secure safe, reliable, and efficient water service for its residents and businesses, but also reduce the Town's water loss and labor expenses.

Fortiline Waterworks, in partnership with Kamstrup, is proud to present a proven solution designed to address Jerome's water distribution challenges of inaccurate readings leading to high water loss, labor intensive manual reads, and a lack of accurate system data. The Town of Jerome has the opportunity to implement Kamstrup's fully-integrated, smart metering solution that may significantly:

> ***Reduce Water Loss and Increase Revenue***
>
> ***Boost Operational Efficiency and Cost Savings***
>
> ***Enhance Customer Service and Transparency***
>
> ***Drive a Rapid Return on Investment***

The Kamstrup solution is more than a metering system, it is a data driven platform that empowers Jerome's water department to work smarter, faster, and with greater control. With the support of Kamstrup's reliable, intelligent metering platform and Fortiline's experienced support team, the Town of Jerome will gain control of its water system, reduce operational costs, and strengthen its service to residents for decades to come.



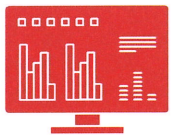
JEROME'S SHORT-TERM BENEFITS

Kamstrup water meters offer the Town of Jerome a powerful solution to enhance operational efficiency, customer service, and water conservation efforts. By replacing all existing meters with highly accurate ultrasonic technology, these meters will benefit the Town in multiple ways including, but not limited to the following:



PROVIDING NEAR "REAL-TIME" INFORMATION IN THE WATER SYSTEM.

Kamstrup's AMI water meter reports to the network every three hours. Each radio transmission report contains eighteen hourly readings for redundancy and notification of any active alarms. When an alarm is activated, it is transmitted immediately.



INCREASING THE INFORMATION AVAILABLE WITHIN THE READING SYSTEM.

Kamstrup's system provides utilities with temperature readings for both metered water and the ambient air, "Burst" alarms for large leaks, and Histogram Data that illustrates the rate and volume at which water has flowed through the meter.



ELEVATING JEROME'S CUSTOMER SUPPORT

When armed with Kamstrup's AMI Solution, Jerome's Customer Support and Utility Representatives can access metering data at the push of a button.

LONG-TERM VISION

Jerome's **LONG-TERM VISION** for an AMI system focuses on continued operational efficiency by providing tools and technology it needs to improve water accountability while delivering exceptional service to its residents. Fortiline's response to Jerome's RFP is a combination of the best products in the marketplace and top-tier service. We know there are many solutions available to you, each offering their own value. However, we firmly believe that we are presenting you with the best value and quality service on the market. As you read through the remainder of our response, please remember these key points:



The Kamstrup Meter System WILL reduce your non-revenue water more than any other meter available.



Kamstrup is the easiest AMI system to implement and use.



Kamstrup's historically proven reliability means LESS MAINTENANCE and DATA LOSS than similar systems.

Through this project, the Town of Jerome is investing in a smarter, more resilient water system that delivers measurable operational benefits while meeting the evolving needs of its community. Fortiline Waterworks appreciates the opportunity to partner with Jerome on this critical infrastructure project and is confident that our Kamstrup solution offers the best value, reliability, and long-term benefi t for the Town and its customers.

FORTILINE

02 PROPOSED SOLUTION OVERVIEW

The centerpiece of Fortiline Waterworks' proposed solution to Jerome's water metering needs is the Kamstrup flowIQ series meter. The flowIQ series is a leader in the next generation of smart water meters. This electronic, cold water meter has been specifically engineered to provide water monitoring for households, multi-unit buildings, and commercial applications. With size options ranging from 5/8" to 1", the flowIQ 2200 fits the majority of standard meter sizing. For larger applications, the flowIQ 3200 covers sizes from 1½" to 4" while the flow IQ 4200 covers sizes from 6" to 12".

The flowIQ series exemplifies the latest principles in water metering and Kamstrup's company values. Their focus on sustainable accuracy led to the development of this intelligent and compact meter composed of a radio, register, battery, and electronics. FlowIQ meters are hermetically closed and vacuum-sealed. Coupled with the fact that these meters have no internal moving parts to wear down over time, they retain 100% new meter accuracy throughout their lifetime.

Additionally, the flowIQ 2200 is able to begin registering flow rates at as little as 0.008 gpm, 0.035 gpm for the flowIQ 3200, and 1.4 gpm for the flowIQ 4200. This ultra-low flow ability will increase utility revenue by ensuring that the water being produced is being billed for customers with the smallest of leaks are fixing them, thereby conserving Jerome's valuable water resources.

While leak, burst, tamper, and battery alarms are standard within AMR and AMI systems, Kamstrup's meters also provide a "Dry" alarm that sends a notification when a meter is not full of water. Separately, the Kamstrup meter allows for customizable options for alarm ranges for factors such as battery, burst, dry, leak, tamper, and temperature. These personalized options may be programmed in the factory, field, or office through Kamstrup's READy Manager.

Kamstrup's ultrasonic metering system is simple enough to ensure a smooth transition for nearly every customer. Their superior meters, partnered with user-friendly software makes capturing potential water loss and non-revenue water easier than ever before.

WHY CHOOSE

ULTRASONIC WATER METERS

Ultrasonic water meter technology is highlighting just how much water has been left behind by mechanical meters over the last century. By providing utilities the ability to more accurately measure their water usage, the ultrasonic technology revolution is changing how they interact with their customers, operate and manage their business, and how utility employees go about their daily tasks.

BENEFITS AT A GLANCE

Superior Flow Rate Measuring

This ensures Jerome receives payment for the water it supplies, while encouraging residents to promptly address minor leaks and preserve the community's vital water supply.

Industry Leading Reliability

With a failure rate below 0.5% globally, it is technology you can put in and continue to rely upon for years to come. Fewer failures means less maintenance and more productivity.

Simplest AMI System

A meter, collector, READy Converter, and software on an Android device and Windows PC are all you need. Basic training for Kamstrup software takes hours, not days.

Long-term Solution

Ultrasonic meters have no internal moving parts to wear down over time Ultrasonic meters have 98.5% accuracy throughout their lifetime making them simpler and easier to maintain.



KAMSTRUP'S REVOLUTIONARY AMI SYSTEM INCLUDES:

01 flowIQ 2200, 3200, & 4200

02 AMI COLLECTOR

03 READY CONVERTER

04 READY MANAGER

05 ANDROID DEVICE

KAMSTRUP

flowIQ METER SERIES

Our partnership with Kamstrup allows us to offer the Town of Jerome the flowIQ meter series, a comprehensive lineup of smart water meters designed for residential, commercial, and industrial applications.

Why Choose Kamstrup's flowIQ Meter Series?

Kamstrup's ultrasonic water meters provide unmatched accuracy, durability, and intelligence, helping utilities:

- Reduce non-revenue water with highly accurate, near real-time measurement
- Improve billing accuracy with industry-leading low-flow reading capabilities
- Enhance operational efficiency with remote data access and advanced diagnostics
- Lower maintenance costs with no internal moving parts and long battery life

"Once all of our meters are changed, our revenue increase may reach $500,000 per year with the low flows we get from the [Kamstrup] meter."

Josh Miller
Assistant Utilities Director
St. Lucie West Services District, FL

The flowIQ meter series is more than just a collection of meters, it's a breakthrough in water metering technology, setting new standards in **accuracy, durability, and efficiency**. As ultrasonic meters, they deliver pinpoint precision and unmatched longevity, ensuring utilities and customers benefit from reliable and precise measurements for decades.

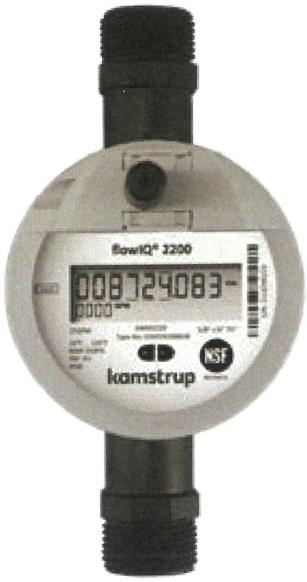
Kamstrup has built a global reputation of industry-leading reliability, with an astonishing **meter failure rate of less than 0.5%**, a testament to their unwavering commitment to quality. Backed by a 20-year warranty for meters 1" and smaller, and a 10-year warranty for those 1 ½" and above, the flowIQ series is more than just a new meter, it's an investment in long-term accuracy and performance.

Designed for maximum efficiency, the flowIQ meter series can **detect flow rates as low as 0.008 gallons per minute**, ensuring that every drop of produced water is accounted for. This ultra-low flow detection not only maximizes utility revenue but also empowers customers to detect and address even the smallest leaks, ultimately conserving valuable community water resources.

MEET THE METERS

flowIQ 2200 – THE IDEAL RESIDENTIAL SOLUTION

The Kamstrup flowIQ 2200 is designed for single-family homes and multi-unit buildings. With size options ranging from 5/8" to 1", the flowIQ 2200 fits the majority of standard meter sizings.[1]



Key Features

- Highly precise ultrasonic measurement for cold and reclaimed water[2]
- Leak detection and water conservation with Acoustic Leak Detection (ALD)
- Ultra-low flow detection (starting at 0.008 GPM) for capturing minimal water usage. Guaranteed measurement accuracy from 0.05 to 55 gpm
- Hermetically sealed, vacuum-protected electronics to prevent humidity damage
- NSF/ANSI 61-certified lead-free materials for safe drinking water
- Long-lasting lithium battery with up to 20 years of operation

flowIQ 3200 – SMART METERING FOR SMART BUSINESS

The Kamstrup flowIQ 3200 is designed to revolutionize water management for residential, multi-unit, and light commercial applications. With size options ranging from 1 ½" to 4", the flowIQ 3200 fits the majority of standard meter sizings.



Key Features

- Constructed from high-performance thermoplastic and 316L stainless steel, free from lead and other heavy metals
- Compliant with AWWA C715-18 and CN1044 fire service meter guidelines
- Low head loss design, reducing back-pressure and lowering energy consumption
- Begins measuring flow at 0.035 gpm. Guaranteed measurement accuracy from 0.4 to 700 gpm
- NSF/ANSI 61-certified lead-free materials for safe drinking water
- Powered by a long-lasting lithium battery with an operational life of up to 20 years, minimizing maintenance and replacements
- Integrated ALD sensors available in select sizes

1 *Please refer to the flowIQ2200 Data Sheet for further details.*
2 *For information concerning reclaimed water specifications, contact your local meter specialist.*

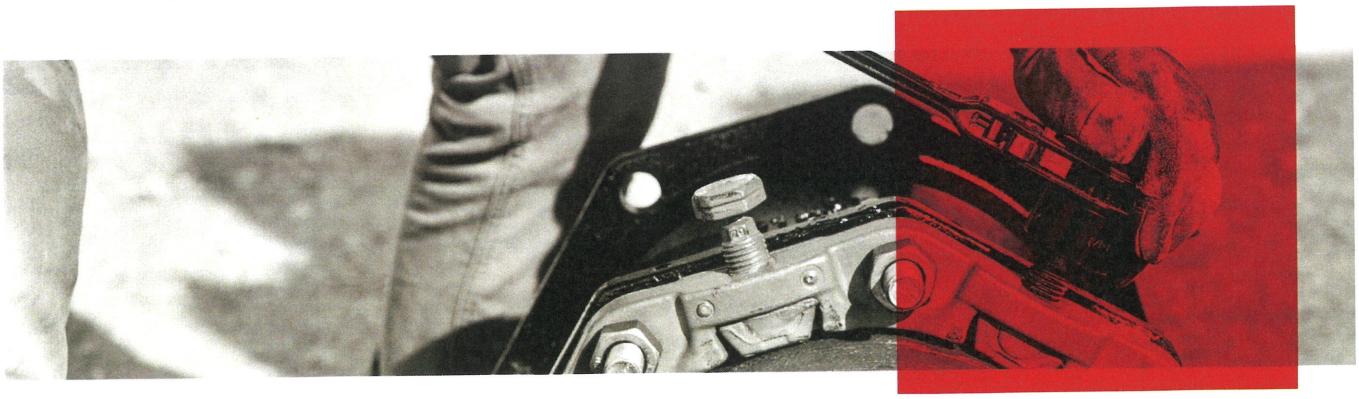
flowIQ 4200 – INDUSTRIOUS METERING

The Kamstrup flowIQ 4200 is engineered for commercial, industrial, and multi-unit residential applications. With size options ranging from 6" to 12", the flowIQ 4200 fits the majority of standard large meter sizings.

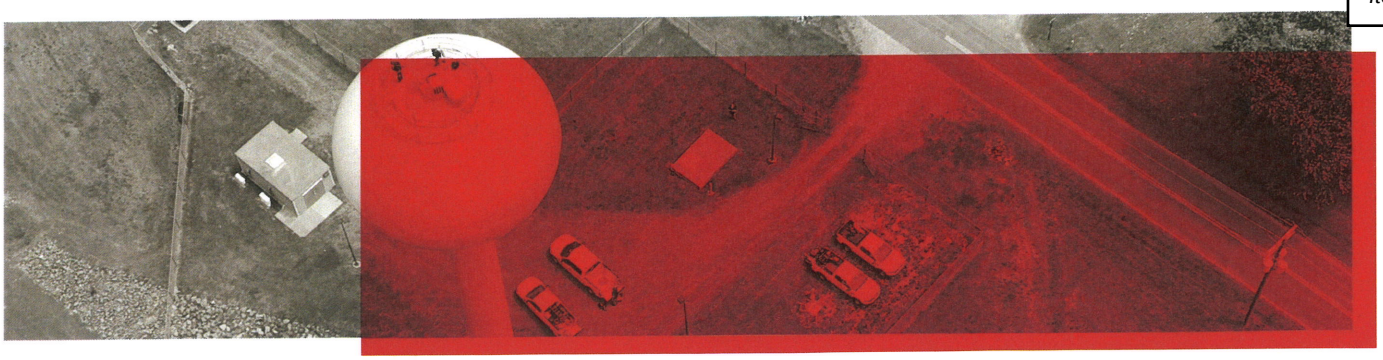


Key Features

- Hermetically sealed, vacuum-protected electronics to prevent humidity damage
- Begins measuring flow at 1.4 gpm. Guaranteed measurement accuracy from 2.8 to 1400 gpm[1]
- NSF/ANSI 61-certified lead-free materials for safe drinking water
- Coated split flanges constructed of Cast Iron
- Field-replaceable battery with a 20-year lifespan, reducing waste and lowering the total cost of ownership
- Constructed from 316L stainless steel and high-performance thermoplastic, ensuring durability and compliance with NSF/ANSI 61 Drinking Water Standards



1 *Accuracy range varies according to meter size. Please refer to attached Data Sheet for further information.*



COMMUNICATION OPTIONS

The flowIQ Series supports a variety of communication options, depending on meter type:

- **AMR - 450-470 MHz (RF)**
- **AMI - 912.5, 915, or 918.5 MHz 0 Wireless Radio (RF)1**

RADIO FREQUENCY COMMUNICATIONS

Advanced Metering Infrastructure - AMI

Kamstrup's Advanced Metering Infrastructure (AMI) network leverages an FCC-licensed radio frequency (450–470 MHz) to deliver reliable, long-distance data transmission with minimal signal loss. By helping each utility secure a licensed frequency, Kamstrup ensures that utilities own the rights to their network and benefit from lower infrastructure costs.

Key Features

- **Low-Band Frequency:** Propagates effectively through vegetation and over long distances, reducing the need for extra collectors and repeaters.
- **Secure Data Transmission:** Standard encryption protocols protect transmitted data at every stage.
- **Automatic Power & Path Optimizations:** Dynamically selects the best collector and transmission strength for each meter, ensuring top-tier reliability.
- **Dual-Band Radios (AMI & AMR):** Even in AMI mode, meters can be read via fallback AMR without reprogramming, offering total flexibility.
- **Near Real-Time Data:** Utilities receive frequent updates without needing a vehicle or staff on site.
- **Proactive Maintenance & Alarms:** Continuous or scheduled transmissions allow quick detection of leaks, tampering, and abnormal usage, reducing water loss and improving customer service.

1 *This version is intended for use with Wireless M-Bus – US Localization of European standard for remote reading of meters EN 13757-4.*

ACOUSTIC LEAK DETECTION (ALD) TECHNOLOGY

Kamstrup's Acoustic Leak Detection (ALD) Technology is a sophisticated system designed to detect and locate leaks within a municipality's water distribution network. Using advanced sensors and algorithms within the meters themselves to monitor your network continuously, this technology provides real-time insights into the condition of your infrastructure.

PRECISE LEAK DETECTION

Kamstrup's ALD Technology excels in pinpointing leaks with a high degree of accuracy, regardless of their size or severity. By detecting leaks early, you can prevent water loss and minimize infrastructure damage.

REAL-TIME MONITORING

Stay ahead of potential issues with continuous real-time monitoring. The system offers timely alerts when it identifies a potential leak, enabling proactive responses and reducing downtime.

COST SAVINGS

Addressing water loss and preventing infrastructure damage can lead to significant cost savings. By investing in ALD technology, you can reduce water expenses and lower maintenance costs.

ENVIRONMENTAL RESPONSIBILITY

Reducing water waste is a crucial part of environmental stewardship. By conserving water resources and minimizing energy consumption, you will contribute to sustainability efforts.

IMPROVED CUSTOMER SERVICE

Maintaining reliable service ensures customer satisfaction. With Kamstrup's technology, you can enhance service reliability, earning you the trust of your customers.

SCALABILITY

ALD Technology is adaptable to suit utilities of various sizes. It seamlessly integrates with existing infrastructure, ensuring a flexible solution for your specific needs.

DATA-DRIVEN DECISIONS

Our system provides valuable data insights that will allow you to analyze consumption trends, track performance, and optimize network operations efficiently.

EASE OF IMPLEMENTATION

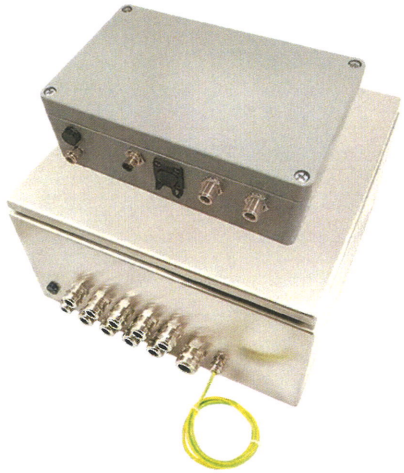
Fortiline's team ensures a straightforward installation process and offers unparalleled support to guarantee seamless integration with your existing meters and control systems.

This technology identifies leaks of all sizes, enabling their prompt repair, restoration of water resources, and minimizing losses to municipalities. The ALD features of the flowIQ 2200 & 3200 meter may be utilized at any point during the life of the meter with the purchase and activation of the Leak Detector software.

ADDITIONAL HARDWARE

KAMSTRUP READY COLLECTOR[1]

The READy Collector is a central, two-way network component designed for Advanced Metering Infrastructure (AMI) systems. Built to withstand harsh conditions, it reliably collects consumption data from up to 25,000 water meters and relays that information to Kamstrup's READy Manager software. Its robust design eliminates the need for coaxial cabling, using straightforward wiring between a Collector Top and a Base unit.



Key Features

- **Two-Way Communication:** Ensures fast, secure, and intelligent data exchanges with meters.
- **Rugged Construction:** Built for elevated or hard-to-reach installations, including water towers or storage tanks.
- **High-Level Security:** Provides individual encryption keys, ensuring protected data transmissions.
- **Automatic Event Alerts:** Transmits warnings and alarms in real time for proactive maintenance.
- **Plug-and-Play Components:** The Collector Top and Base are easy to install, replace, or upgrade.

KAMSTRUP READy CONVERTER (ADVANCED)

The READy Converter Advanced is a portable, all-in-one solution for drive-by or walk-by meter reading. It uses Wireless M-Bus technology (912.5–918.5 MHz) to collect consumption data from smart water meters and sends it to a smartphone or tablet. Its lightweight, battery-powered design makes it ideal for utilities transitioning to automated reading while maintaining flexibility in the field.



Key Features

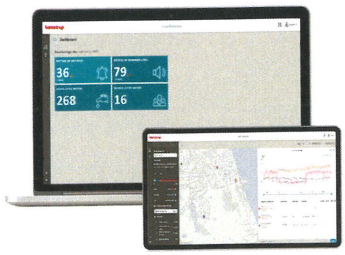
- **High-Speed Meter Reading:** Receives data from up to 30 smart meters per second, perfect for drive-by routes.
- **Rugged & Compact:** Packaged in a sturdy suitcase with a durable, rechargeable battery that can last up to 8 hours.
- **Easy Integration:** Syncs data with the READy smartphone/tablet app, eliminating the need for complex infrastructure.
- **Simple Deployment:** Ships with antennas, mobile device holders, and a quick-start guide for rapid setup.
- **Secure Wireless Protocol:** Uses Wireless M-Bus (C mode) with strong encryption to protect consumption data.

1 *To move the data from the collectors to READy Manager software for viewing by Jerome, the utility should provide an ethernet connection to "hard wire" to the collector's modem, or, a SIM card from their current cellular carrier for 250-500MB of data monthly. Our experience has found most utilities who purchase SIM cards for this pay about $25 per month per card, but that may vary depending on the utility's cellular plan for their employees.*

REMOTE MANAGEMENT & MONITORING

SOFTWARE OVERVIEW

SMART SOFTWARE THAT IS SIMPLE TO USE.



Water utilities today face growing challenges in maintaining accuracy, reducing costs, and improving customer satisfaction. Kamstrup meets these demands head-on with the flowIQ range of ultrasonic water meters, complemented by the powerful READy Manager and READy App software platform. Together, they deliver a streamlined, highly accurate, and scalable metering solution.

During training, Fortiline will work with Jerome to customize the fields visible in READy Manager at no additional cost. If the Town later needs READy Manager connected to other software (outside their billing system), Fortiline and Kamstrup can assist through FTP (File Transfer Portal) or API (Application Programming Interface). FTP interfaces typically cost a few thousand dollars, while more complex ones can reach up to $10K. API services are included with the Annual Hosting fee.

READy MANAGER AND APP

READy Manager is Kamstrup's core Meter Data Management (MDM) platform. READy and it's mobile app connect seamlessly with flowIQ meters (and other Kamstrup devices) to gather and organize consumption data for water utilities. READy Manager helps utilities to provide customers with precise, verifiable consumption data to quickly resolve billing issues. This visibility is crucial for accurate billing, timely leak detection, and ensuring customers are informed and confident in their usage.

READy Manager Key Features

- **All-in-One Hosted Platform:** Access consumption data, meter alarms, and historical logging in a user-friendly PC interface. All information is securely stored on Kamstrup's servers.
- **Remote Monitoring:** Access near-real-time or scheduled meter readings and alarms, enabling quick detection of leaks, bursts, or tampering.
- **Data Visualization & Reporting:** Graphs and dashboards provide insights into hourly, daily, or monthly consumption patterns.
- **Automated Data Handling:** Schedule meter reads, generate custom reports, and export data to billing, GIS platforms, or other third-party software with minimal effort.
- **User-Friendly Interface:** Requires minimal training, allowing staff to quickly view, manage, and export consumption data.
- **Configurable Alarms and Notifications:** Set leak, burst, and temperature thresholds remotely; receive email or text notifications when an event occurs.



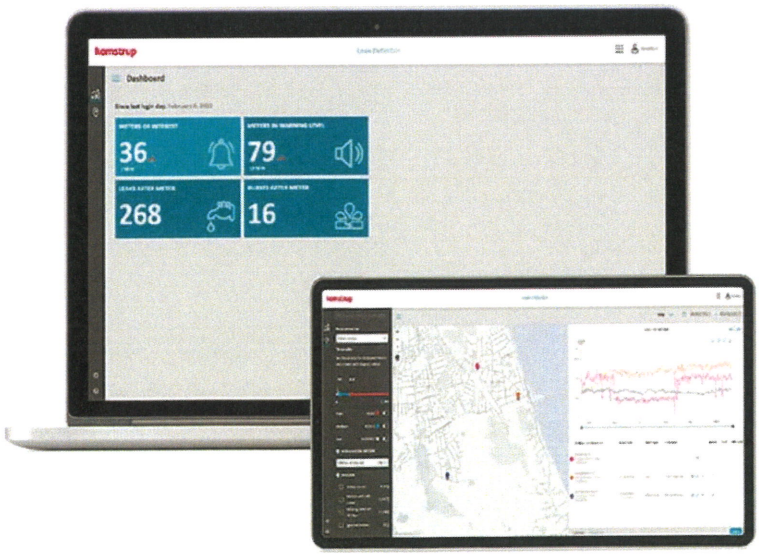
READy App Key Features

- **Mobile Meter Reading:** Pair a smartphone or tablet with a Bluetooth converter for drive-by meter reading—no bulky equipment required.
- **Real-Time Sync:** Update consumption data, meter positions, and installation notes instantly between the field and the office.
- **Integrated Installation Tools:** Check signal strength, configure network components, and replace meters on the spot, with data seamlessly syncing back to READy Manager.
- **Usage Logging:** View meter data logs and info codes on the go, helping field technicians diagnose issues without returning to the office.

LEAK DETECTOR

Proactive Leak Detection & Non-Revenue Water Reduction

Water Intelligence leverages advanced algorithms and continuous data gathering to help utilities pinpoint the root causes of water loss. By analyzing both district and customer level meter data in near real time, you can quickly identify leaks on main lines, service connections, or at customer premises—before they turn into costly emergencies



Real-Time, Visual Insights

- Kamstrup's Leak Detector uses continuous monitoring and advanced algorithms to detect abnormalities in service lines at any flow level, **preventing significant water loss and infrastructure damage**. A dynamic map interface color-codes the riskiest meters, allowing utility staff to quickly pinpoint potential leaks, prioritize repairs, and allocate resources efficiently. By offering real-time analytics and intuitive visualization, Leak Detector reduces non-revenue water, minimizes costs, and enhances overall network reliability.

Data-Driven Decisions, Delivered Simply

Intuitive Web Portal: Access powerful dashboards from any modern browser—no specialized software required.

Seamless Integration: Connect Water Intelligence to your existing Kamstrup READy Manager or other data management systems, ensuring all meter readings, logs, and alarm statuses flow into one centralized place.

Configurable Alerts & Reporting: Tailor alarms for night flows, abnormal consumption, or suspected bursts. Generate visual reports that clearly convey water loss trends and system performance to stakeholders.

Flexible, Scalable, and Secure

Cloud-Based Hosting: Hosted on Microsoft Azure data centers within the U.S., Water Intelligence is designed for reliability, scalability, and compliance with local data regulations.

Minimal Infrastructure: All you need is an internet connection; no additional on-site servers. The platform easily accommodates more meters, districts, or modules as your needs grow.

Mobile Compatibility: Access or review water balances and potential leaks on smartphones or tablets—ideal for field crews needing quick updates.



CUSTOMER PORTAL

H2O ANALYTICS

H2O CUSTOMER PORTAL

Fortiline's proposed Customer Portal solution for the Town of Jerome is provided by H2O Analytics, a browser-based solution that can help the Town of Jerome turn its data into efficiency gains, improved customer satisfaction, and enhanced conservation efforts.

Solution Overview

- Browser-based Portal and Mobile Apps allow your Customers direct access to their meter data
- Integrated with your existing billing and metering systems for quick and easy implementation
- Customers control notification messages for leaks and high use conditions
- Notifications are delivered via email, text message and computerized voice calls
- Delegated administration for full utility control of user account information



H2O Customer Portal allows utilities to go beyond simple monthly statements and engage customers with interactive technologies. Allowing customers to visualize and understand their water usage through intuitive charts, proactive alerts, and notifications improves customer service and encourages changes in customer consumption.

The Customer Portal is browser-based and provides Jerome's customers with access to their account information and notification configuration options. H2O Analytics has the ability to construct private-labeled web, Android, and iOS versions of the Customer Portal, integrating the Town of Jerome's branding into the Customer Portal.

Systems Integrations

The H2O Customer Portal's processes for integrating with Kamstrup's READy Manager are all automated. This allows for the seamless transfer of meter readings and alerts between the two systems. Integrating with the Town of Jerome's preferred billing provider requires access to the utility's billing database, customer account information, and customer contact information.

The H2O Analytic Engine provides automated processing of Jerome's in-house billing system and meter data from Kamstrup's READy Manager MDMs. As a cloud-based platform, there is no hardware and very little software required at your location.

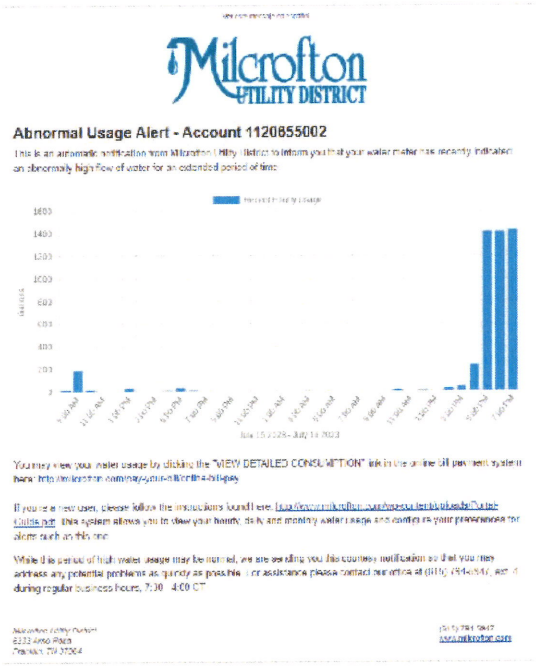
Alerts and Notifications

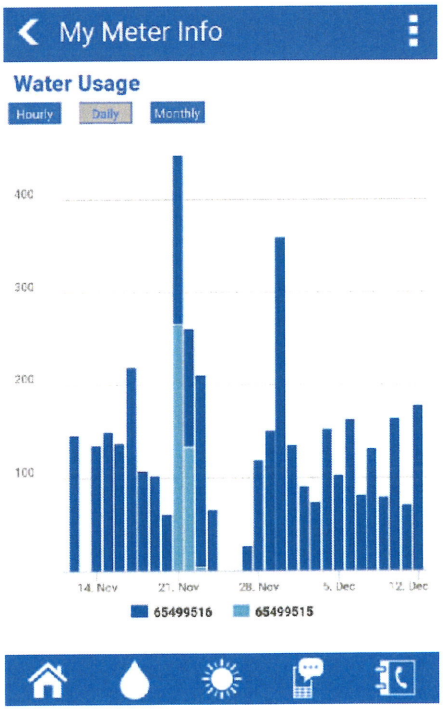
Customer alerts can be triggered from any desired system alert code. Additionally, the H2O Analytic Engine learns your customer's typical water usage schedule and sends an Abnormal Usage alert for non-regular high usage events. The Town of Jerome Utilities Department will also be able to program usage restriction rules. Restriction Violation alerts are sent when those parameters are broken.



The Town of Jerome will be able to reach its customers over multiple channels. H2O Customer Portal allows the utility send notifications via email, SMS text messaging, and computerized "text-to-voice" telephone calls. By supporting all three of these notification protocols, Jerome will be able to reach a larger percentage of is customer than ever before.

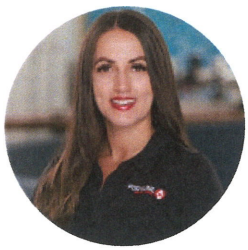
Utility personnel will also have delegated administration access. This allows the Town of Jerome to control the user account maintenance. Additionally, utility staff have the ability to record, save, and re-use notification templates. With Field Intelligence, it is just as easy to send notifications out to a map-based selection of customers as it is to send out a mass notification to all your customers.





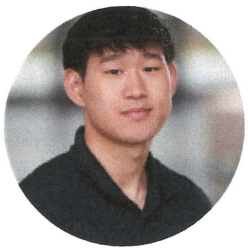
03 | FORTILINE PROJECT MANAGEMENT

Fortiline's exceptional team of Project Managers have over 100 years of combined industry experience. Each member of the Project Management team is dedicated to using our tried-and-true management methods to ensure that your project runs as smoothly as possible. Working together with your staff, our team will accomplish your project goals effectively and efficiently.



RHONDA DURAN | METER SPECIALIST FOR ARIZONA

Rhonda received her bachelors degree from UTEP in Physics and has since built nine years' experience spanning contractor and municipal sales, RFP management, and annual contracts across Arizona and New Mexico. Rhonda combines strong technical expertise with a customer-focused approach. As your Meter Specialist, Rhonda will leverage her industry knowledge to deliver efficient metering solutions to support you in achieving your operational and sustainability goals.



KEVIN SHEN | PROJECT MANAGER

Kevin Shen received his BA in Commerce and Business from Rhodes College. His work experience has revolved around the waterworks industry. As your Project Manager, Kevin will work with the Town's personnel to ensure clear communication between the utility, Fortiline, and Kamstrup. He will be available to answer questions you may have and will work with you every step of the way.



JOE FERGUSON | REGION METER MANAGER

Joe's role in the project is to support the Fortiline team and work as a liaison with Kamstrup in achieving the desired project goals. Joe brings over 20 years' experience working with several meter lines to provide solutions to water utilities across the southern and eastern United States. His background in AMR and AMI solutions with multiple manufacturers gives him a unique perspective and the ability to ensure successful project delivery.



CALEB JONES | NATIONAL METER DIRECTOR

As National Meter Director, Caleb supports the PM team with technical and administrative guidance. With a Mechanical Engineering degree and a background in water meter manufacturing, engineering, and operations, he offers a problem-solving perspective to every project.

DB UTILITY

Your Turn-Key AMI Partner

DB Utility is a full-service AMI installation contractor specializing in residential and commercial water meter and collector installations. Our proven process integrates seamlessly with leading manufacturers and distributors to ensure on-time delivery, pristine quality, and satisfied utilities.



Our Services

- Water Meter Installations: 5/8"–12", residential & commercial
- Collector Installation & Maintenance: Tower, pole, and rooftop applications
- Turnkey Project Management: Scheduling, data management, QA/QC
- Resident Communication: Call center, SMS & QR-based appointment system
- Software Integration: Billing & WOMS support with live data tracking

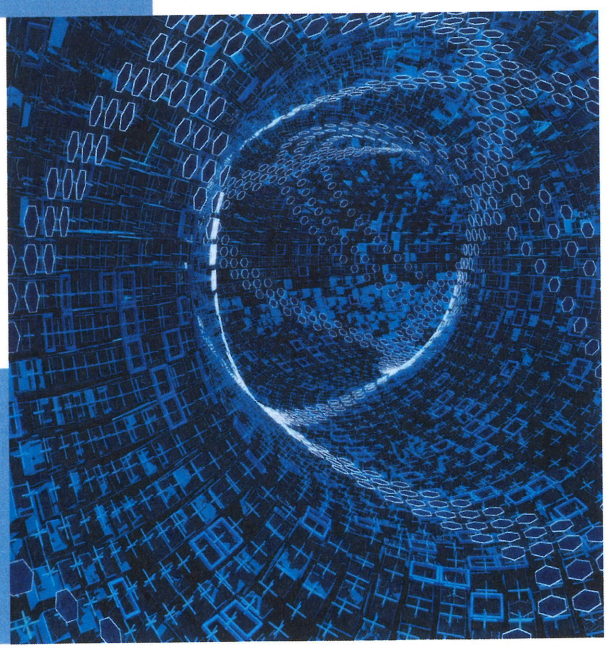
Why DB Utility?

- ✓ Trusted Partnerships: Installed for distributors nationwide
- ✓ Scalable Teams: Local crews deployed across 20+ states
- ✓ Reliability: Zero missed deadlines on active projects
- ✓ End-to-End Support: From kickoff through warranty closeout

Over 50k meters installed in 2025

> "They work hard, communicate, and do what they say they are going to do."

> "Their reliability, timeliness, and consideration for our customers is only part of what makes them a great contractor to partner with."



Active Regions

CO, TX, NM, AZ, GA, FL, OR, WA, ID, UT, KS, NE, SD, ND, OK, MT, LA

KAMSTRUP

PROJECT MANAGEMENT



AMY NEWMAN | PROJECT MANAGER

Amy brings over 15 years of project management experience, with a focus on Kamstrup implementations across the U.S. She's led projects from small pilots to systems with 100,000+ endpoints. With expertise in LEAN and Six Sigma, Amy drives efficient operations, training, and support—guiding each customer with industry best practices.



VICTOR GONZALES | REGIONAL DISTRIBUTION SALES MANAGER

Victor's role as Regional Sales Manager, oversees business growth and customer support throughout Arizona. Before joining Kamstrup, Victor spent nearly 11 years in distribution sales, developing lasting customer relationships and expanding market share. This combination of field experience and sales leadership gives Victor a strong understanding of customer needs, operational challenges, and long-term project success.

FORTILINE

HELP DESK & SUPPORT



Both Fortiline Waterworks and Kamstrup have their own customer service departments. These departments work together to form a network of personnel that is dedicated to ensuring both the Town and their consumer customers are supported through the life of the project and beyond.

Fortiline Waterworks maintains a Support Center, located in Concord, NC. The support center keeps regular business hours, Monday - Friday, 8am - 5pm EST. Our team of support staff are here to support the Town of Jerome. We are able to resolve 95% of the customer issues we are tasked with. However, in the case that we are unable to find a solution, we will open a support case with Kamstrup that will provide a resolution.

Kamstrup's customer service support is easily accessible via an online support ticketing system housed in their online portal, My Kamstrup. This allows for 24/7 reporting. The Service Desk portion of the My Kamstrup site also allows customers to view the progress of their request and all communication in one place. You also find troubleshooting guides, tutorials, and FAQs located there.

Finally, your local Meter Specialist, Rhonda Duran, and Project Manager, Kevin Shen, will act as your personal Fortiline representatives. Both Rhonda and Kevin are dedicated and driven professionals who will work to ensure that the Town of Jerome's project is completed as smoothly as possible.

Our solution provides customer support every step of the way.

kamstrup | FORTILINE SMART UTILITY SOLUTIONS

04 FORTILINE EXPERIENCE & REFERENCES

Incorporated in 1997, Fortiline, Inc. has grown to over 70 locations, serving 23 states, and is the third largest full-service provider to the water, wastewater, utility, and construction industries in the country. Although our company began as a supplier, we have expanded our expertise over the last quarter of a century to include a smart utility solutions department that specializes in water metering. Fortiline Waterworks began selling AMR water metering systems in 2005 and completed our first AMI meter project in 2014.

Throughout the last decade, Fortiline Waterworks has worked to foster relationships with manufacturers at the forefront of the water metering industry, including Kamstrup. We have been a distributor for the Danish company since 2015 and began collaborating with them on AMI projects in 2017. Kamstrup is a global supplier of ultrasonic meters, having made their first in 1991, and are now selling in over 80 countries around the world. The headquarters of their US operations are located in Cumming, GA.

Kamstrup Meters have proven to be highly reliable in the field, with a historic global failure rate of less than 0.5%. Combined with a starting low flow rate of 0.008 gpm and guaranteed new-meter accuracy for the 20-year warrantied life of the meter, its easy to see why Kamstrup is the brand of choice for so many utilities.

Moreover, Kamstrup understands that although their meters are designed to capture, record, and transmit detailed data, that information is only helpful if you can analyze it. Their softwares, READy Manager and Leak Detector are simultaneously intelligent enough to process the metering data and straightforward enough that it is easy to use. Powerful data, intelligent software, and easy on-boarding allows Fortiline and Kamstrup to bring Jerome a long-term AMI solution that is accurate and reliable.

Our partnership with Kamstrup has spanned over many projects. In fact, Kamstrup has completed case studies on many of our joint ventures including the Eastern Band of Cherokee Indians, Iredell Water Corporation, Lincolnton, and Milcrofton. You can find these in depth project studies on Kamstrup's US website under the "Insights" section.



FORTILINE

IREDELL WATER CORPORATION, NC

In the rural community of Iredell, the transition from a failing AMR system to Kamstrup's flowIQ meters and AMI system yielded impressive results: increased sales, reduced water loss, and freed-up employee time previously spent on time-consuming drive-by readings.

Meter Type: AMI Water Meters
Sensor Count: 10,200
Services: System Hosting/Product
Services Project Start: 10/2021

Installation: Subcontractor (G2 Utilities, Inc.)
Contact: Danny Sloan
Email: dsloan@iredellwater.com
Phone: (704) 876-0672

DARE COUNTY, NC

Dare County, situated along the coast, posed numerous challenges for implementing metering infrastructure. However, Fortiline's proficient team and the reliable performance of Kamstrup's flowIQ meters and AMI system successfully navigated these obstacles. With over 20,000 installations completed and minimal issues encountered, Dare County now serves as a strong advocate for the effectiveness of Fortiline's service and Kamstrup's AMI system.

Meter Type: AMI Water Meters
Sensor Count: 21,000
Services: System Hosting/Product
Services Project Start: 09/2021
Project End: Ongoing

Installation: Subcontractor (G2 Utilities, Inc.)
Contact: Jessica King
Email: Jessica.King@DareNC.gov
Phone: (252) 475-5990
Address: 600 Mustian St., Kill Devil Hills, NC 27948

CITY OF ORANGE, VA

Orange has seen a successful installation of most residential meters, with the remaining installations scheduled for completion in the near future. The utility has already seen improvements in metering performance, achieving between 98.5% and 100% daily read rates.

Meter Type: AMI Water Meters Sensor Count: 2500
Services: System Hosting/Product Services
Project Start: 04/2025
Project End: Ongoing
Installation: Fortiline Installation

Installation: Fortiline Installation
Contact: Larry Bond, Director of Public Works
Email: l.bond@townoforangeva.gov
Phone: (540) 718-7672
Address: 119 Belleview Ave, Orange, Virginia 22960

STEDMAN, NC

Stedman went from a manual read system to a full AMI deployment with ALD. Within the first week of meters being installed a large leak was found on the utility side and was able to be repaired, saving the town water and lost revenue.

Meter Type: AMI Water Meters with Acoustic Leak Detection software
Sensor Count: 800
Services: System Hosting/Product
Services Project Start: 03/2022
Project End: 12/2022

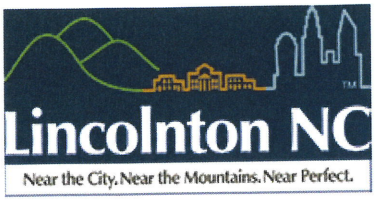
Installation: Fortiline Installation
Contact: Connie Veederr, Town Clerk/ Finance Officer
Email: townofstedman@gmail.com
Phone: (910) 323-1892
Address: PO Box 220, 5110 Front Street, Stedman, NC 28391

AMI REFERENCES

CUSTOMER CONTACT NAME AND INFORMATION	ADDRESS AND PHONE NUMBER	PROJECT DETAILS
Sumter County, SC Alfred H. Conyers, Jr. aconyers@sumtercountysc.gov	1289 North Main Street Sumter, SC 29153 803-774-3855	Billing Software: Qs1 Project Start: March 2025 Project End: July 2025 Endpoints: 1600
Malone, FL Karen Mercer depclerk@malonefl.net	5182 9th Ave Malone, FL 32445 (850) 569-2308	Billing Software: CreativeTech Project Start: July 2024 Project End: September 2024 Endpoints: 313
Brooker, FL[1] Charlene Thomas brooker1022@windstream.net	17435 Tetstone Ave Brooker, FL 32622 (352) 485-1022	Billing Software: Jayhawk Software Project Start: March 2025 Project End: April 2025 Endpoints: 212
Iredell Water Corporation, NC Danny Sloan dsloan@iredellwater.com	571 Jennings Rd. Statesville, NC 28625 (704) 876-0672	Billing Software: AS400 Project Start: 10/15/2021 Project End: 5/1/2022 Endpoints: 10,200
Dare County, NC[2] William Nash william.nash@darenc.com	600 Mustian St. Kill Devil Hills, NC 27948 (252) 475-5990	Billing Software: Tyler Munis Project Start: 10/1/2018 Project End: 6/1/2023 Endpoints: 24,000
City of Lincolnton, NC David Ramsey, Business Service Manager dramsey@lincolntonnc.org	P.O. Box 617 Lincolnton, NC (704) 736-8980	Billing Software: Tyler Encode Project Start: 6/1/2019 Project End: 7/1/2021 Endpoints: 6,500
Tappahannock, VA Eric Pollitt, Town Manager epollitt@tappahannock-va.gov	915 Church Lane Tappahannock, VA 22560 (804) 443-3336	Billing Software: Edmonds Project Start: 4/4/2022 Project End: 8/17/2023 Endpoints: 1,450
Keysville, VA Sherry Marker townoffice@townofkeysville.com	120 J. Street Keysville, VA 23947 (434) 736-9551	Billing Software: Muni-Link Project Start: 10/21/2020 Project End: Mar 2021 Endpoints: 400
Narrows, VA John Davis, Director of Utilities jdavis@townofnarrows.org	210 Main Street Narrows, VA 24124 (540) 599-3670	Billing Software: Edmonds Project Start: Sep. 2022 Project End: Jan. 2023 Endpoints: 1,200

1 Brooker carries an AMR system.
2 Dare County started their system as an AMR deployment and then migrated to an AMI system.

CUSTOMER CONTACT NAME AND INFORMATION	ADDRESS AND PHONE NUMBER	PROJECT DETAILS
Eastern Band of Cherokee Indians, NC Ethan Arch ethanarch@nc-cherokee.com	1846 Painttown Road Cherokee, NC 28719 (828) 359-6100	Billing Software: Tyler Munis Project Start: 11/1/2019 Project End: 5/1/2021 Endpoints: 2,800
King George, VA Patti Norris-Barker pvanderweert@co.kinggeorge.state.va.us	9207 Kings Highway King George, VA 22485 (540) 775-2746	Billing Software: Muni-Link Project Start: May 2022 Project End: May 2024 Endpoints: 4,000
Lovettsville, VA Stephen Gates, Utilities Director sgates@lovettsvilleva.gov	6 E Pennsylvania Ave. Lovettsville, VA 20180 (540) 822-5788	Billing Software: Harris Flexbill Project Start: 7/1/2019 Project End: 10/1/2019 Endpoints: 970
Maysville, NC Schumata Brown, Town Manager townmanager@bizec.rr.com	404 Main St. Maysville, NC 28555 (910) 743-4441	Billing Software: Utility Billing Project Start: 1/1/2019 Project End: 9/20/2020 Endpoints: 450
Harrisburg, NC Monty L. Jordan mjordan@harrisburgnc.org	4100 Main St. Ste. 101 Harrisburg, NC 28075 (704) 455-0729	Billing Software: Tyler Encode Project Start: 1/1/2019 Project End: 6/1/2022 Endpoints: 6,200
Stanley, NC Craig Roseberry, Public Works Director croseberry@townofstanley.org	416 Hwy 27 S Stanley, NC 28164	Billing Software: Harris Project Start: 3/10/2022 Project End: 10/20/2022 Endpoints: 2,400



To whom it may concern:

I am delighted to share my experience with Kamstrup AMI water meters and Fortiline as our trusted supplier during our transition to an AMI (Advanced Metering Infrastructure) system. This journey has been truly transformative for our water utility, and I cannot emphasize enough the significant benefits we've reaped from this partnership.

First and foremost, Kamstrup's AMI water meters have revolutionized the way we manage our water distribution system. The accuracy and real-time data they provide have been nothing short of exceptional. Our ability to monitor water consumption, detect leaks, and identify irregularities in our network has greatly improved. This level of insight has allowed us to optimize our operations, reduce water losses, and ultimately save both resources and costs. We immediately realized a reduction in our Non-Revenue Water. Before the implementation of the project we typically had a 25% loss on water produced and water billed. After implementation our water loss was reduced to less than 10%. In addition, our sewer revenue is based off of water usage so we not only realized an increase in water revenue but also sewer revenue. When Kamstrup says the meters read almost every drop – they truly do. We have reduced the number of "truck rolls" significantly which is another large reduction in costs. The ability to see a leak in the office and notifying the customer knowing that it is their leak is invaluable and allows our crews to focus efforts elsewhere.

Fortiline's role as our supplier has been equally impressive. Their dedication to providing high-quality equipment and their commitment to our project's success has been commendable. Their team's expertise and guidance throughout the entire process made the transition to an AMI system seamless. From product selection to installation and ongoing support, Fortiline's professionalism has been a cornerstone of our success.

One of the key highlights of this transition has been the ease of integration. Kamstrup's AMI system seamlessly integrated with our existing infrastructure, minimizing downtime and disruptions. The transition was remarkably smooth, thanks to the meticulous planning and execution by both Kamstrup and Fortiline. This ensured that our customers experienced minimal inconvenience during the upgrade process.

From an operational standpoint, AMI water meters have demonstrated exceptional performance and reliability. The meters have proven to be durable, with minimal maintenance required. Our failure rates have dropped significantly, resulting in substantial cost savings and improved operational efficiency. This reliability has allowed us to focus more on proactive measures to optimize our water distribution system.

The benefits of switching to an AMI system have extended beyond operational improvements. We've seen enhanced customer satisfaction as well. With the ability to provide our customers with accurate and timely data on their water usage, we've empowered them to make informed decisions about their consumption. This transparency has fostered trust and improved communication between our utility company and our customers.

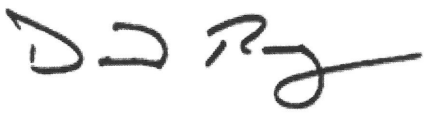
Additionally, the remote reading capabilities of Kamstrup's AMI system have streamlined our billing processes, reducing the margin for human error and increasing the efficiency of our administrative tasks. This has resulted in cost savings and allowed us to allocate resources more effectively.

In conclusion, our partnership with Kamstrup and Fortiline in transitioning to an AMI system has been nothing short of transformative. The benefits in terms of operational efficiency, cost savings, improved customer relations, and environmental impact have been substantial. I wholeheartedly endorse Kamstrup's AMI water meters and Fortiline as a supplier to any water utility company looking to enhance its operations and provide better services to its customers.

This partnership has proven to be an invaluable asset to our organization, and we look forward to continued success in the years to come.

Should you have any questions or need additional information please give me a call.

Regards,



David Ramsey
Business Services Director
City of Lincolnton
dramsey@lincolntonnc.org
704-736-8980

County of Dare
P.O. Box 1000 | Manteo, North Carolina 27954 | 252.475.5000

September 13, 2023

To Whom it May Concern:

In 2019 Dare County Utilities began looking to upgrade their meters to an automated meter system. Multiple companies presented their product and we acquired a meter from each of those companies for testing. In Dare County we have shifting sand dunes and low water tables so the reliability of the product and its ability to read in harsh conditions was a must. To test the meters, we placed them in a five-gallon bucket of water and buried them in the deepest sand dune we could find, then we left them there. During the next few weeks, we would drive by the area where we buried the meters to see which ones still read. At the end of the trial, we had the most success out of the Kamstrup meter.

Since 2019 we have implemented a 4-year program to purchase and install 25,000 meters in our system. In the past four years we have only had six failures:

- two were frozen from the customer leaving the meter lid off
- one customer tried to pry the meter top off to see what was inside
- three had screen failures but the meter was still recording, and we were able to pull data (Fortiline immediately replaced these no questions asked)

Fortiline has been very good to work with, their staff is fast and responsive, and they listen. More than once we have sat down with their engineering teams to discuss if there were any improvements we would like to see. Their team listened and made improvements on the first design making the meter that much better. I cannot say enough about Fortiline's install crew and their professionalism and customer relations. If there was an issue or complaint, they fixed it often going above and beyond to make the customer happy and to take the pressure off the utility.

Operationally we have seen a decrease in unaccounted for water. Prior to 2019 unaccounted for water was around 17%, when last totaled we are now around 8%

unaccounted for water. What we have been able to contribute this to is customer side leaks that the old mechanical meters were not picking up. The Kamstrup ability to read to .02 gpm catches everything, even with the larger meters. The downside to all of this is customers are going to push back because they "never had a problem prior to the new meter", it has been an uphill battle getting people to see the benefits of these meters. Once you learn how to accurately read the data you will be able to impress your customer with your knowledge of their water usage. If they don't believe you just start telling them about their bathroom habits, they start to listen real quick.

As far as finances go I don't have a concrete or specific number to share, there are so many variables I have never taken the time to do the math. Customers are wasting less water by fixing leaks they were unaware of so there is a decrease in sales. However that is offset by lower production cost, less chemicals, less energy, less wear and tear on equipment. The big thing for me has been the increase in our ability to help the customer and gaining a better public image. When we show up to a home now we are not the bad guy that says sorry it went through the meter you have to pay for it, and no I can't tell you when it happened. Now we can say it happened at this date and time, when you have the ability to show this it dings a person's memory to an event that occurred. We have heard it all:

- The bulkhead guy cut my water line that day
- That's when the pool guy was out, he forgot to take the hose out of the pool
- Oh, that's the weekend I started my irrigation system and the list goes on and on.

Kamstrup makes a solid product that Dare Utilities has been very happy with. I can get long winded so let me just say that if you have any questions please feel free to give me a call I will be more than happy to answer them. 252-475-5606

William Nash

Public Utilities Director

Dare County Water Department

05 FORTILINE APPENDIX

A Bid Forms

B Pricing

C Vendor Technical Documents

D Propagation Study

E Authority to do Business

F Special Conditions, Disclaimers, and Exceptions

G Warranties

A | Bid Forms

Town of Jerome

Proposal Document A – Proposal

To: Honorable Mayor & Council
600 Clark St.
Jerome, AZ 86331

In compliance with the Town of Jerome's Request for Proposals for an Advanced Metering Infrastructure System and the Notice to Respondents by the Town Manager, the undersigned respondent:

Having carefully examined the proposal documents and being familiar with the conditions to be met, hereby submits the following proposal for furnishing the material, equipment, labor and everything necessary for the completion of the work listed and agrees to execute contract documents and furnish the required Bonds and Certificates of Insurance for the completion of said work, at the locations and for the prices set forth on the Fee Proposal.

Understands that procurement of this project shall be in accordance with all applicable Standard Specifications and as otherwise required by the General Provisions and Special Provisions.

Understands that this proposal shall be submitted with a proposal guarantee of cash, certified check, cashier's check, or surety bond (in accordance with Title 34, A.R.S.) for an amount not less than ten percent of the total amount proposal.

Agrees that upon receipt of Notice of Award from the Town of Jerome, they will enter into contract negotiations and execute the contract documents.

Work shall commence no later than 30 days, after the Notice to Proceed and shall be completed within 180 calendar days, beginning with the day following the starting date specified in the Notice to Proceed. The time allowed for completing the work includes lead time for obtaining the necessary materials and/or equipment. Respondent agrees to pay, as liquidated damages, two times the sum as stated in the latest revision of the MAG Specifications. Liquidated Damages shall be based upon the final contract amount.

The respondent hereby acknowledges receipt of and agrees that this proposal is based on the following Addenda (if there are no addenda, write NONE below).

None

REQUIRED FOR SUBMITTAL

The Town of Jerome retains the right to reject any or all proposals and to waive minor defects and technicalities or withhold the award, as may be deemed best for the interest of the Town.

This proposal shall be valid for a period of 30 days after the proposal deadline.

THIS PROPOSAL is submitted by Fortiline, Inc d/b/a Fortiline Waterworks,

a corporation organized under the laws of the State of ~~Arizona, a partnership consisting of~~ South Carolina (Foreign Acct Authority - Arizona)

~~, or an individual trading as~~ of the

City of Prescott, and holder of Arizona State Contractor's License(s):

Classification(s) CR-37

No.(s) ROC 344938

Respectfully Submitted,

Fortiline, Inc d/b/a Fortiline Waterworks
Respondent

15850 Dallas Parkway, Dallas, TX 75248
Address

Andy Iverson, Asst Secretary
By (Officer & Title)

11/3/25
Date

ATTEST:

Gary Hibbs VP - Treasury
(Officer and Title)

Witness (if respondent is an individual)

REQUIRED FOR SUBMITTAL

Town of Jerome

Proposal Document B – Fee Proposal

Respondent Fortiline, Inc d/b/a Fortiline Waterworks

Mailing Address 6400 Lear Ln

City Prescott State Arizona Zip 86301

Telephone (602) 245-8060

PURSUANT to, and in compliance with, the Town of Jerome's Request for Proposals for an Advanced Metering Infrastructure System, the Notice to Respondents, Instructions to Respondents, and the Proposal Documents relating to the:

TOWN OF JEROME
ADVANCED METERING INFRASTRUCTURE SYSTEM

This is to certify that the above documents, as well as the site upon which work is to be performed and any and all conditions affecting the work, have been carefully examined, that the amount and nature of work to be accomplished is thoroughly understood and that at no time will misunderstanding of the drawings, specifications or conditions to be overcome be alleged or pled as a basis for change orders, damages or non-performances.

I (We) acknowledge that the following Fee Proposal and table are for the convenience of the Town of Jerome to analyze the individual components of the proposal and to provide a means for partial payments during the project. The sum of the extended unit prices shall be the final price for the product procurement in accordance with the technical specifications. The total price listed on the Fee Proposal shall be the same as listed on the proposal to the Town of Jerome.

FEE PROPOSAL INSTRUCTIONS:

1. All items will be paid for as lump sums. The Fee Proposal's estimated quantity and unit price will be used as a means of computing progress payments and as a basis for any Change Orders incurred.

2. The owner reserves the right to recalculate the following Fee Proposal if they appear malapportioned.

3. The lump sum amounts indicated below are to include the respondent's cost of administration, mobilization, bonds, insurance, and any other miscellaneous items required for the project.

REQUIRED FOR SUBMITTAL

FEE PROPOSAL Town of Jerome Advanced Metering Infrastructure System					
		Est. Qty.	**Units**	**Unit Price**	**Total Price**
CIVIL BASE PROPOSAL					
1	¾ x 5/8" AMI Meter	299		$446.82	$133,599.20
2	1" threaded AMI Meter	17		$522.25	$8,878.25
3	1 ½" flanged AMI Meter	13		$1,476.45	$19,193.86
4	2" AMI Meter	2		$1,723.36	$3,446.73
5	4" AMI Meter	1		$3,108.88	$3,108.88
6	AMI System Software	1		$14,758.75	$14,758.75
7	AMI System Training	1		$18,642.92	$18,642.92
8	AMI Data Collection Hardware/Software	1		$31,802.18	$31,802.18
9	FCC Registration	1		Included	Included
SUBTOTAL COSTS – BASE PROPOSAL				$72,481.61	$233,430.76
GRAND TOTAL, BASE PROPOSAL			*Does not include customer portal pricing which has been provided in a separate quote.		$233,430.76*

GRAND TOTAL – BASE PROPOSAL (in words):_____

Two hundred thirty-three thousand, four hundred and thirty dollars, seventy-six cents

NOTE: All Quantities Shown are approximate and are furnished solely for the contractor's convenience. The quantities provided will be the lump sum that payment will be made on. The individual items are for use by the Town to analyze proposals, use as a basis for any supplemental agreements, and for partial progress payments.

Proposal Document C – Non-Collusion Certificate

ADVANCED METERING INFRASTRUCTURE SYSTEM

Respondent: Fortiline, Inc d/b/a Fortiline Waterworks

The undersigned respondent hereby certifies as follows:

To the best of his/her knowledge, the person, vendor, association, partnership, or corporation herein has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive pricing in the preparation and submission of a proposal to the Town of Jerome for consideration in the award of this solicitation.

Dated this 3rd day of November 2025.

Signature

469-203-5815
Phone Number

Andy Iverson, Asst. Secretary
Written Name

andrew.iverson@greece.com
Email Address

REQUIRED FOR SUBMITTAL

Proposal Document D – Certificate of Ownership

ADVANCED METERING INFRASTRUCTURE SYSTEM

Respondent: Fortiline, Inc d/b/a Fortiline Waterworks

The undersigned respondent hereby certifies as follows:

To the best of his/her knowledge, the person, vendor, association, partnership, or corporation herein, are the only person, vendors, corporations, partnerships, or other associations having any direct or indirect financial interest in the respondent's business as legal or equitable owner, creditor (except current bills for operating expenses), or holder of any security or other evidence of indebtedness.

Dated this 3rd day of November 2025.

Signature

469-203-5815
Phone Number

Andy Iverson, Asst. Secretary
Written Name

andrew.iverson@reece.com
Email Address

REQUIRED FOR SUBMITTAL

Proposal Document E – Respondent Qualifications, Representations, and Warranties

ADVANCED METERING INFRASTRUCTURE SYSTEM

Respondent: Fortiline, Inc d/b/a Fortiline Waterworks

The undersigned respondent hereby certifies as follows:

X1 Taxes and Leins – Respondent has no unsatisfied tax or judgment lien on record.

X2 Respondent's Examination – Respondent has made its own examination, investigation, and research regarding the requirements of the solicitation, including but not limited to the work to be done, services to be performed, any conditions affecting the work and services, the type and quantity of labor, equipment, and facilities necessary to perform. Respondent fully understands the character of the work and services, the manner in which payment is to be made, and the terms and conditions of the solicitation. Respondent acknowledges and agrees that it has satisfied itself by its own examination, investigation, and research, and that it will make no claim against the Town because of erroneous estimates, statements, or interpretations made by the Town. Respondent hereby proposes to furnish all materials, equipment, and facilities and to perform all labor which may be required to do the work within the time required and upon the terms and conditions provided in the solicitation, and at the prices as proposed.

Dated this 3rd day of November 2025.

Signature

469-203-5815
Phone Number

Andy Iverson, Asst Secretary
Written Name

andrew.iverson@reece.com
Email Address

REQUIRED FOR SUBMITTAL

B | Pricing

QUOTE

FORTILINE WATERWORKS

CUSTOMER NO	QUOTING BRANCH	QUOTE NO	QUOTE DATE	PAGE
220247	FORTILINE PEORIA	6743874	10/24/25	1

CUSTOMER

ALL BIDDERS PEORIA
8051 W. OLIVE AVE.
PEORIA, AZ 85345

PROJECT INFORMATION

TOWN OF JEROME

LINE	QTY	UOM	DESCRIPTION	UNIT PRICE	TOTAL PRICE
			********** IF, AFTER THE DATE OF THIS QUOTE, ANY NEW OR INCREASED TARIFFS, DUTIES OR OTHER GOVERNMENT-IMPOSED COSTS ON MATERIALS USED IN THE WORK BECOMES EFFECTIVE, THE CONTRACT PRICE SHALL BE ADJUSTED TO REFLECT THE ACTUAL INCREASED COST TO FORTILINE. FORTILINE SHALL PROMPTLY NOTIFY THE CUSTOMER OF ANY SUCH COST IMPACT. FAILURE OF FORTILINE AND THE CUSTOMER TO AGREE ON ANY PRICE ADJUSTMENT SHALL NOT RELIEVE THE CUSTOMER'S OBLIGATION TO PAY THE INCREASED COST. **********		
			METERS AND HARDWARE		
30	299	EA	5/8X3/4 FLOWIQ 2200 MTR COMP PEO	319.1100	95,413.89
40	6	PKG	3/4" METER GASKET 1/8" 100/PK	9.8500	59.10
50	299	EA	3/4" METER INSTALL CHARGE	100.0000	29,900.00
70	17	EA	1" FLOWIQ 2200 METER SS FLG 10" LL	388.0000	6,596.00
80	1	PKG	1" METER GASKET 1/8" 100/PK	12.9600	12.96
90	1	EA	1"X2-5/8 MTR CPLG NL	22.6200	22.62
100	17	EA	1" METER INSTALL CHARGE	100.0000	1,700.00
120	13	EA	1-1/2 FLOWIQ 3200 METER SS FLG 13" LL	1,132.6400	14,724.32
130	26	EA	1-1/2" METER BOLT & GASKET SET	13.9500	362.70
160	13	EA	1-1/2" METER INSTALL CHARGE	225.0000	2,925.00
180	2	EA	2" FLOWIQ 3200 METER SS FLG 17" LL	1,256.3500	2,512.70
190	4	EA	2" METER BOLT & GASKET SET	17.9500	71.80
220	2	EA	2" METER INSTALL CHARGE	325.0000	650.00
230	1	EA	4" FLOWIQ 3200 METER SS FLG 14" LL	2,482.0500	2,482.05
240	2	EA	4" FLG BOLT KIT HDG A307B	14.0400	28.08
250	2	EA	4" FLG GSKT 1/8" FF RR	3.6600	7.32

ALL STOCK DELIVERIES ARE SUBJECT TO SHIPPING CHARGES

All PVC and HDPE material is quoted for shipment within 7 days of quote/bid date. All other material is quoted for shipment within 30 days of quote/bid date.
After 7 days for PVC and HDPE or 30 days for all other material, ALL quoted prices are subject to review based on current market conditions.

CUSTOMER NO	JOB NAME	QUOTE NO	QUOTE DATE	PAGE
220247	TOWN OF JEROME	6743874	10/24/25	2

LINE	QTY	UOM	DESCRIPTION	UNIT PRICE	TOTAL PRICE
260	1	EA	4" METER INSTALL CHARGE	400.0000	400.00
			Package Sub-total:		**157,868.54**
300	1	EA	**AMI SYSTEM HARDWARE** READY CONVERTER US ADVANCED 669640020- ***INCLUDES TWO CONVERTERS, CAR ANTENNA PLUS CHARGERS**	2,250.0000	2,250.00
340	1	EA	KAMSTRUP AMI RF COLLECTOR SET	15,000.0000	15,000.00
350	1	EA	COLLECTOR INSTALL CHARGE	6,000.0000	6,000.00
360	120	EA	EXTERNAL ANTENNA F/PIT MOUNT 24.6' CABLE 66-97-915	54.9500	6,594.00
			Package Sub-total:		**29,844.00**
			AMI SYSTEM SOFTWARE		
430	1	EA	FORTILINE MTR PRJCT MANAGEMENT INCLUDES TRAINING AND BILLING INTERFACE	6,500.0000	6,500.00
450	1	EA	DO IT YOURSELF <1500 KAMSTRUP PROJECT MANAGEMENT 692YS00000	10,995.0000	10,995.00
470	1	EA	READY AMI MANAGER SOFTWARE 251-800 METERING POINTS	2,450.0000	2,450.00
480	1	EA	LEAK UP AND RUNNING	1,600.0000	1,600.00
500	1	EA	AMI HOSTING UP TO 800 PTS	6,450.0000	6,450.00
510	1	EA	LEAK DETECTOR SOFTWARE 250-800	3,350.0000	3,350.00
			Package Sub-total:		**31,345.00**
			UTILITY PROVIDES ASSET FOR COLLECTOR MOUNTING AND SIM CARD OR ETHERNET CONNECTION FOR BACKHAUL. **PLASTIC LIDS RECOMMENDED FOR BEST PERFORMANCE. EXTERNAL ANTENNAE (ADDITIONAL COST) MAY ALSO BE UTILIZED.** **LARGER METERS MAY REQUIRE EXTRA PARTS AT ADDITIONAL EXPENSE TO ADJUST LAY LENGTH TO MATCH NEW METERS.**		

ALL STOCK DELIVERIES ARE SUBJECT TO SHIPPING CHARGES

All PVC and HDPE material is quoted for shipment within 7 days of quote/bid date. All other material is quoted for shipment within 30 days of quote/bid date.
After 7 days for PVC and HDPE or 30 days for all other material, ALL quoted prices are subject to review based on current market conditions.

CUSTOMER NO	JOB NAME	QUOTE NO	QUOTE DATE	PAGE
220247	TOWN OF JEROME	6743874	10/24/25	3

LINE	QTY	UOM	DESCRIPTION	UNIT PRICE	TOTAL PRICE

Subtotal:	219,057.54
Tax:	14,373.22
Bid Total:	233,430.76

ALL STOCK DELIVERIES ARE SUBJECT TO SHIPPING CHARGES

All PVC and HDPE material is quoted for shipment within 7 days of quote/bid date. All other material is quoted for shipment within 30 days of quote/bid date.

After 7 days for PVC and HDPE or 30 days for all other material, ALL quoted prices are subject to review based on current market conditions.

Ent By TNT 11/05/25 11:13:51

QUOTE

FORTILINE WATERWORKS

CUSTOMER NO	QUOTING BRANCH	QUOTE NO	QUOTE DATE	PAGE
220247	FORTILINE PEORIA	6748672	11/03/25	1

CUSTOMER

ALL BIDDERS PEORIA
8051 W. OLIVE AVE.
PEORIA, AZ 85345

PROJECT INFORMATION

TOWN OF JEROME

LINE	QTY	UOM	DESCRIPTION	UNIT PRICE	TOTAL PRICE
			********** IF, AFTER THE DATE OF THIS QUOTE, ANY NEW OR INCREASED TARIFFS, DUTIES OR OTHER GOVERNMENT-IMPOSED COSTS ON MATERIALS USED IN THE WORK BECOMES EFFECTIVE, THE CONTRACT PRICE SHALL BE ADJUSTED TO REFLECT THE ACTUAL INCREASED COST TO FORTILINE. FORTILINE SHALL PROMPTLY NOTIFY THE CUSTOMER OF ANY SUCH COST IMPACT. FAILURE OF FORTILINE AND THE CUSTOMER TO AGREE ON ANY PRICE ADJUSTMENT SHALL NOT RELIEVE THE CUSTOMER'S OBLIGATION TO PAY THE INCREASED COST. **********		
			H2 ANALYTICS CUSTOMER PORTAL PRICING - TOWN OF JEROME UP TO 350 METERS		
90	1	EA	**ONE TIME FEE** CUSTOMER PORTAL	5,000.0000	5,000.00
			PRICE INCLUDES HOURLY DATA ANALYTICS, CUSTOMER PORTAL, SINGLE SIGN ON (SSO) AND STD IMPLEMENTATION CONSULTING		
160	1	EA	**ANNUAL RECURRING FEES** ANNUAL HOSTING/SUPPORT FEE	3,500.0000	3,500.00
			MONTHLY RECURRING FEES MONTHLY VOIP FEES - PER PHONE SMS MESSAGE		
220	1	EA	FIRST 2000 PER MONTH	.1800	.18
230	1	EA	NEXT 2000 PER MONTH	.1500	.15
240	1	EA	ADDITIONAL PER MONTH	.1200	.12

ALL STOCK DELIVERIES ARE SUBJECT TO SHIPPING CHARGES

All PVC and HDPE material is quoted for shipment within 7 days of quote/bid date. All other material is quoted for shipment within 30 days of quote/bid date.
After 7 days for PVC and HDPE or 30 days for all other material, ALL quoted prices are subject to review based on current market conditions.

BIDCNEW

CUSTOMER NO	JOB NAME	QUOTE NO	QUOTE DATE	PAGE
220247	TOWN OF JEROME	6748672	11/03/25	2

LINE	QTY	UOM	DESCRIPTION	UNIT PRICE	TOTAL PRICE
				Subtotal:	8,500.45
				Tax:	688.53
				Bid Total:	9,188.98

ALL STOCK DELIVERIES ARE SUBJECT TO SHIPPING CHARGES

All PVC and HDPE material is quoted for shipment within 7 days of quote/bid date. All other material is quoted for shipment within 30 days of quote/bid date.

After 7 days for PVC and HDPE or 30 days for all other material, ALL quoted prices are subject to review based on current market conditions.

Ent By RD4 11/03/25 17:43:12

BIDCNEW

C | Vendor Technical Documents

kamstrup

Data sheet

flowIQ® 2200

» **RF**
» **Encoded**

- Multiple radio options available
- Ultrasonic measurement
- Sustainable measurement accuracy
- Temperature measurement
- IP68 Vacuum sealed construction
- Lead free and certified to NSF/ANSI 61
- Flow measurement in display
- Acoustic leak detection in service and distribution lines



Contents

Technical data	4
Material	5
Meter sizes	5
Meter face details	6
Core features	7
Meter modes	7
Display and info codes	8
Data registers	9
Integrated communication	10
State of the art meter reading system (READy)	11
Pressure loss	11
Ordering details	12
Configuration - flowIQ® 2200	13
Dimensional sketches – flowIQ® 2200	15
Dimensions	17
Accessories	17

Electronic ultrasonic cold-water meter for measurement of cold-water consumption in households, multi-unit buildings and industry

Sustainable accuracy
Ultrasonic flow measurement guarantees sustainable accuracy and longevity. Ultrasonic flow measurement is based on the transit time method, and all measurements, references, readings, calculations and data communication are controlled by an advanced, specially designed electronic circuit. Thus, the meter includes no moving parts, which makes flowIQ® 2200 less sensitive to wear and tear and impurities in the water.

Construction
The meter is hermetically closed and vacuum-sealed to prevent humidity from reaching the electronics and avoid condensation between the glass and display. The meter is IP68 (submersible) type tested and suitable for installation in meter pits.

Installation
flowIQ® 2200 is easy to install in all operating environments, horizontally as well as vertically, independent of piping and installation conditions. Consumption data can be read visually from the display, using an optical eye, and remotely read by various integrated communication protocols.

Specific features
flowIQ® 2200 measures the water and environment temperatures and it includes acoustic leak detection, securing that water loss is discovered quickly.

The unique combination of all the flowIQ® 2200 features reduce current operating costs to measure water usage and minimizes unexpected expenses in connection with possible leakage.

Environmentally friendly
The meter has been approved according to Drinking Water Standards and is certified to NSF/ANSI 61. The meter housing and measuring part are made of the high-performance thermoplastic material polyphenylene sulfide (PPS) with 40% fiberglass, which is free from lead and other heavy metals. The environmental report, Carbon Footprint, documents the meter's high reusability and low environmental impact, including recycling of materials.

Hygiene
To protect the health of the consumers Kamstrup has a hygienic manufacturing process of the water meters.

Kamstrup also has a highly automated manufacturing process and only uses materials approved for drinking water. Furthermore, the products get disinfected before dispatch. The hygiene is being controlled by external accredited laboratories and by frequent audits.

General description
flowIQ® 2200 is a hermetically sealed water meter intended for measurement of cold and *reclaimed water consumption in residentials and multi-unit buildings.

flowIQ® 2200 employs the ultrasonic measurement principle, based on Kamstrup's experience since 1991, with the initial development and production of static ultrasonic meters.

flowIQ® 2200 is available in an Encoded Output version with 2 x A-cell battery supply and a RF version with 1 x D-cell battery supply.

One of flowIQ® 2200's many advantages is the fact that it has no wearing parts, which ensures a high and stable accuracy throughout its lifetime. flowIQ® 2200 complies with all the AWWA C715-18 guideline for Ultrasonic Water Meters.

** For information concerning reclaimed water we refer to document no.: FILE100003532*

flowIQ® 2200 measures the water consumption electronically, as a volume, using a pair of ultrasonic signals. Through two ultrasonic transducers, an ultrasonic signal is sent with and against the flow direction. A transducer serves both as a 'speaker' when transmitting and as a 'microphone' when a signal is received. The ultrasonic signal traveling with the flow will be the first to reach the opposite transducer, while the signal running against the flow will be received a little later.

The time difference between the two signals can be converted into flow velocity, and thereby also into a volume. The measuring principle is a proven, long-term stable and accurate measuring principle.

In addition to volume reading, an indication of current flow and several other information codes are displayed. All registers are saved daily in the meter data logger (EEPROM) and are kept for 460 days. Furthermore, monthly data for the latest 36 months (3 years), hourly data for the latest 100 days (about 3 and a half months) and 50 info code events are saved.

flowIQ® 2200 is powered by an internal lithium battery which can provide up to 20 years operating life.

flowIQ® 2200 is available with a choice of integrated data communication options:

- 912.5, 915 or 918.5 MHz - RF
- 450-470 MHz - RF
- Encoded Output

The meter is fitted with an optical eye which makes it possible to read saved consumption data and info codes, stored in the meter's data logger. Using an optical reading head, it is also possible to change the meter configuration, e.g. data packages.

flowIQ® 2200 can and must only be opened by Kamstrup A/S. If the meter has been opened and the sealing has been broken, the meter is no longer valid for billing purposes and the warranty is void.

Technical data

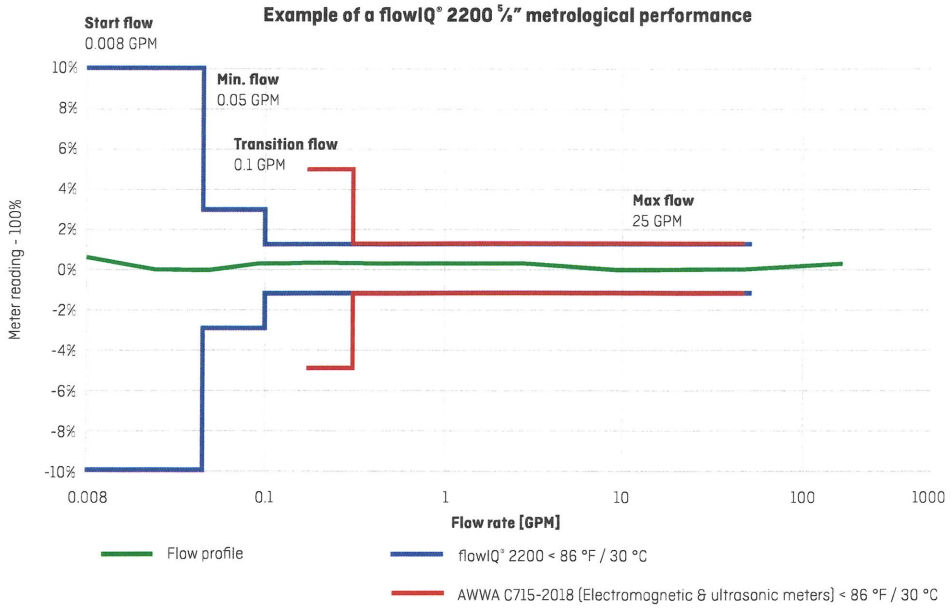
Electrical data

Battery (flowIQ® 2200 RF)	1 x D-Cell battery, 3.6V, 19Ah. The battery warranty does not apply at meter temperatures above t_{BAT} > 95 °F / 35° C
Battery (flowIQ® 2200 E0)	2 x A-Cell battery, 3.6V, 3.6Ah. The battery warranty does not apply at meter temperatures above t_{BAT} > 95 °F / 35° C

Mechanical data

Protection class	IP68-rated (waterproof/submersible)
Mechanical environment	Class M1 (Measuring Instruments Directive classification)
Ambient/meter temperature	
- flowIQ® 2200, composite	35... 130 °F / 1.5... 55 °C
- flowIQ® 2200, metal	35... 130 °F / 1.5... 55 °C
Water temperature	
- flowIQ® 2200, composite	33... 120 °F / 0.5... 50 °C
- flowIQ® 2200, metal	33... 120 °F / 0.5... 50 °C
Storage temp. empty sensor	-10... 140 °F / -20... 60 °C
Maximum operating pressure	250 PSI (17 bar)

Accuracy



The above flow profile is an example of a flowIQ® 2200 5/8" metrological performance and does not represent a generic profile for all Kamstrup water meters. Each meter will have an unique flow profile however all within both Kamstrup and AWWA C715-2018 limitations.

Note: At flows between 'Start flow' and 'Maximum flow' measurement occurs – however the accuracy is only guaranteed in the range from minimum flow to maximum flow.

Approved meter data

Certified to NSF/ANSI 61
Complies to part 15 of the FCC rules, ISED, IFT and with AWWA C715-18

Material

Wetted parts (composite model)

Meter housing and flow part	Polyphenylene sulfide (PPS) with fiberglass (40 %) reinforcement, PSU, extenders made from PA12
Reflectors	Stainless steel 316

Wetted parts (2-part body)

Flow part, threaded	Stainless Steel 316L
O-ring/gasket	EPDM
Measuring tube	PPS with fiberglass
Reflectors	Stainless steel

External meter parts

Top ring (sealing)	Polycarbonate (gray)

Meter sizes

flowIQ® 2200 is available in the sizes shown in table below:

XX = Communication module Y = Battery suply ZZ = Country code

Type number	Meter size Inches	Start flow[1] (S) [GPM]/ [L/h]	Min. flow[1] [GPM]/ [L/h]	Transition flow [GPM]/ [L/h]	Max flow [GPM]/ [m³/h]	Sat. flow rate [GPM]/ [m³/h]	Pressure loss SMOC [PSI]/ [bar]	Connection on meter NPSM thread	Lay length [Inches]/ [mm]	Strainer	Temp. measurement of water
02-K-XX-Y-1-8A-8ZZ	⅝" x ½"	0.008/ 2	0.05/ 11.4	0.1/ 22.7	25/ 5.68	35/ 7.95	6.2/ 0.43	¾"	7½"/ 190	Yes	Yes
02-K-XX-Y-1-8B-8ZZ	⅝" x ¾"	0.008/ 2	0.05/ 11.4	0.1/ 22.7	25/ 5.68	35/ 7.95	7.7/ 0.53	1"	7½"/ 190	Yes	Yes
02-K-XX-Y-1-8R-8ZZ	⅝" x ¾"	0.008/ 2	0.05/ 11.4	0.1/ 22.7	25/ 5.68	35/ 7.95	7.7/ 0.53	1"	5.1"/ 130	Yes	Yes
02-K-XX-Y-1-8C-8ZZ	¾"	0.011/ 2.5	0.05/ 11.4	0.1/ 22.7	32/ 7.27	45/ 10.22	9.0/ 0.62	1"	7½" or 9"/ 229	Yes	Yes
02-L-XX-Y-1-8B-8ZZ	⅝" x ¾"	0.013/ 3	0.10/ 22.8	0.15/ 34.1	25/ 5.68	35/ 7.95	3.8/ 0.26	1"	7½"/ 190	No	Yes
02-L-XX-Y-1-8N-8ZZ	¾"	0.013/ 3	0.10/ 22.8	0.15/ 34.1	35/ 7.95	49/ 11.13	3.9/ 0.27	1"	7½"/ 190	No	Yes
02-L-XX-Y-1-8L-8ZZ	¾"	0.013/ 3	0.10/ 22.8	0.15/ 34.1	35/ 7.95	49/ 11.13	3.9/ 0.27	1"	9"/ 229	No	Yes
02-L-XX-Y-1-8D-8ZZ	1"	0.022/ 5	0.25/ 56.8	0.4/ 90.8	55/ 12.49	77/ 17.49	3.1/ 0.21	1¼"	10¾"/ 273	No	Yes

Note! 02-K-02-D-1-8C-8UB can be ordered with a 1½" extension and washer (installed by the customer) to fit 7½" or 9" lay lengths

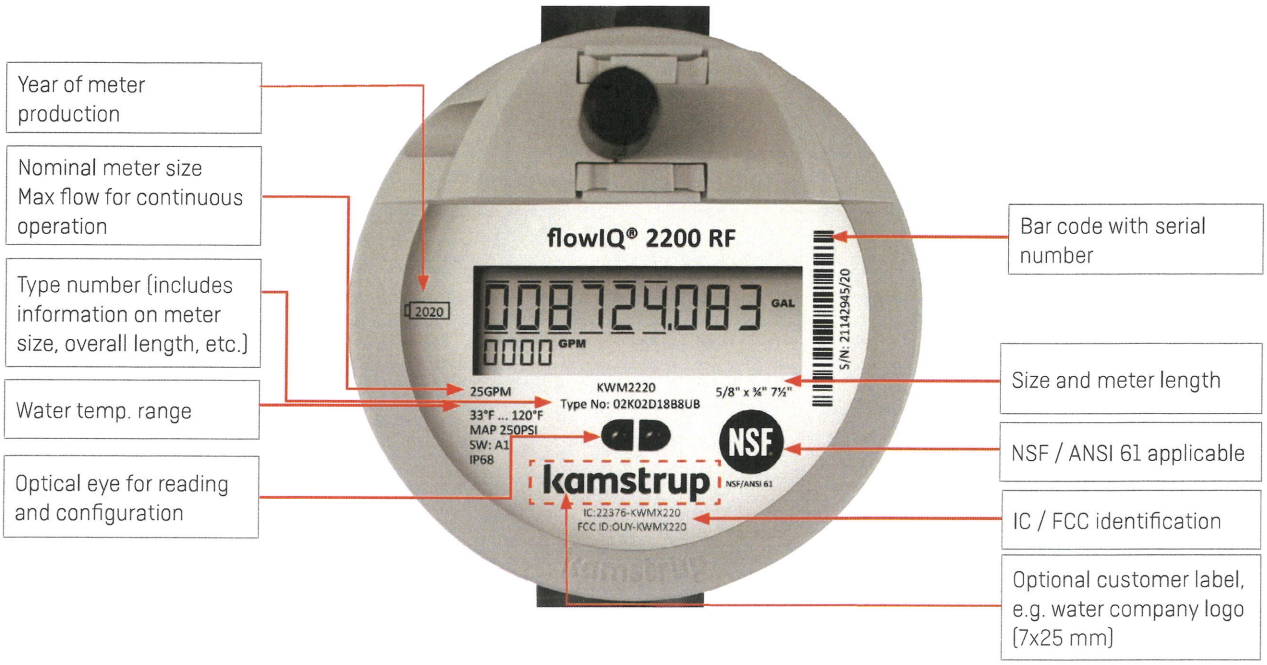
Note! Flow specifications only apply at temperatures below 86 °F / 30 °C

[1] At flows between 'Start flow' and 'Maximum flow' measurement occurs – however the accuracy is only guaranteed in the range from minimum flow to maximum flow

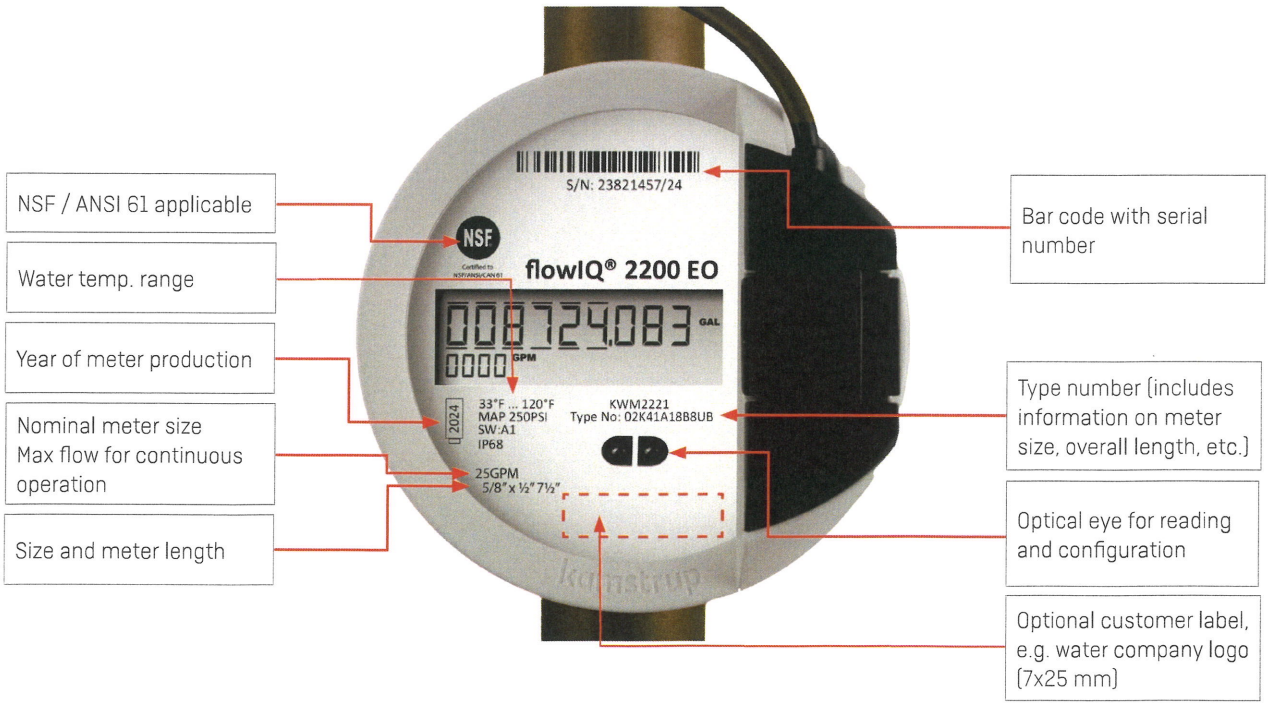
Meter face details

Meter information in permanent laser engraved text

RF top label



Encoded top label



Core features

Water meters placed throughout the network make it possible to gather information that can be of vital importance for an effective water supply, asset management and improved customer service.

Acoustic leakage detection
flowIQ® 2200 water meter introduces integrated acoustic leak detection that allows you to monitor your service connections for possible leaks. Like a fine-meshed network of noise-loggers, all your meters monitor the noise in the distribution lines and service connections to detect possible leaks – 24/7.

Temperature monitoring
flowIQ® 2200 measures water and ambient temperatures respectively. Information on temperatures above or below the configured temperature in the meter will warn the utility of potential frost damage or quality issues. These measurements can be used to monitor the installation and will indicate the water's quality.

Current flow display
Besides the consumed volume, flowIQ® 2200 also shows the current flow in the display. The flow display has been designed with user experience in mind, where it can be advantageous, for example during installation, to be able to see the current consumption. In this context, it is important to stress that the metrological approval of the water meter is related to the volume reading only. Due to the meter's update time, the flow display, in case of rapidly increasing/decreasing flow, may turn out to be slower than the real flow and not a one-to-one correlation between the flow display and the volume growth. In general, one would expect the flow display to stabilize after about half a minute of constant flow and thereafter to be consistent with volume growth.

Consumption above max flow
The meter logs information on consumption above max flow. This information can be used to indicate if the meter size for a given installation is correct.

Consumption histogram
The meter tracks consumptions in different flow intervals for further analysis of the consumption patterns for the specific installation.

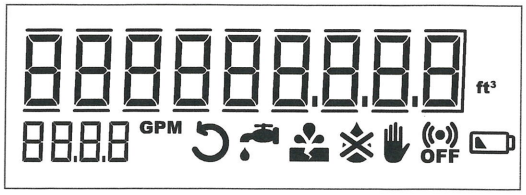
Meter modes

flowIQ® 2200 can operate in two modes, Normal and Verification mode.
Verification mode is only used by authorized laboratories during verification.

flowIQ® 2200 RF	Normal mode	Verification mode
Flow measurement and flow display update	1 s	0.125 s
Volume integration and volume display update	8 s	1 s

flowIQ® 2200 E0	Normal mode	Verification mode
Flow measurement and flow display update	2 s	0.125 s
Volume integration and volume display update	16 s	1 s

Display and info codes



The large display with totalized volume, flow rate and intuitive info codes on flowIQ® 2200 makes it easy for end users to understand their own consumption data.

flowIQ® 2200 includes a large number of intelligent info codes and alarms. An info code indicates a special condition in the meter. If the info code is available in the display, the related symbol is on when it has been activated. If the 'condition' is not active, the sign is OFF. The info codes provide you with the exact knowledge you need to target your efforts within operations optimization, customer information, water loss and tampering. The info codes in the display have the following meaning and function:

Info code	Meaning
	The water in the meter has not been stagnant for one continuous hour during the last 24 hours. This can be a sign of a leaky faucet or toilet cistern or indicate a leakage after the meter.
	The water consumption has been consistently high for half an hour, which indicates a pipe burst.
	Attempt of fraud. The meter is no longer valid for billing.
	The meter is dry. In this case nothing will be measured.
	The water flows through the meter in the wrong direction.
OFF	RADIO OFF flashes. The meter is still in transport mode with the built-in radio transmitter turned off. The transmitter turns on automatically when water runs through the meter for the first time.*
OFF	RADIO OFF lights permanently. The radio is switched off permanently. Can be activated via METERTOOL.*
	The symbol appears when the expected capacity left is 6 months or less.

	Switch off automatically when the condition that activated them no longer exists.
	Disappears when the water has been stagnant for one hour.
	Disappears when the consumption falls to normal level.
	Disappears when the water no longer flows in the wrong direction.
	Disappears when the meter is filled with water.

**RADIO OFF is not available for Encoded Output meters*

Data registers

The water meter has a permanent memory, in which the values of various data loggers are saved. The loggers can be read via the meter's optical eye and from communications protocols

The following registers are logged:

Description	Yearly logger	Monthly logger	Daily logger	Hourly logger
Logger depth	20 years	36 months	460 days	2400 hours
Operating hours	✓	✓	✓	✓
Info codes incl. hour counter	✓	✓	✓	✓
Volume	✓	✓	✓	✓
Volume reverse	✓	✓	✓	✓
Acoustic Noise Value Day			✓	
Flow max incl. date	✓	✓		
Flow min. incl. date	✓	✓		
Flow max day incl. Timestamp			✓	
Flow min. day incl. Timestamp			✓	
Water temp. max	✓	✓	✓	
Water temp. min.	✓	✓	✓	
Water temp. avg.	✓	✓	✓	
Ambient temp. max	✓	✓	✓	
Ambient temp. min.	✓	✓	✓	
Ambient temp. avg.	✓	✓	✓	

Every time the information code changes, date and info codes are logged. Thus, it is possible to data read the latest 50 changes of the information code as well as the date the change was made.

Integrated communication

The meter supports a variety of different communication options depending on meter type. All radio supported meters can be used with Kamstrup's external antenna. Transmission properties and data packages are defined in the configuration number YY-ZZZ. These can be changed with METERTOOL, MeterToolX or READy App through the optical IR interface or with a READy converter.*

**Depending on communication protocol*

RF

Kamstrup RF is based on Wireless M-Bus which is a mature and proven technology for remote reading of smart meters. Wireless M-Bus provides a robust, simple and secure reading of meters and requires a low initial investment, but is flexible enough to be expanded whenever desired. Wireless M-Bus is based on an European standard (EN 13757-4) applicable to devices for reading consumption of water, electricity or energy. The data encryption consists of a 128-bit AES counter mode encryption. Both AMR 912.5, 915 and 918.5 MHz and AMI 450-470 MHz are available.

For additional information about the Kamstrup RF communication module, please refer to the module data sheet, document no.: FILE100003480.

Encoded Output

The Sensus Encoded Output and TouchRead are implemented based on Sensus specification UI-1203 and UI1204. Encoded Output is compatible with several 3rd party RF network systems. Kamstrup Encoded Output supports Sensus Encoded Output systems and Sensus TouchRead systems. In addition, Neptune ProRead, Neptune E-coder systems and others are supported.

For additional information about the Kamstrup Encoded Output communication module, please refer to the Encoded Output module data sheet, document no.: FILE100003729.

State of the art meter reading system (READy)

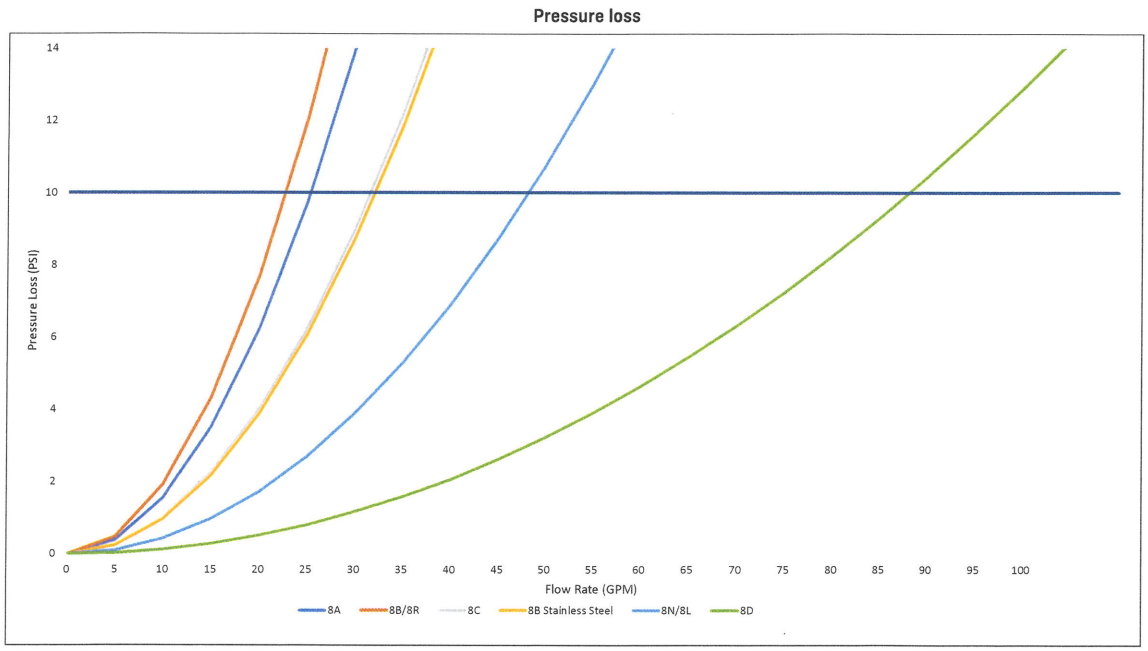
Standardized and open communication
902-928 MHz band RF is an open standard, following EN13757-4:2010, which means that while the flowIQ® 2200 can be configured with or without encryption of the transmitted signal, encryption is required in the United States.

Encryption protects personal data against unauthorized monitoring. Furthermore, the encryption file provides easy access to import meter data for reading programs.

Pressure loss

According to AWWA C715-18 Type I guideline the maximum pressure loss must not exceed 10 PSI (0.69 bar) at SMOC.

The following graph shows pressure loss with respect to flow rate:



See Technical description for Water Meters North America: Document no.: FILE100001331, for more information about pressure loss.

Ordering details

Start your order by stating the type number of the selected model of flowIQ® 2200.

The type number includes information on meter type, meter version, size, lay length, service connection and time zone.

Subsequently the meter configuration, which determines customer-specific requirements such as number of digits in display etc., is selected. The configuration is completed during programming of the final meter.

Accessories are enclosed separately to be mounted by the installer.

Meter type - flowIQ® 2200

Type	□□	□	□□	□	□	□□	□	□□
Meter generation								
Second generation	02							
Mechanical design								
Composite, PPS		K						
Stainless steel		L						
Communication								
RF			02					
Encoded Output			41					
Power supply								
D-cell				D				
2 x A-cell				A				
Dynamic range								
AWWA C715-18					1			
Meter size								
⅝" x ½" (25GPM); ¾" NPSM; 7½"						8A		
⅝" x ¾" (25GPM); 1" NPSM; 7½"						8B		
⅝" x ¾" (25 GPM); 1" NPSM; 5.1"						8R		
¾" (32GPM); 1" NPSM; 7½" or 9"; includes 1½" extension						8C		
¾" (35GPM); 1" NPSM; 7½"						8N		
¾" (35GPM); 1" NPSM; 9"						8L		
1" (55GPM); 1¼" NPSM; 10¾"						8D		
Meter type								
Cold water							8	
Reclaimed water[1)]							9	
Country code								
North America, FCC and NSF approved								UB
Canada, ISED and NSF approved								CA
Mexico, IFT and NSF approved								MX

[1)] *Only available for RF communication*

The features included in the type number cannot be changed once the meter has been produced.

Configuration - flowIQ® 2200

Config	DDD □□□	JJ □□	LLL □□□	MMMM □□□□	N □	P □	S □	U □	RR □□	CCC □□□	V □	T □	YY □□	ZZZ □□□
Display views														
Standard	810													
GMT offset (time zone)														
USA Eastern (GMT-5)		28												
USA Central (GMT-6)		24												
USA Mountain (GMT-7)		20												
USA Pacific (GMT-8)		16												
Target date (handled as order data)														
Max values averaged over time (1..120 min.)														
2 minutes			002											
Customer label (2060-) Alphanumeric														
Customer label blank (default)				5000										
Kamstrup serial number				0010										
Incremented number - 8 digits				8004										
Customer specific labels				MMMM										
Leakage message limit														
OFF					9									
Flow continuously > 0.25% of max flow					2									
Flow continuously > 0.5% of max flow					3									
Flow continuously > 1.0% of max flow					4									
Flow continuously > 2.0% of max flow					5									
Pipe burst limit														
OFF						0								
Flow > 5% of max flow for 30 minutes						1								
Flow > 10% of max flow for 30 minutes						2								
Flow > 20% of max flow for 30 minutes						3								
Ambient Temperature low limit														
OFF							0							
Ambient temperature < 2 °C/ 36 °F							2							
Ambient temperature < 3 °C / 37 °F							3							
Ambient temperature < 6 °C / 43 °F							6							
Ambient Temperature high limit														
OFF								0						
Ambient temperature > 35 °C / 95 °F								3						
Ambient temperature > 45 °C / 113 °F								6						
Data logger profile														
Standard RF									04					
Standard Encoded Output									15					

To be continued on next page...

Configuration - flowIQ® 2200

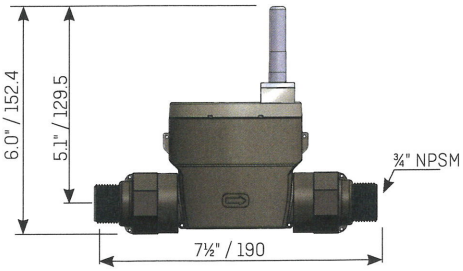
Config	DDD □□□	JJ □□	LLL □□□	MMMM □□□□	N □	P □	S □	U □	RR □□	CCC □□□	V □	T □	YY □□	ZZZ □□□
...continued from previous page														
Display resolution (alphanumeric)														
0000000.00 USgal - 0.01 GPM - Billing in 1,000s (recommended for residential meters)										220				
000000000 ft³ - 0000 GPM - Billing in 1,000s (recommended for district meters)										154				
For additional options please refer to FILE100002712														
Temperature units of measure														
Fahrenheit											1			
Celsius											0			
Encryption level														
Encryption with separately forwarded key												3		
No encryption (applicable for Encoded meters)												0		
Communication														
For communication protocols please refer to the section "Integrated Communication"														

	DDD	JJ	LLL	MMMM	N	P	S	U	RR	CCC	V	T	YY	ZZZ
Unless otherwise stated in the order, Kamstrup supplies the following:	810	□□	002	5000	4	3	3	3	04	220	1	3	YY	ZZZ

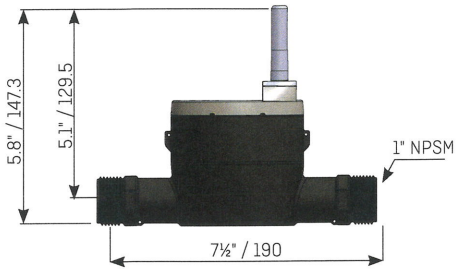
Note: JJ (time zone) and target date are not predefined and has to be chosen in the ordering system.

Dimensional sketches – flowIQ® 2200

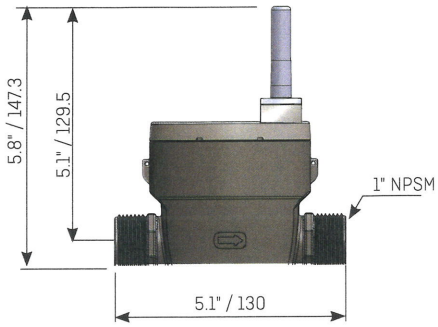
Type: 8A – Size: 25 GPM ⅝" x ½" x 7½"



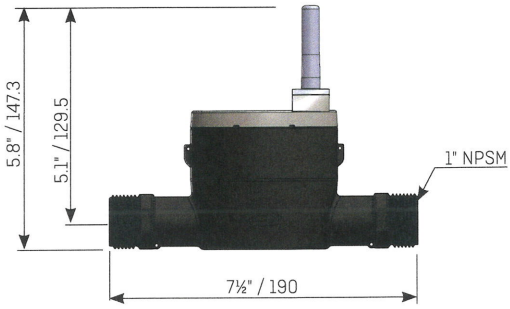
Type: 8B – Size: 25 GPM ⅝" x ¾" x 7½"



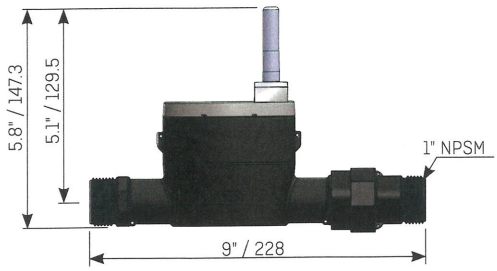
Type: 8R – Size: 25 GPM ⅝" x ¾" x 5.1"



Type: 8C – Size: 32 GPM ¾" x ¾" x 7½"



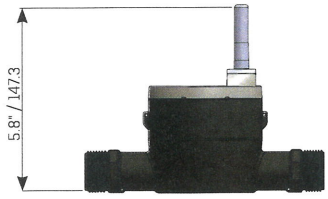
Type: 8C+ – Size: 32 GPM ¾" x ¾" x 9"



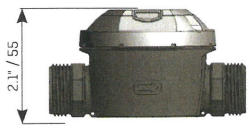
Encoded Output has the exact same dimensions as RF – apart from the meter cup height.

Examples:

Type: 8B – Size: 25 GPM ⅝" x ¾" x 7½"

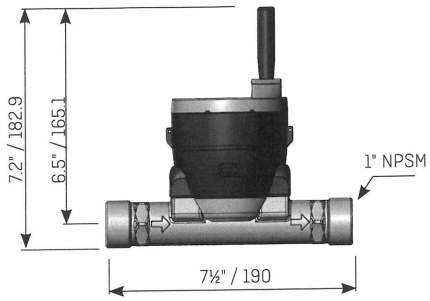


Type: 8R – Size: 25 GPM ⅝" x ¾" x 5.1"

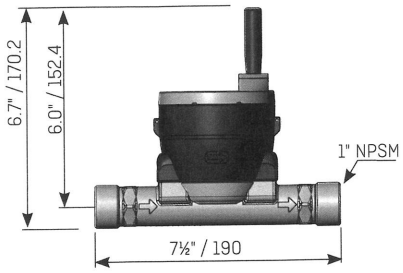


Dimensional sketches – flowIQ® 2200

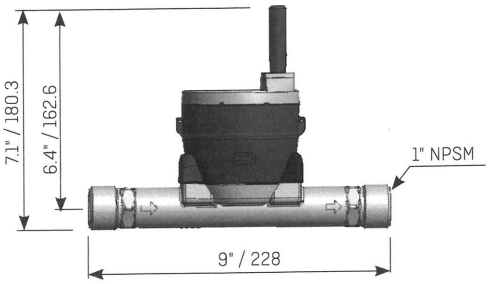
Type: 8B – Size: 25 GPM ⅝" x ¾" x 7½"



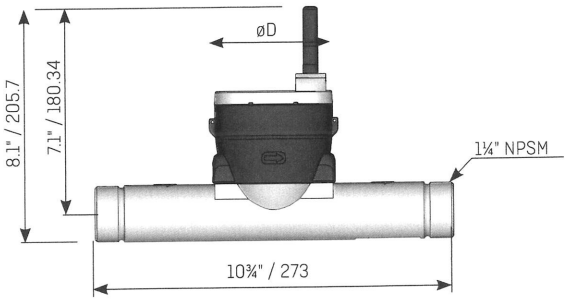
Type: 8N – Size: 35 GPM ¾" x 1" x 7½"



Type: 8L – Size: 35 GPM ¾" x 1" x 9"



Type: 8D – Size: 55 GPM 1" x 1¼ " x 10¾"



NOTE! Same threads for in- and outlet. / Dimensions: Inches/mm

Dimensions

flowIQ® 2200 RF

Mechanical design	Meter type	Meter size GPM	NPSM thread	L	H	øD	Weight approx. [Lbs / Kg]
				[Inches / mm]			
Composite	8A	25	¾"	7½" / 190	6.0" / 152.4	3.6" / 91.4	1.08 / 0.49
Composite	8B	25	1"	7½" / 190	5.8" / 147.3	3.6" / 91.4	1.01 / 0.46
Composite	8R	25	1"	5.1" / 130	5.8" / 147.3	3.6" / 91.4	1.01 / 0.46
Composite	8C	32	1"	7½" / 190	5.8" / 147.3	3.6" / 91.4	1.01 / 0.46
Composite	8C+	32	1"	9" / 228	5.8" / 147.3	3.6" / 91.4	1.10 / 0.50
Stainless steel	8B	25	1"	7½" / 190	7.2" / 182.9	3.6" / 91.4	1.01 / 0.46
Stainless steel	8N	35	1"	7½" / 190	6.7" / 170.2	3.6" / 91.4	2.2 / 1.0
Stainless steel	8L	35	1"	9" / 228	7.1" / 180.3	3.6" / 91.4	2.5 / 1.13
Stainless steel	8D	55	1¼"	10¾" / 273	8.1" / 205.7	3.6" / 91.4	4.1 / 1.86

flowIQ® 2200 E0

Mechanical design	Meter type	Meter size GPM	NPSM thread	L	H	øD	Weight approx. [Lbs / Kg]
				[Inches / mm]			
Composite	8A	25	¾"	7½" / 190	2.1" / 55	3.6" / 91.4	0.90 / 0.41
Composite	8B	25	1"	7½" / 190	2.1" / 55	3.6" / 91.4	0.86 / 0.39
Composite	8R	25	1"	5.1" / 130	2.1" / 55	3.6" / 91.4	0.86 / 0.39
Composite	8C	32	1"	7½" / 190	2.1" / 55	3.6" / 91.4	1.01 / 0.46
Composite	8C+	32	1"	9" / 228	2.1" / 55	3.6" / 91.4	0.93 / 0.42
Stainless steel	8B	25	1"	7½" / 190	3.9" / 101	3.6" / 91.4	1.87 / 0.85
Stainless steel	8N	35	1"	7½" / 190	3.9" / 101	3.6" / 91.4	1.87 / 0.85
Stainless steel	8L	35	1"	9" / 228	3.9" / 101	3.6" / 91.4	2.09 / 0.95
Stainless steel	8D	55	1¼"	10¾" / 273	4.2" / 109	3.6" / 91.4	2.82 / 1.28

Accessories

See accessories for water meters on Kamstrup.com, document no.: FILE100000644.
Accessories are ordered separately in CPQ (Kamstrup ordering system) and will be delivered as single parts in the packaging.

kamstrup

Data sheet

flowIQ® 3200

» **RF**
» **Encoded**

- Ultrasonic measurement
- Sustainable measurement accuracy
- Flow measurement in display
- Multiple radio options available
- IP68 Vacuum sealed construction
- Lead free and certified to NSF/ANSI 61
- Fire Service approved



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Electronic ultrasonic cold water meter for measurement of cold water consumption in households, multi-unit buildings and industry

Sustainable accuracy
Ultrasonic flow measurement guarantees sustainable accuracy and longevity. Ultrasonic flow measurement is based on the transit time method, and all measurements, references, readings, calculations and data communication are controlled by an advanced, specially designed electronic circuit. Thus, the meter includes no moving parts, which makes flowIQ® 3200 less sensitive to wear and tear and impurities in the water.

Construction
The meter is hermetically closed and vacuum-sealed to prevent humidity from reaching the electronics and avoid condensation between the glass and display. The meter is IP68 (submersible) type tested and suitable for installation in meter pits.

Installation
flowIQ® 3200 is easy to install in all operating environments, horizontally as well as vertically, independent of piping and installation conditions. Consumption data can be read visually from the display, using an optical eye, and remotely read, by various integrated communication protocols.

Specific features
flowIQ® 3200 measures the water and environment temperatures and it includes leak detection, securing that water loss is discovered quickly.

The unique combination of all the flowIQ® 3200 features reduces current operating costs to measure water usage and minimizes unexpected expenses in connection with possible leakage.

Environmentally friendly
The meter has been approved according to Drinking Water Standards and is certified to NSF/ANSI 61. The meter housing and measuring part are made of the high performance thermoplastic material polyphenylene sulfide (PPS) with 40% fiberglass, which is free from lead and other heavy metals. The environmental report, Carbon Footprint, documents the meter's high reusability and low environmental impact, including recycling of materials.

Hygiene
To protect the health of the consumers Kamstrup has a hygienic manufacturing process of the water meters.

Kamstrup also has a highly automated manufacturing process and only uses materials approved for drinking water. Furthermore the products gets disinfected before dispatch. The hygiene is being controlled by external accredited laboratories and by frequent audits.

General description
flowIQ® 3200 is a hermetically sealed water meter intended for measurement of cold and *reclaimed water consumption in residentials and multi-unit buildings and commercial applications.

flowIQ® 3200 employs the ultrasonic measurement principle, based on Kamstrup's experience since 1991, with the initial development and production of static ultrasonic meters.

flowIQ® 3200 is available in an Encoded Output version with 2 x A-cell battery supply and a RF version with 1 x D-cell battery supply.

One of flowIQ® 3200's many advantages is the fact that it has no wearing parts, which ensures a high and stable accuracy throughout its lifetime. flowIQ® 3200 complies with all the AWWA C715-18 and CN1044 fire service guideline for Ultrasonic Water Meters.

In the flowIQ® 3200 series a composite housing is mounted on a stainless steel meter body. Thus, the electronics are fully protected against internal or external penetration of water.

flowIQ® 3200 is suitable for measurement in multi-unit apartments and light commercial premises. The meter is suitable for mounting in pump stations or wellheads, as it will also function in fully submerged conditions.

flowIQ® 3200 measures the water consumption electronically, as a volume, using a pair of ultrasonic signals. Through two ultrasonic transducers, an ultrasonic signal is sent with and against the flow direction. A transducer serves both as a 'speaker' when transmitting and as a 'microphone when a signal is received. The ultrasonic signal traveling with the flow will be the first to reach the opposite transducer, while the signal running against the flow will be received a little later. The time difference between the two signals can be converted into flow velocity, and thereby also into a volume. The measuring principle is a proven, long-term stable and accurate measuring principle.

In addition to volume reading, an indication of current flow and a number of other information codes are displayed. All registers are saved daily in the meter data logger (EEPROM) and are kept for 460 days. Furthermore, monthly data for the latest 36 months, hourly data for the latest 100 days and 50 info code events are saved.

flowIQ® 3200 is powered by an internal lithium battery which can provide up to 20 years operating life.

flowIQ® 3200 is available with a choice of integrated data communication options:

- 912.5, 915 or 918.5 MHz – RF
- 450-470 MHz - RF
- Encoded Output

The meter is fitted with an optical eye which makes it possible to read saved consumption data and info codes, stored in the meter's data logger. Using an optical reading head, it is also possible to change the meter configuration e.g. data packages.

flowIQ® 3200 can and must only be opened by Kamstrup A/S. If the meter has been opened and the sealing has thus been broken, the meter is no longer valid for billing purposes and the warranty is void.

** For information concerning reclaimed water we refer to document no.: FILE100003532*

Technical data

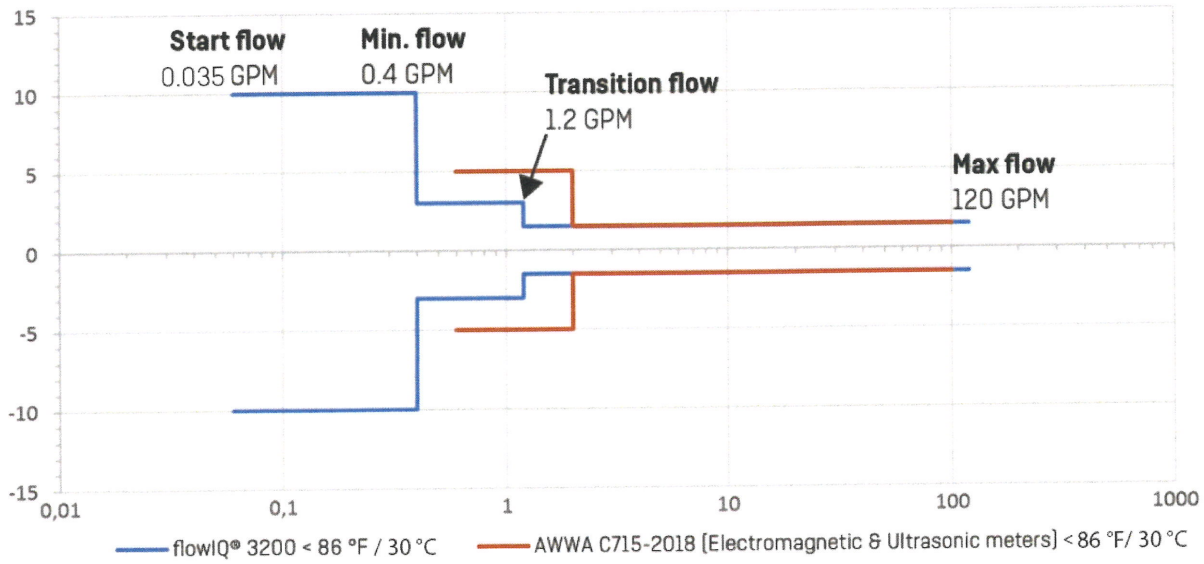
Electrical data

Battery (flowIQ® 3200 RF)	D-cell battery, 3.6V, 19Ah. The battery warranty does not apply at meter temperatures above t_{BAT} > 95 °F / 35 °C
Battery (flowIQ® 3200 E0)	2 x A-Cell battery, 3.6V, 3.6Ah. The battery warranty does not apply at meter temperatures above tBAT > 95 °F / 35 °C

Mechanical data

Protection class	IP68-rated (waterproof/submersible)
Mechanical environment	Class M1 (Measuring Instruments Directive classification)
Maximum operating pressure	Oval flange mounted, 300 PSI / (20.7 bar)
	Round flange mounted, 275 PSI (19 bar)
Ambient/meter temperature	35...130 °F / 0.5...55 °C
Water temperature	33...120 °F / 0.5...50 °C
Storage temp. empty sensor	-10...140 °F / -20...60 °C

Accuracy



Note: At flows between 'Start flow' and 'Maximum flow' measurement occurs – however the accuracy is only guaranteed in the range from minimum flow to maximum flow

Approved meter data

Certified to NSF/ANSI 61.
Complies to part 15 of the FCC rules, ISED, IFT and with AWWA C715-18 and CN1044.

Material

Wetted parts

Flow part, threaded/flanged	Stainless Steel 316L
O-ring/gasket	EPDM
Measuring tube	PPS with fiberglass
Reflectors	Stainless steel

External meter parts

Meter housing	Polyphenylene sulfide (PPS) – 40% fiberglass
Cover	Glass
Spring ring	Stainless steel
Top ring (sealing)	Polycarbonate (gray)

Meter sizes

flowIQ® 3200 is available in the sizes shown in table below:

XX = Communication module Y = Battery supply ZZ = Country code

Type number	Meter size Inches	Start flow (S) [GPM]/ [L/h]	Min. flow [GPM]/ [L/h]	Transition flow[1] [GPM]/ [m³/h]	Max flow [GPM]/ [m³/h]	Sat. flow rate [GPM]/ [m³/h]	Pressure loss SMOC [PSI]/ [bar]	Connection on meter	Lay length [Inches]/ [mm]	Strainer	Temp. measurement of water
02-L-XX-Y-1-8F-8ZZ	1½"	0.035/ 8	0.4/ 90.8	1.2/ 0.27	120/ 27.25	168/ 38.16	5.5/ 0.38	1½"[2]	13"/ 330	No	Yes
02-L-XX-Y-1-8H-8ZZ	2"	0.088/ 20	0.5/ 113.6	1.5/ 0.34	160/ 36.34	224/ 50.88	1.8/ 0.12	2"	17"/ 432	No	Yes
02-L-XX-Y-1-8M-8ZZ	2"	0.088/ 20	0.5/ 113.6	1.5/ 0.34	160/ 36.34	224/ 50.88	1.8/ 0.12	2"	15¼"/ 387	No	Yes
02-L-XX-Y-1-8K-8ZZ	3"	0.22/ 50	1.1/ 249.8	7.5/ 1.70	350/ 79.49	490/ 111.29	3.5/ 0.24	3"	12"/ 305	No	Yes
02-L-XX-Y-1-8P-8ZZ	4"	0.35/ 80	1.7/ 386.1	5/ 1.14	700/ 158.99	980/ 222.58	4/ 0.27	4"	14"/ 356	No	Yes

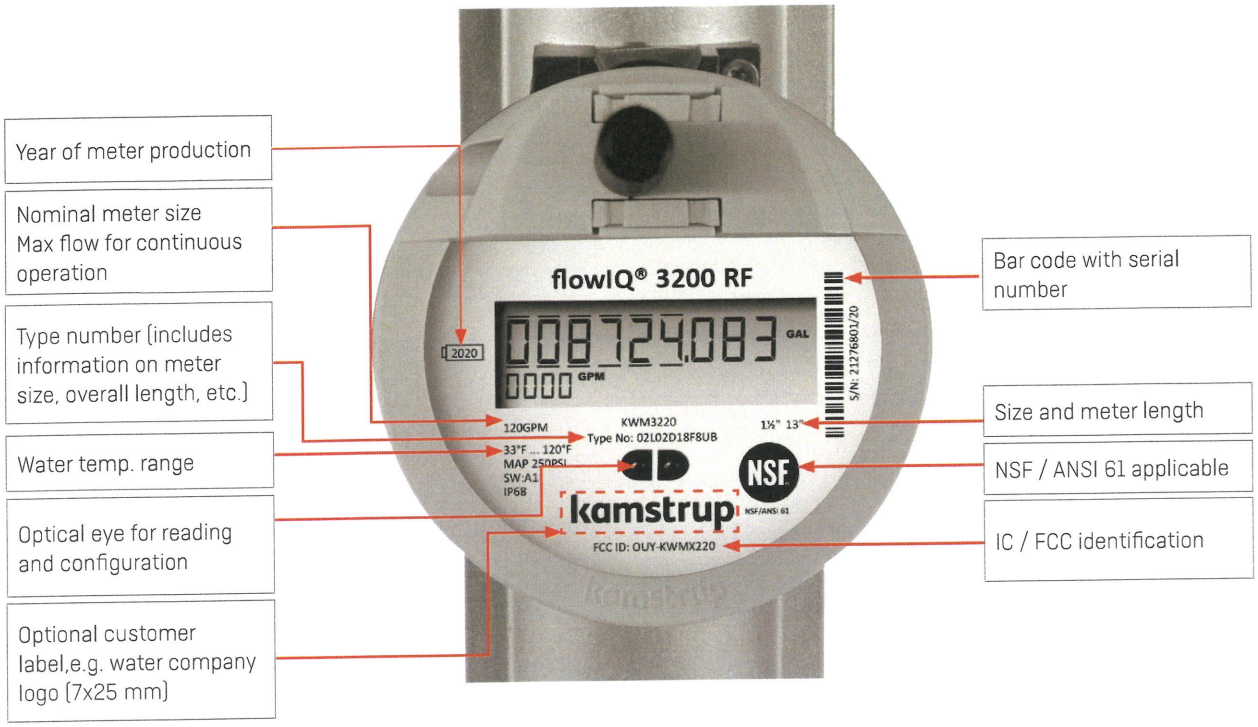
[1] At flows between 'Start flow' and 'Maximum flow' measurement occurs – however the accuracy is only guaranteed in the range from minimum flow to maximum flow.

[2] Only >1½"meters are recognized by the CN1044 approval standard for fire service meters.

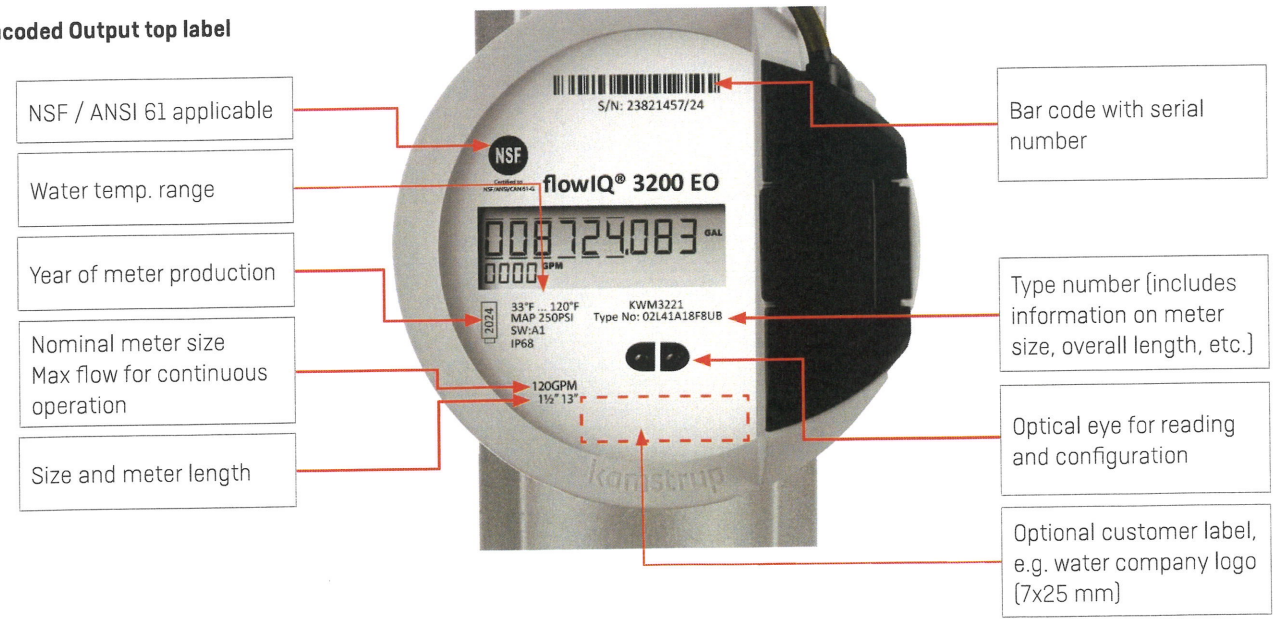
Meter face details

Meter information in permanent laser engraved text. Note: Only FM fire service meters will be stamped with the FM approval mark.

RF top label



Encoded Output top label



Core features

Water meters placed throughout the network make it possible to gather information that can be of vital importance for an effective water supply, asset management and improved customer service.

Temperature monitoring
flowIQ® 3200 measures ambient temperatures.

Information on temperatures above or below the configured temperature in the meter will warn the utility on potential frost damages or quality issues.

These measurements can be used to monitor the installation and will indicate the water's quality.

Consumption above max flow
The meter logs information on consumption above max flow. This information can be used to indicate if the meter size for a given installation is correct.

Consumption histogram
The meter tracks consumptions in different flow intervals for further analysis of the consumption patterns for the specific installation.

Acoustic Leakage Detection
For 1½" and 2", the flowIQ® 3200 water meter introduces integrated acoustic leak detection, enabling continuous monitoring of both distribution mains and service lines without the need for additional hardware or external reading infrastructure. This built in functionality expands Kamstrup's proactive leak detection solution, offering near system wide coverage that enhances operational efficiency, reduces non-revenue water, and supports long-term asset management strategies.

Current flow display
Besides the consumed volume, flowIQ® 3200 also shows the current flow in the display. The flow display has been designed with user experience in mind, where it can be advantageous, for example during installation, to be able to see the current consumption. In this context, it is important to stress that the metrological approval of the water meter is only related to the volume reading. Due to the meter's update time, the flow display, in case of rapidly increasing/decreasing flow, may turn out to be slower than the real flow and not a one-to-one correlation between the flow display and the volume growth.

In general, one would expect the flow display to stabilize after about half a minute of constant flow and thereafter to be consistent with volume growth.

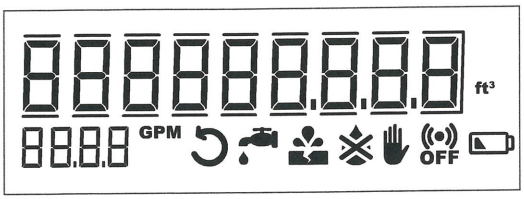
Meter modes

flowIQ® 3200 can operate in two modes, Normal and Verification mode.

Verification mode is only used by authorized laboratories during verification.

flowIQ® 3200 RF	**Normal mode**	**Verification mode**
Flow measurement and flow display update	1 s	0.125 s
Volume integration and volume display update	8 s	1 s
flowIQ® 3200 EO	**Normal mode**	**Verification mode**
Flow measurement and flow display update	2 s	0.125 s
Volume integration and volume display update	16 s	1 s

Display and info codes



The large display with totalized volume, flow rate and intuitive info codes on flowIQ® 3200 makes it easy for end users to understand their own consumption data.

flowIQ® 3200 includes a large number of intelligent info codes and alarms. An info code indicates a special condition in the meter. If the info code is available in the display, the related symbol is on when it has been activated. If the 'condition' is not active, the sign is OFF. The info codes provide you with the exact knowledge you need to target your efforts within operations optimization, customer information, water loss and tampering. The info codes in the display have the following meaning and function:

Info code	Meaning
	Water in the meter has not been stagnant for one continuous hour during the latest 24 hours. This can be a sign of a leaky faucet or toilet cistern or indicate a leakage after the meter.
	The water consumption has been consistently high for half an hour, which indicates a pipe burst.
	Attempt of fraud. The meter is no longer valid for billing.
	The meter is dry. In this case nothing will be measured.
	The water flows through the meter in the wrong direction.
OFF	RADIO OFF flashes. The meter is still in transport mode with the built-in radio transmitter turned off. The transmitter turns on automatically on the first time water runs though the meter.*
OFF	RADIO OFF lights permanently. The radio is switched off permanently. Can be activated via METERTOOL..*
	The symbol appears when the expected capacity left is 6 months or less.

	Switch off automatically when the condition that activated them no longer exists.
	Disappears when the water has been stagnant for one hour.
	Disappears when the consumption falls to normal level.
	Disappears when the water no longer flows in the wrong direction.
	Disappears when the meter is filled with water.

*RADIO OFF *is not available for Encoded Output meters*

Data registers

The water meter has a permanent memory, in which the values of various data loggers are saved. The loggers can be read via the meter's optical eye and from communications protocols.

The following registers are logged:

Description	Yearly logger	Monthly logger	Daily logger	Hourly logger
Logger depth	20 years	36 months	460 days	2400 hours
Operating hours	✓	✓	✓	✓
Info codes incl. hour counter	✓	✓	✓	✓
Volume	✓	✓	✓	✓
Volume reverse	✓	✓	✓	✓
Flow max incl. date	✓	✓		
Flow min. incl. date	✓	✓		
Flow max day incl. timestamp			✓	
Flow min. day incl. timestamp			✓	
Water temp. max	✓	✓	✓	
Water temp. min.	✓	✓	✓	
Water temp. avg.	✓	✓	✓	
Ambient temp. max	✓	✓	✓	
Ambient temp. min.	✓	✓	✓	
Ambient temp. avg.	✓	✓	✓	

Every time the information code changes, date and info codes are logged. Thus, it is possible to data read the latest 50 changes of the information code as well as the date the change was made.

Integrated communication

The meter supports a variety of different communication options depending on meter type. All radio supported meters can be used with Kamstrup's external antenna. Transmission properties and data packages are defined in the configuration number YY-ZZZ. These can be changed with METERTOOL, MeterToolX or READy App through the optical IR interface or with a READy Converter.*

**Depending on communication protocol*

RF

Kamstrup RF is based on Wireless M-Bus which is a mature and proven technology for remote reading of smart meters. Wireless M-Bus provides a robust, simple and secure reading of meters and requires a low initial investment, but is flexible enough to be expanded whenever desired. Wireless M-Bus is based on an European standard (EN 13757-4) applicable to devices for reading consumption of water, electricity, or energy. The data encryption consists of a 128-bit AES counter mode encryption. Both AMR 912.5, 915 and 918.5 MHz and AMI 450-470 MHz are available.

For additional information about the Kamstrup RF communication module, please refer to the RF module data sheet, document no.: FILE100003480.

Encoded Output

The Sensus Encoded Output and TouchRead are implemented based on Sensus specification UI-1203 and UI1204. Encoded Output is compatible with several 3rd party RF network systems. Kamstrup encoded output supports Sensus Encoded Output systems and Sensus TouchRead systems. In addition, Neptune ProRead, Neptune E-coder systems and others are supported.

For additional information about the Kamstrup Encoded Output communication module, please refer to the Encoded Output module data sheet, document no.: FILE100003729.

State of the art meter reading system (READy)

Standardized and open communication

902-928 MHz band RF is an open standard, following EN13757-4:2010, which means that while the flowIQ® 3200 can be configured with or without encryption of the transmitted signal, encryption is required in the United States.

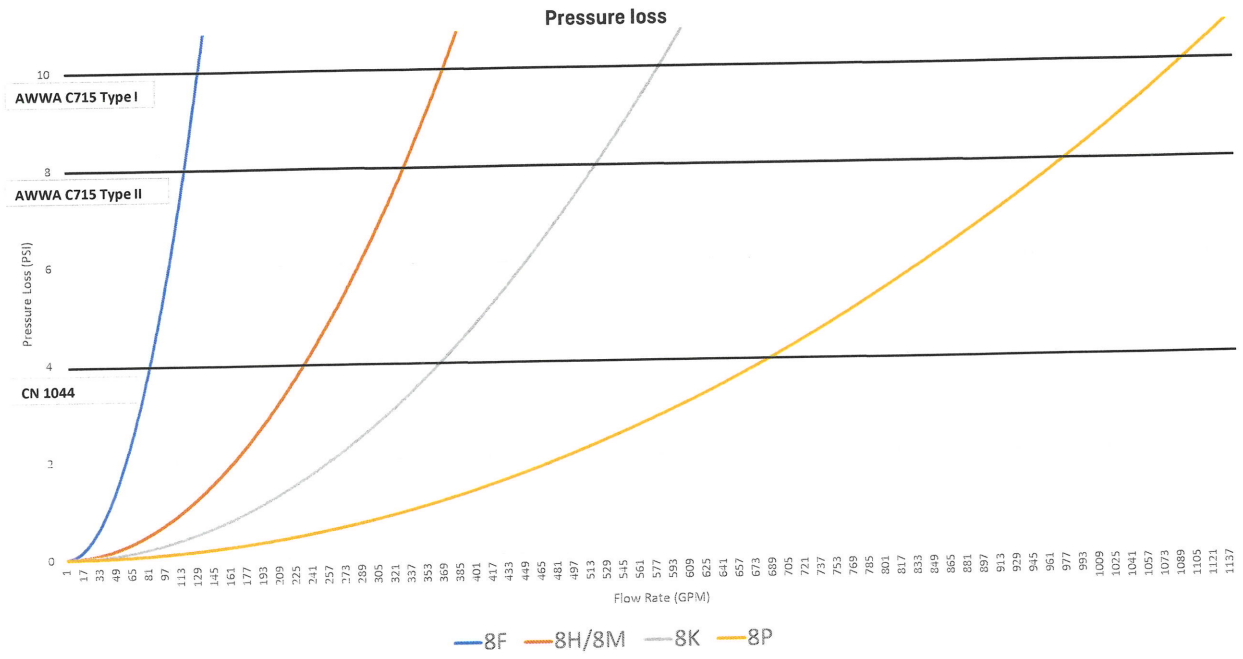
Encryption protects personal data against unauthorized monitoring. Furthermore, the encryption file provides easy access to import meter data for reading programs.

Pressure loss

According to AWWA C715-18 Type I the maximum pressure loss must not exceed 10 PSI (0.69 bar) for ½"-2"meters and 8 PSI (0.55 bar) for 3"-4" at SMOC.

According to CN1044 the maximum pressure loss must not exceed 4 PSI (0.27 bar) at SMOC for FM fire service meters.

The following graph shows pressure loss with respect to flow rate:



See document no.: FILE100000199 for more information about pressure loss.

Ordering details

Start your order by stating the type number of the selected model of flowIQ® 3200. The type number includes information on meter type - meter version, size, lay length, service connection and time zone.

Subsequently the meter configuration, which determines customer-specific requirements such as number of digits in display etc., is selected. The configuration is completed during programming of the final meter.

Meter type - flowIQ® 3200

Type	□□	□	□	□	□	□□	□	□□
Meter generation								
Second generation	02							
Mechanical design								
Stainless steel		L						
Communication								
RF			02					
Encoded Output			41					
Power supply								
D-cell				D				
2 x A-cell				A				
Dynamic range								
AWWA C715-18 and CN1044					1			
Meter size								
1½" (120GPM); 1½" Flange; 13"						8F		
2" (160 GPM); 2" Flange; 17"						8H		
2" (160 GPM); 2" Flange; 15¼"						8M		
3" (350 GPM); 3" Flange; 12"						8K		
4" (700 GPM); 4" Flange; 14"						8P		
Meter type								
Cold water							8	
Reclaimed water[1)]							9	
Country code								
North America, FCC and NSF approved								UB
Canada, ISED and NSF approved								CA
FM fire service approved								FM
Mexico, IFT and NSF approved								MX

[1)] *Only available for RF communication*

Fiber gaskets can be ordered with flowIQ® metal meters.

The features included in the type number cannot be changed once the meter has been produced.

Configuration - flowIQ® 3200

Config	DDD □□□	JJ □□	LLL □□□	MMMM □□□□	N □	P □	S □	U □	RR □□	CCC □□□	V □	T □	YY □□	ZZZ □□□
Display views [1]														
Standard	810													
GMT offset (time zone)														
USA Eastern (GMT-5)		28												
USA Central (GMT-6)		24												
USA Mountain (GMT-7)		20												
USA Pacific (GMT-8)		16												
Target date (handled as order data)														
Max values averaged over time (1..120 min.)														
2 minutes			002											
Customer label (2060-) Alphanumeric														
Customer label blank (default)				5000										
Kamstrup serial number				0010										
Incremented number - 8 digits				8004										
Customer specific labels				MMMM										
Leakage message limit														
OFF					9									
Flow continuously > 0.1% of max flow (not recommended)					1									
Flow continuously > 0.25% of max flow					2									
Flow continuously > 0.5% of max flow					3									
Flow continuously > 1.0% of max flow					4									
Flow continuously > 2.0% of max flow					5									
Pipe burst limit														
OFF						0								
Flow > 5% of max flow for 30 minutes						1								
Flow > 10% of max flow for 30 minutes						2								
Flow > 20% of max flow for 30 minutes						3								
Ambient Temperature low limit														
OFF							0							
Ambient temperature < 2 °C / 36 °F							2							
Ambient temperature < 3 °C / 37 °F							3							
Ambient temperature < 6 °C / 43 °F							6							
Ambient Temperature high limit														
OFF								0						
Ambient temperature > 35 °C / 95 °F								3						
Ambient temperature > 45 °C / 113 °F								6						
Data logger profile														
Standard (default)									04					
Standard Encoded Output									15					

To be continued on next page...

Configuration - flowIQ® 3200

Config	DDD □□□	JJ □□	LLL □□□	MMMM □□□□	N □	P □	S □	U □	RR □□	CCC □□□	V □	T □	YY □□	ZZZ □□□
...continued from previous page														
Display resolution (alphanumeric)														
0000000.00 USgal - 0.01 GPM - Billing in 1,000s (recommended for residential meters)										223				
000000000 ft³ - 0000 GPM - Billing in 1,000s (recommended for district meters)										154				
For additional options please refer to FILE100002712														
Temperature units of measure														
Fahrenheit											1			
Celsius											0			
Encryption level														
Encryption with separately forwarded key												3		
No encryption (applicable for Encoded meters)												0		
Communication														
For communication protocols please refer to the specific module data sheets														

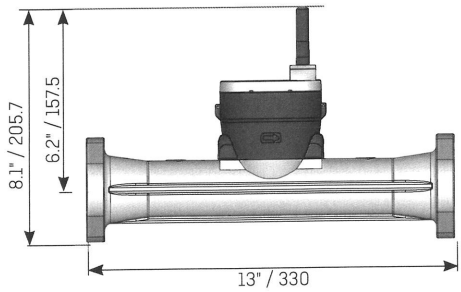
	DDD	JJ	LLL	MMMM	N	P	S	U	RR	CCC	V	T	YY	ZZZ
Unless otherwise stated in the order, Kamstrup supplies the following:	810	□□	002	5000	4	3	3	3	04	154	1	3	yy	ZZZ

Note: JJ (timezone) and target date are not predefined and has to be chosen in the ordering system.

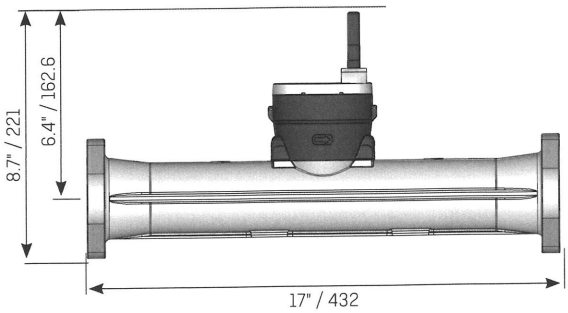
Dimensional sketches – flowIQ® 3200

NOTE! Same flanges for in- and outlet.

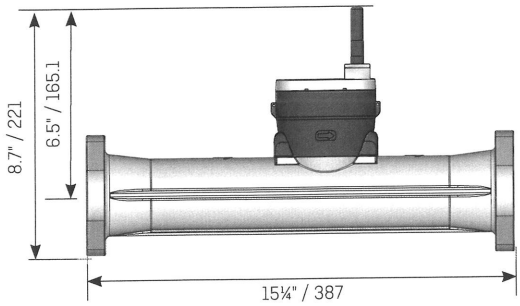
Type: 8F – Size: 120 GPM 1½" x 1½" x 13"



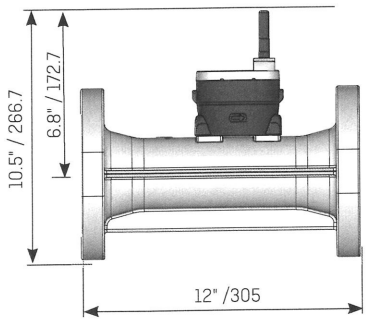
Type: 8H – Size: 160 GPM 2" x 2" x 17"



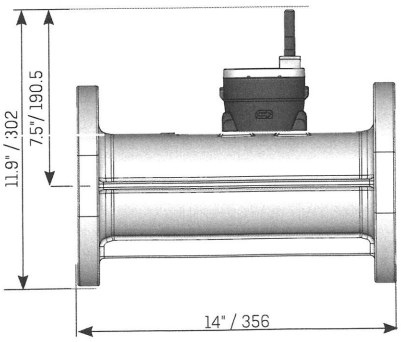
Type: 8M – Size: 160 GPM 2" x 2" x 15¼"



Type: 8K – Size: 350 GPM 3" x 3" x 12" T



Type: 8P – Size: 700 GPM 4" x 4" x 14"

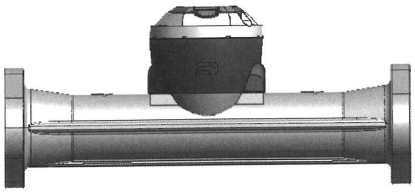


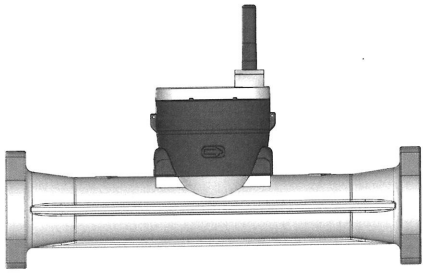
Dimensional sketches – flowIQ® 3200

Encoded Output and RF have the exact same dimensions apart from the meter cup height.

Example:
Type: 8F – Size: 120 GPM 1½" x 1½" x 13"

Size: 120 GPM 1½" x 1½" x 13"

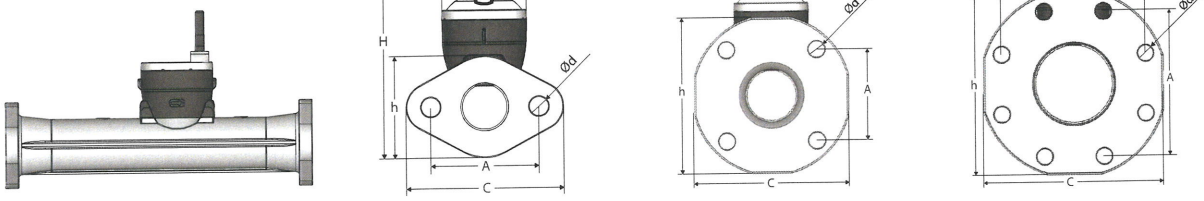




Dimensions

flowIQ® 3200 RF

Meter type	Meter size GPM	Connection	L	H	h	A	C	d	Weight approx. [Lbs / Kg]
			[Inch / mm]						
8F	120	1½" flange	13"/ 330	8.07"/205	3.6"/ 91.4	4.0"/ 101.6	5.7"/ 144.8	0.79"/ 20.07	13/ 5.9
8H	160	2" flange	17"/ 432	8.66"/220	4.13"/ 104.9	4.49"/ 114	6.54"/ 166.1	0.79"/ 20.07	19/ 8.6
8M	160	2" flange	15¼"/ 387	8.66"/220	4.13"/ 104.9	4.49"/ 114	6.54"/ 166.1	0.79"/ 20.07	17/ 7.7
8K	350	3" flange	12"/ 305	10.47"/265.9	7.24"/ 183.9	4.24"/ 107.7	7.24"/ 183.9	0.75"/ 19.05	31/ 14.1
8P	700	4" flange	14"/ 356	11.85"/301	8.66"/ 220	6.93"/ 176	8.66"/ 220	0.75"/ 19.05	43/ 19.5



flowIQ® 3200 EO

Meter type	Meter size GPM	Connection	L	H	h	A	C	d	Weight approx. [Lbs / Kg]
			[Inch / mm]						
8F	120	1½" flange	13"/ 330	5.39"/ 137	3.6"/ 91.4	4.0"/ 101.6	5.7"/ 144.8	0.79"/ 20.07	9.3/ 4.2
8H	160	2" flange	17"/ 432	5.98"/ 152	4.13"/ 104.9	4.49"/ 114	6.54"/ 166.1	0.79"/ 20.07	14.2/ 6.5
8M	160	2" flange	15¼"/ 387	5.98"/ 152	4.13"/ 104.9	4.49"/ 114	6.54"/ 166.1	0.79"/ 20.07	16.2/ 7.4
8K	350	3" flange	12"/ 305	7.7"/ 198	7.24"/ 183.9	4.24"/ 107.7	7.24"/ 183.9	0.75"/ 19.05	34.1/ 15.5
8P	700	4" flange	14"/ 356	9.17"/ 233	8.66"/ 220	6.93"/ 176	8.66"/ 220	0.75"/ 19.05	44.5/ 20.2

kamstrup

Data sheet

flowIQ® 4200

» **RF**
» **Encoded Output**

- Ultrasonic measurement
- Sustainable measurement accuracy
- Flow measurement in display
- Multiple radio options available
- Fire service approved
- IP68 Vacuum sealed construction
- Lead free and certified to NSF/ANSI 61
- Replaceable battery
- Coated split flanges in cast iron



Contents

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Electronic ultrasonic cold water meter for measurement of cold water consumption in multi-unit buildings, commercial applications and industry

Sustainable accuracy
Ultrasonic flow measurement guarantees sustainable accuracy and longevity. Ultrasonic flow measurement is based on the transit time method, and all measurements, references, readings, calculations and data communication are controlled by an advanced, specially designed electronic circuit. Thus, the meter includes no moving parts, which makes flowIQ® 4200 less sensitive to wear and tear and impurities in the water.

Construction
The meter is hermetically closed and vacuum-sealed to prevent humidity from reaching the electronics and avoid condensation between the glass and display. The meter is IP68 (submersible) and is suitable for installation in meter pits.

Installation
flowIQ® 4200 is easy to install horizontally as well as vertically, independent of piping and installation conditions. Consumption data can be read visually from the display, using an optical IR interface head, or remotely read, by various integrated communication protocols.

Specific features
flowIQ® 4200 measures the environmental temperatures.

The battery package is replaceable without decommissioning the meter, allowing for easy and convenient asset management.

flowIQ® 4200 utilizes split flanges allowing for flexible installation options.

Environmentally friendly
The meter has been approved according to Drinking Water Standards and is certified to NSF/ANSI 61. The meter housing is made of stainless steel which is free from lead and other heavy metals. The environmental report, Carbon Footprint, documents the meter's high reusability and low environmental impact, including recycling of materials.

Hygiene
To protect the health of the consumers Kamstrup has a hygienic manufacturing process of the water meters.

Kamstrup also has a highly automated manufacturing process and only uses materials approved for drinking water. The hygiene is being controlled by external accredited laboratories and by frequent audits.

General description
flowIQ® 4200 is a hermetically sealed water meter intended for measurement of cold water consumption in multi-unit buildings, commercial applications and industry.

flowIQ® 4200 employs the ultrasonic measurement principle, based on Kamstrup's experience since 1991, with the initial development and production of static ultrasonic meters.

One of flowIQ® 4200's many advantages is the fact that it has no wearing parts, which ensures a high and stable accuracy throughout its lifetime. flowIQ® 4200 complies with all the AWWA C715-18 and CN1044 fire service guideline for Ultrasonic Water Meters.

In the flowIQ® 4200 series a composite housing is mounted on a stainless steel meter body with coated split flanges in cast iron. The electronics are fully protected against internal and external penetration of water.

The meter is suitable for mounting in pump stations or wellheads, as it will also function in fully submerged conditions.

flowIQ® 4200 measures the water consumption electronically as a volume, using two pairs of ultrasonic signals. Through four ultrasonic transducers, an ultrasonic signal is sent with and against the flow direction. A transducer serves both as a 'speaker' when transmitting and as a 'microphone when a signal is received. The ultrasonic signal traveling with the flow will be the first to reach the opposite transducer, while the signal running against the flow will be delayed. The time difference between the two signals can be converted into flow velocity, and thereby also into a volume. The measuring principle is a proven, long-term stable and accurate measuring principle.

In addition to volume reading, an indication of current flow and a number of other information codes are displayed. All registers are saved daily in the meter data logger (EEPROM) and are kept for 460 days. Furthermore, monthly data for the latest 36 months, hourly data for the latest 100 days and 50 info code events are saved.

flowIQ® 4200 is powered by a double D-cell internal lithium battery which can provide up to 20 years operating life depending on usage and configuration.

flowIQ® 4200 is available with a choice of two integrated data communication options:

- 912.5, 915 or 918.5 MHz - RF
- 450-470 MHz - RF
- Encoded Output

The meter is fitted with an optical eye which makes it possible to read saved consumption data and info codes, stored in the meter's data logger. Using an optical reading head, it is also possible to change the meter configuration, e.g. data packages.

flowIQ® 4200 can and must only be opened by Kamstrup A/S – or by Kamstrup instructed personnel in regard to battery replacement.

Technical data

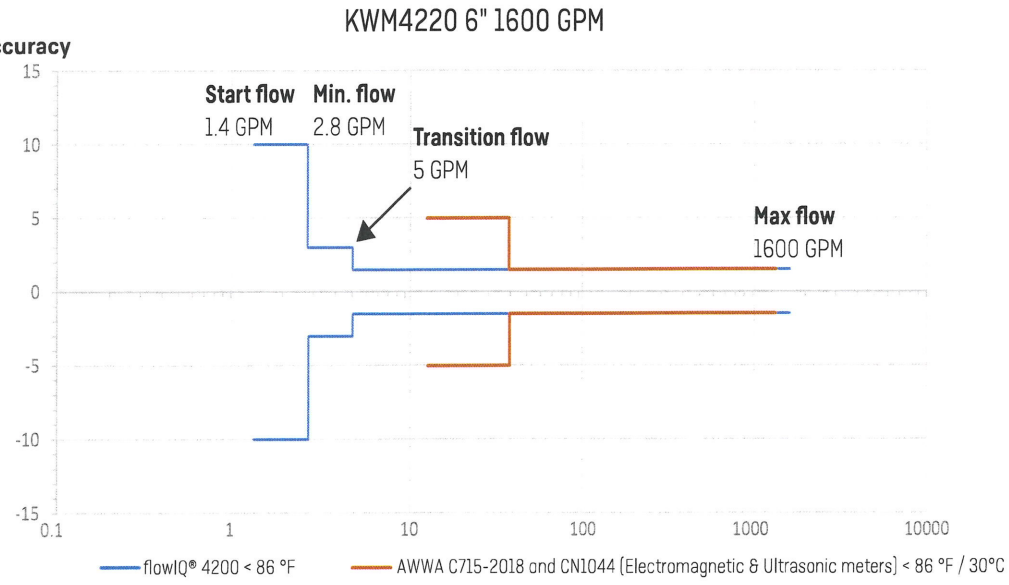
Electrical data

Battery	2 x D-cell batteries, 3.6V. The battery warranty does not apply at meter temperatures above t_{BAT} > 95 °F / 35 °C

Mechanical data

Protection class	IP68-rated (waterproof/submersible)
Mechanical environment	Class 1 (Measuring Instruments Directive classification)
Maximum operating pressure	Round flange mounted, 275 PSI
Ambient/meter temperature	35... 130 °F / 0.5... 55 °C
Water temperature	33... 120 °F / 0.5... 50 °C
Storage temp. empty sensor	-10... 140 °F / -20... 60 °C
Upstream/Downstream Pipe Length Req.	U0/D0

Accuracy



Note: At flows between 'Start flow' and 'Maximum flow' measurement occurs – however the accuracy is only guaranteed in the range from minimum flow to maximum flow.

Approved meter data

Certified to NSF/ANSI 61

Complies to part 15 of the FCC rules, ISED, AWWA C715-18 and with CN1044

Material

Wetted parts

Flow part, flanged	Stainless Steel 316L
O-ring/gasket	EPDM
Transducer pocket	PPS with fiberglass

Non-wetted parts

Split flanges	Cast iron, EN-GJS-500-7C-black-FBE coating

External meter parts

Meter housing	Polyphenylene sulfide (PPS) – 40 % fiberglass
Cover	Glass
Top ring (sealing)	Polycarbonate (gray)

Meter sizes

flowIQ® 4200 is available in sizes shown in the table below:

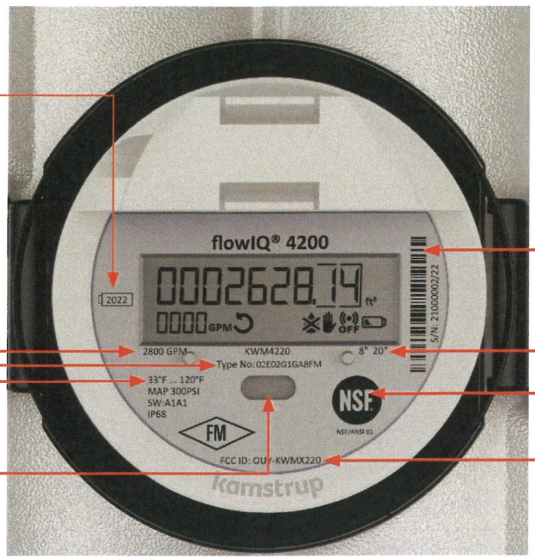
XX = Communication module ZZ = Country code

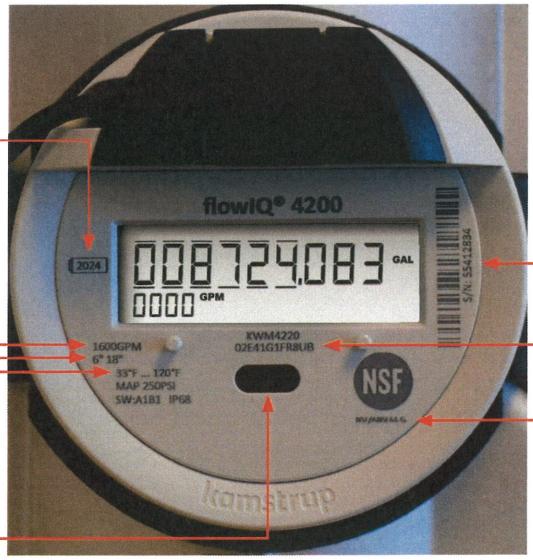
Type number	Meter size Inches	Start flow (S) [GPM]/ [L/h]	Min. flow [GPM]/ [L/h]	Transition flow[1] [GPM]/ [m³/h]	Max flow [GPM]/ [m³/h]	Sat. flow rate [GPM]/ [m³/h]	Pressure loss SMOC[3] [PSI]/ [bar]	Connection on meter	Lay length [Inches]/ [mm]	Split flanges weight [lbs]/ [Kg]	Total weight [lbs]/ [Kg]
02-E-XX-G-1-FR-8ZZ[2]	6"	1.4/ 318	2.8/ 635	5/ 1.136	1600/ 317.97	1960/ 445.16	2.66/ 0.183	6"	11.8"/ 299.7	31/ 14.1	60/ 27.2
02-E-XX-G-1-GA-8ZZ[2]	8"	1.7/ 386	4/ 908	7/ 1.590	2800/ 635.95	3920/ 890.33	3.9/ 0.886	8"	13.8"/ 350.5	42/ 19.1	86/ 39.0
02-E-XX-G-1-GJ-8ZZ	10"	2/ 454	5/ 1136	8/ 1.817	4500/ 1022.06	6300/ 1430.89	4.2/ 0.954	10"	17.7"/ 450	64/ 29.0	134/ 60.8
02-E-XX-G-1-GS-8ZZ	12"	2.3/ 522	6/ 1363	10/ 2.271	5500/ 1249.19	7700/ 1748.86	2.8/ 0.636	12"	19.7"/ 500	84/ 38.1	185/ 83.9

[1] At flows between 'Start flow' and 'Maximum flow' measurement occurs – however the accuracy is only guaranteed in the range from minimum flow to maximum flow.
[2] Spool piece is available for this meter size. Lay length 6" with spool piece = 18"/457mm; lay length 8" with spool piece = 20"/508mm.
[3] SMOC = Safety Maximum Operating Capacity (pressure).

Meter face details

Meter information in permanent laser engraved text.





Core features

Water meters placed throughout the network make it possible to gather information that can be of vital importance for an effective water supply, asset management and improved customer service.

Temperature monitoring
flowIQ® 4200 measures ambient temperatures.

Information on temperatures above or below the configured temperature in the meter will warn the utility on potential frost damages or quality issues.

The measurements can be used to monitor the installation and to give an indication of the quality of the water.

Consumption above max flow
The meter logs information on consumption above max flow. This information can be used to indicate if the meter size for a given installation is correct.

Consumption histogram
The meter tracks consumptions in different flow intervals for further analysis of the consumption patterns for the specific installation.

No consumption
If no consumption has been measured for a long period of time the meter will inform the utility, as this indicates a potential problem with the installation.

Current flow display
Besides the consumed volume, flowIQ® 4200 also shows the current flow in the display. The flow display has been designed with user experience in mind, where it can be advantageous, for example during installation, to be able to see the current consumption. In this context, it is important to stress that the metrological approval of the water meter is only related to the volume reading. Due to the meter's update time, the flow display, in case of rapidly increasing/decreasing flow, may turn out to be slower than the real flow and not a one-to-one correlation between the flow display and the volume growth.

In general, one would expect the flow display to stabilize after about half a minute of constant flow and thereafter to be consistent with volume growth.

Meter modes

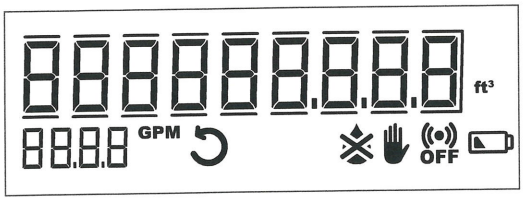
KWM4220:	Normal mode	Verification mode
Flow measurement and flow display update	1 s	0.125 s
Volume integration and volume display update	8 s	1 s

Replaceable battery

flowIQ® 4200 has two built-in D-cell lithium batteries that supply the meter. When replacing the battery, Kamstrup's Battery replacement kit no: 66-99-821 must be utilized with the relevant replacement guide.

The battery replacement kit can ONLY be ordered through Kamstrup's product service. Otherwise the warranty is void. Kamstrup's product service will also help you with the training tutorial.

Display and info codes



The large display of flowIQ® 4200 shows the totalized volume, flow rate and info.

An info code indicates a special condition in the meter. If the info code is available in the display, the related symbol is on when it has been activated. If the 'condition' is not active, the sign is off.

Info code	Condition
	Attempt of fraud. The meter is no longer valid for billing.
	The meter is dry. In this case nothing will be measured.
	The water flows through the meter in the wrong direction.
OFF	*RADIO OFF flashes. The meter is still in transport mode with the built-in radio transmitter turned off. The transmitter turns on automatically on the first time water runs though the meter.
OFF	*RADIO OFF lights permanently. The radio is switched off permanently. Can be activated via METERTOOL.
	The symbol appears when the expected capacity left is 6 months or less.

	Switch off automatically when the condition that activated them no longer exists.
	Disappears when the water no longer flows in the wrong direction.
	Disappears when the meter is filled with water.

**RADIO OFF is not available for Encoded Output meters*

Data registers

The water meter has a permanent memory, in which the values of various data loggers are saved.

The loggers can be read via the meter's optical IR interface.

The following registers are logged:

Description	Yearly logger	Monthly logger	Daily logger	Hourly logger
Logger depth	20 years	36 months	460 days	2400 hours
Operating hours	✓	✓	✓	✓
Info codes incl. hour counter	✓	✓	✓	✓
Volume	✓	✓	✓	✓
Volume reverse	✓	✓	✓	✓
Flow max year incl. Date	✓			
Flow min. year incl. Date	✓			
Flow max month incl. Date		✓		
Flow min. month incl. Date		✓		
Flow max day incl. Timestamp			✓	
Flow min. day incl. Timestamp			✓	
Ambient temp. Max Year	✓			
Ambient temp. Min. Year	✓			
Ambient temp. Avg. Year	✓			
Ambient temp. Max Month		✓		
Ambient temp. Min. Month		✓		
Ambient temp. Avg. Month		✓		
Ambient temp. Max Day			✓	
Ambient temp. Min. Day			✓	
Ambient temp. Avg. Day			✓	

Every time the information code changes, date and info codes are logged. Thus, it is possible to data read the latest 50 changes of the information code as well as the date the change was made.

Integrated communication

The meter supports a variety of different communication options depending on meter type. All radio supported meters can be used with Kamstrup's external antenna. Transmission properties and data packages are defined in the configuration number YY-ZZZ. These can be changed with METERTOOL, MeterToolX or READyApp through the optical IR interface or with a READy Converter.*

**Depending on communication protocol.*

RF

Kamstrup RF Is based on Wireless M-Bus which is a mature and proven technology for remote reading of smart meters. Wireless M-Bus provides a robust, simple and secure reading of meters and requires a low initial investment, but is flexible enough to be expanded whenever desired. Wireless M-Bus is based on an European standard (EN 13757-4) applicable to devices for reading consumption of water, electricity, or energy. The data encryption consists of a 128-bit AES counter mode encryption. Both AMR 912.5, 915 and 918.5 MHz and AMI 450-470 MHz are available.

For additional information about the Kamstrup RF communication module, please refer to FILE100003480.

Encoded Output

The Sensus Encoded Output and TouchRead are implemented based on Sensus specification UI-1203 and UI1204. Encoded Output is compatible with several 3rd party RF network systems. Kamstrup Encoded Output supports Sensus Encoded Output systems and Sensus TouchRead systems. In addition, Neptune ProRead, Neptune E-coder systems and others are supported.

For additional information about the Encoded Output communication module, please refer to FILE100003729.

State of the art meter reading system (READy)

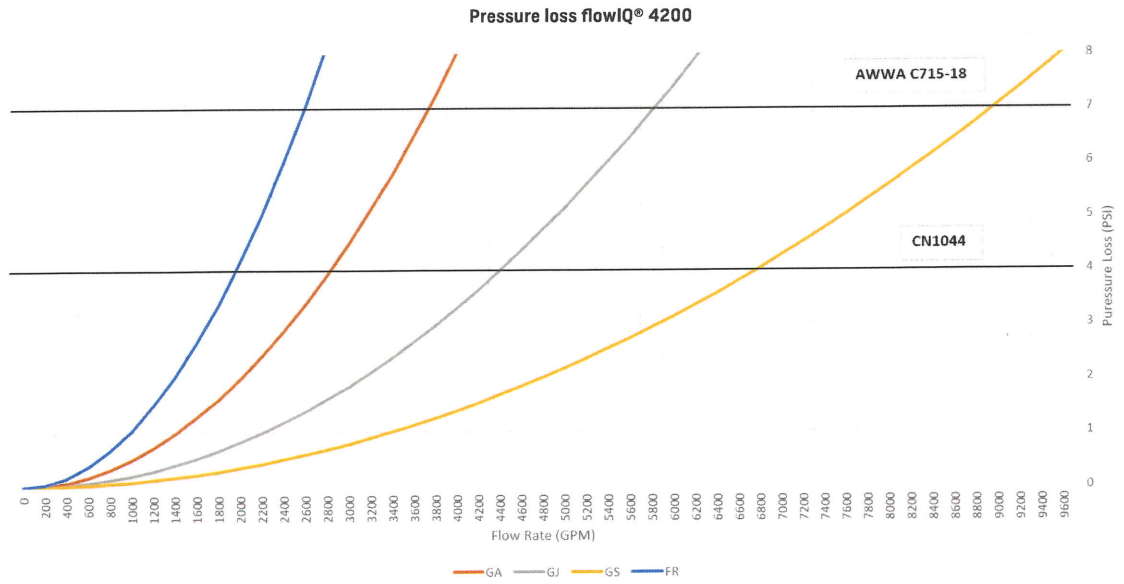
Standardized and open communication
902-928 MHz band RF is an open standard, following EN13757-4:2010, which means that while the flowIQ® 4200 can be configured with or without encryption of the transmitted signal, encryption is required in the United States.

Encryption protects personal data against unauthorized monitoring. Furthermore, the encryption file provides easy access to import meter data for reading programs.

Pressure loss

According to AWWA C715-18 guideline Type II) the maximum pressure loss must not exceed 7 PSI (0.48 bar) at SMOC for water meters. According to CN1044 the maximum pressure loss must not exceed 4 PSI (0.27 bar) at SMOC for Fire Service water meters.

The following graph shows pressure loss with respect to flow rate:



The pressure loss graph is indicative, please see document no.: FILE100000198 for more information about pressure loss.

Ordering details

An order is initiated by stating the type number of the selected model of flowIQ® 4200. The type number includes information on meter type - meter version, size, lay length, service connection and time zone.

Subsequently the meter configuration, which determines customer-specific requirements such as number of digits in display etc., is selected. The configuration is completed during programming of the final meter.

Accessories are enclosed separately to be mounted by the installer.

Meter type - flowIQ® 4200

Type	□□	□	□□	□	□	□□	□	□□
Meter generation								
Second generation	02							
Mechanical design								
Stainless steel with iron split flanges		E						
Communication								
RF			02					
Encoded Output			41					
Power supply								
Double D-cell				G				
Dynamic range								
AWWA C715-18					1			
Meter size								
6" x 11.8" (1600 GPM)						FR		
8" x 13.8" (2800 GPM)						GA		
10" x 17.7" (4500 GPM)						GJ		
12" x 19.7" (5500 GPM)						GS		
Meter type								
Cold water							8	
Country code								
North America, FCC and NSF approved								UB
Canada, ISED and NSF approved								CA
FM fire service approved								FM

The features included in the type number cannot be changed once the meter has been produced.

Configuration

Config	DDD □□□	JJ □□	LLL □□□	MMMM □□□□	N □	P □	S □	U □	RR □□	CCC □□□	V □	T □	YY □□	ZZZ □□□
Display views [1]														
Standard	810													
GMT offset Time zone														
USA Eastern (GMT-5)		28												
USA Central (GMT-6)		24												
USA Mountain (GMT-7)		20												
USA Pacific (GMT-8)		16												
Target date (handled as order data)														
Max values averaged over time (1..120 min.)														
2 minutes			002											
Customer label														
Customer label blank				5000										
Leakage message limit														
OFF					9									
Pipe burst limit														
OFF						0								
Ambient Temperature low limit														
OFF							0							
Ambient temperature < 2 °C / 36 °F							2							
Ambient temperature < 3 °C / 37 °F							3							
Ambient temperature < 6 °C / 43 °F							6							
Ambient Temperature high limit														
OFF								0						
Ambient temperature > 35 °C / 95 °F								3						
Ambient temperature > 45 °C / 113 °F								6						
Data logger profile														
Standard (default)									04					
Standard Encoded Output									15					

To be continued on next page...

Configuration

Config	DDD □□□	JJ □□	LLL □□□	MMMM □□□□	N □	P □	S □	U □	RR □□	CCC □□□	V □	T □	YY □□	ZZZ □□□
...continued from previous page														
Display resolution (alphanumeric)														
000000000 ft³ - 0000 GPM – Billing in 1,000s										154				
0000000000 Usgal - 0000 GPM - Billing in 10s (recommended for district meters)										224				
For additional options please refer to FILE100002712														
Temperature units of measure														
Fahrenheit											1			
Celsius											0			
Encryption level														
Encryption with separately forwarded key												3		
No encryption (applicable for Encoded meters)												0		
Communication														
For communication protocols please refer to the specific module data sheets														

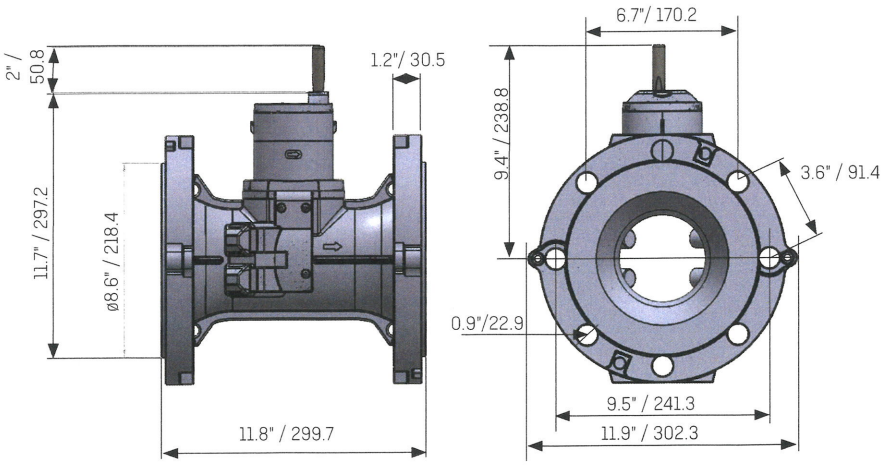
	DDD	JJ	LLL	MMMM	N	P	S	U	RR	CCC	V	T	YY	ZZZ
Unless otherwise stated in the order, Kamstrup supplies the following:	810	□□	002	5000	0	0	3	3	04	224	1	3	YY	ZZZ

Note: JJ (timezone) and target date are not predefined and has to be chosen in the ordering system.

Dimensional sketches

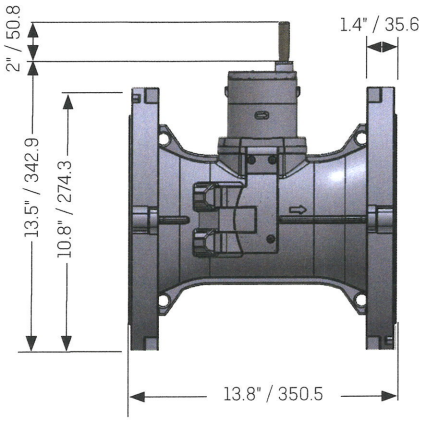
Type: FR Size: 1600 GPM 6" x 11.8"

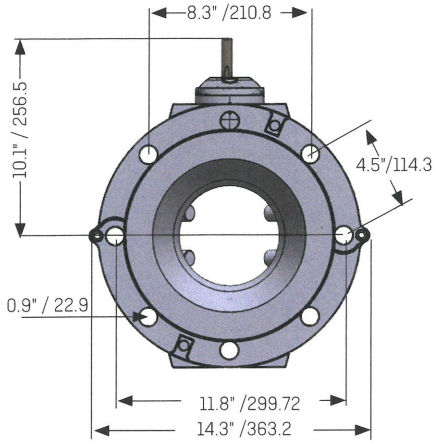
NOTE! Same flanches for in- and outlet. / Dimensions: Inches/mm



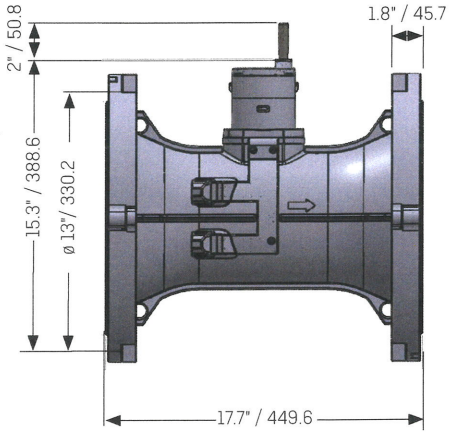
Dimensional sketches

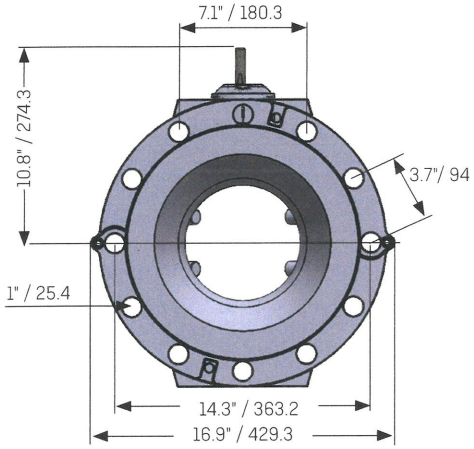
Type: GA Size: 2800 GPM 8" x 13.8"



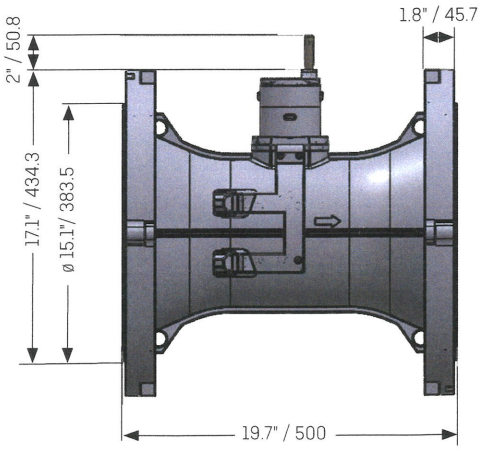


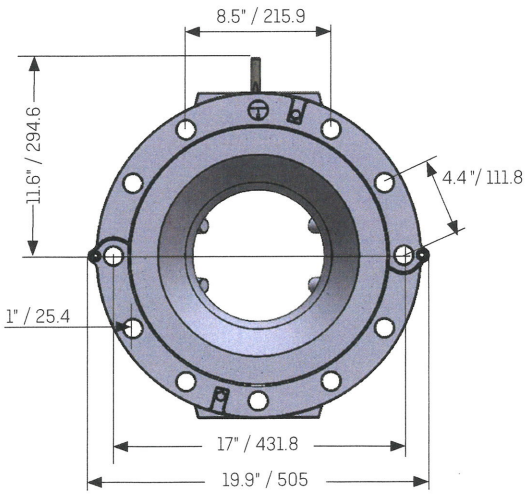
Type: GJ Size: 4500 GPM 10" x 17.7"





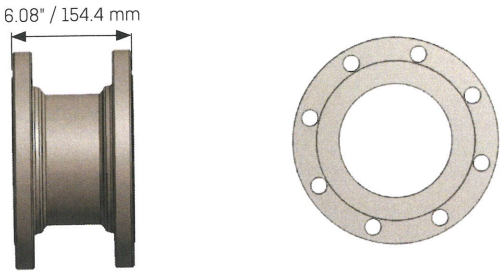
Type: GS Size: 5500 GPM 12" x 19.7"



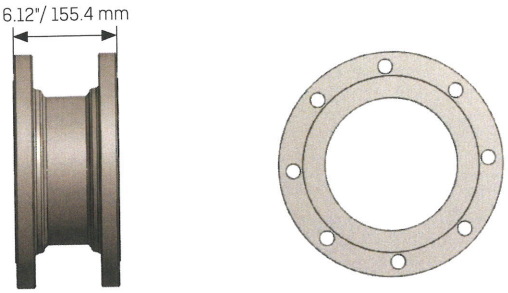


Dimensional sketches

Spool piece for 6" (FR)



Spool piece for 8" (GA)



Accessories

See Accessories for Water Meters on Kamstrup.com.

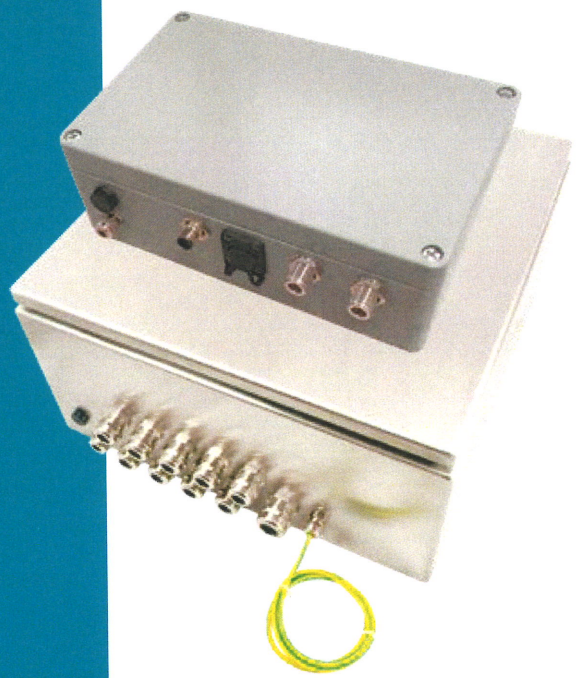
Accessories are ordered separately in CPQ (Kamstrup ordering system) and will be delivered as single parts in the packaging.

Kamstrup Water Metering, LLC
2855 Forsyth Commerce Way, Building 200
Cumming, GA 30040, USA
T: +1 (404) 835-6716
info-us@kamstrup.com
kamstrup.com

Data sheet

Kamstrup READy Collector

- Data collector for smart meter reading
- Rugged design
- 2-way intelligent network
- High level of security, individual encryption keys
- Optional Cellular connection
- Intelligent power management
- Instant event notification
- Plug-and-play installation



Contents

A READy Suite component	3
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Technical data	4
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A READy Suite component

The Kamstrup READy Collector is a central easy to use two way network component in your AMI network. The data is collected from the meters, stored until the planned transmission and displayed in READy Manager the Meter Data Management software. The data can be collected in a number of differing time frames up to hourly readings, and If an event occurs, this data will be transmitted immediately, independent of your data scheme.

The Kamstrup READy Collector is a rugged design that is to be uses in the harshest of conditions, such at the top of towers or elevated storage tanks, where service can be difficult. Temperature extremes and lightning protection has been thoughtfully included in the engineering of the collector unit. Other important features of the system is that no coax is necessary between the Collector unit and bottom unit, just standard off the shelf wiring components. The bottom unit has been built with industrialized components incorporating multiple surge protection systems, and power supply for use in the most challenging conditions.

Features

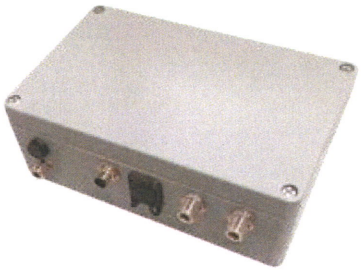
- Easiest to learn and understand system available
- No IT experience necessary
- Built in redundancy
- Fault tolerant system
- Two-way communication
- High-level security all the way
- Intelligent power management
- Instant event notification

Technical data

The Kamstrup READy Collector can be ordered as prepared for one and up to four READy Collector top units.
The system consists of a READy Collector Base unit supplying power and network for the READy Collector Top unit.
Both a READy Collector Top and a READy Collector Base are required.

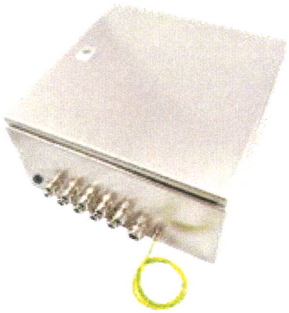
Kamstrup READy Collector Top

Dimensions (without connections)	10.2 x 6.3 x 3.6 inches 260 x 160 x 91 mm
Weight	6.23 lb 2.85 kg
Operating temperature	-22 to 149 °F (-30 to 65 °C)
Storage temperature	-40 to 185 °F (-40 to 85 °C)
Enclosure rating	NEMA 4, IP66
Power input	24 VDC
Frequency	450 - 470 MHz FCC license required
Capacity	Up to 25.000 Kamstrup Water meters
Supported meters	flowIQ® 2250 and 3250



Kamstrup READy Collector Base

Dimensions (without connections)	15.5 x 12.3 x 7.1 inches 394 x 313 x 181 mm
Weight	Dependant on configuration
Operating temperature	-22 to 149 °F (-30 to 65 °C)
Storage temperature	-40 to 185 °F (-40 to 85 °C)
Enclosure rating	NEMA 4, (IP66)
Power input	110-265 VAC 50/60 Hz
Power output	24 VDC/10 A



AMI-antenna

Length	58 inches
Frequency	440 – 470 MHz
Gain	3 dB



Antenna cables

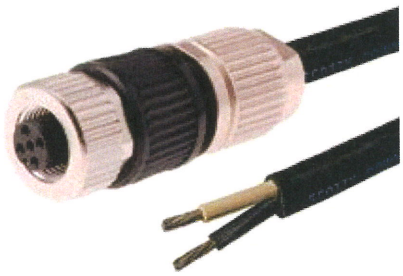
6.5 feet (2 m)
16.4 feet (5 m)



Technical data

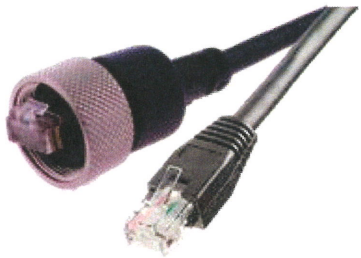
Power cable to READy Collector Top

Length between READy Collector Top and Base:
6.5 feet (2 m)
50 feet (15 m)
80 feet (24.5 m)
150 feet (45.7 m)
200 feet (61 m)
240 feet (73 m)
Note: Must match length with the Ethernet cable.



Ethernet cable to READy Collector Top

Length between READy Collector Top and Base:
6.5 feet (2 m)
50 feet (15 m)
80 feet (24.5 m)
150 feet (45.7 m)
200 feet (61 m)
240 feet (73 m)
Note: Must match length with the Power cable.



Sierra Wireless modem

For the READy Collector Base



GSM antenna

Used for the Sierra Wireless modem
Comes with a 16'4" cable



Ordering data

To order the READy Collector Base with all equipment use order number: **READyCollector**.
Order the Ready Collector Top on: **6696100000**

For individual ordering, use the following order numbers:

READy Collector Top	
READy Collector Top	6696100000
READy Collector Base	
READy Collector Base without modem	6696200000
READy Collector Base with modem	6696210000
Note: Antenna for modem not included, see accessories	
Accessories	
AMI Antenna	
Note: The system requires two antennas for each READy Collector Top	6697450
Antenna cables for READy Collector top	
Cable between READy Collector Top and AMI antennas	
6.5 feet (2 m)	5000 398
16.4 feet (5 m)	5000 388
Note: The system requires a pair of two equally lengths	
Ethernet cable to READy Collector	
Length between READy Collector Top and Base	
6.5 feet (2 m)	5000 476
50 feet (15 m)	5000 478
80 feet (24.5 m)	5000 480
150 feet (45.7 m)	5000 482
200 feet (61 m)	5000 484
240 feet (73 m)	5000 486
Note: Must match length with the power cable	
Power cable to READy Collector	
Length between READy Collector Top and Base	
6.5 feet (2 m)	5000 477
50 feet (15 m)	5000 479
80 feet (24.5 m)	5000 481
150 feet (45.7 m)	5000 483
200 feet (61 m)	5000 485
240 feet (73 m)	5000 487
Note: Must match length with the Ethernet cable	
Installation parts	
Bracket kit for READy Collector Top	5915 519
Antenna beam 39" (1 m)	5000 474
Bracket for Antenna beam	5000 475
Modem	
SIERRA Wireless Modem RV50X	1308101
Antenna for SIERRA Wireless Modem RV50X	1653105

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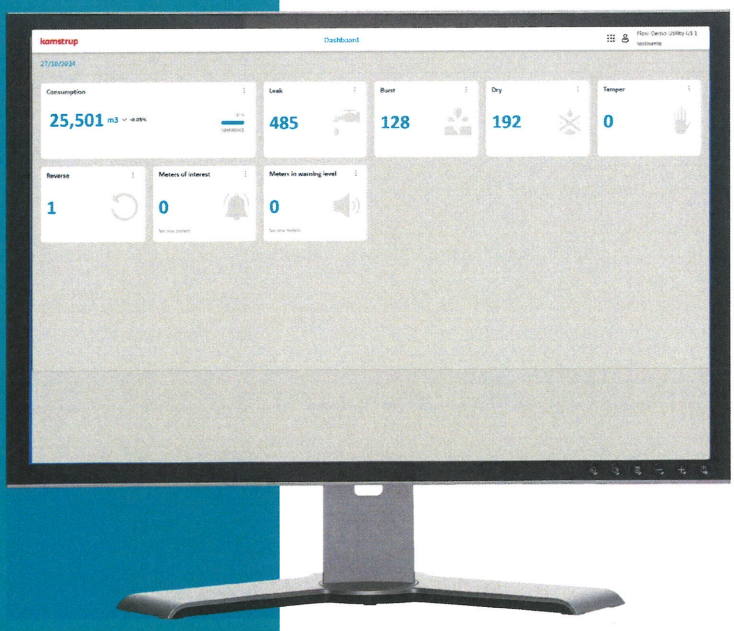
Data sheet

READy Manager and App

Intuitive, scalable, cloud- and app-based single platform solution for reading and managing data from intelligent water meters

- Powerful and flexible data integration and API support
- App with built-in meter installation tool
- Effective alarm management
- Near real-time notifications



READy Manager: Easy to use and with a multitude of functionalities

READy Manager is Kamstrup's software solution for managing meter and radio data, network collectors, and intelligent alarm management and notifications as well as data reporting and integrations. The solution is highly intuitive and job execution centric, allowing the user to easily view and manage system occurrences from a top-down perspective, e.g., the at a glance dashboard displays alarm summaries making it possible to dive into actions from there. READy Manager is hosted regionally in a Microsoft Azure cloud setup with up-to-date rigorous security protection to keep your data safe.

Highlighted features:

Data Management

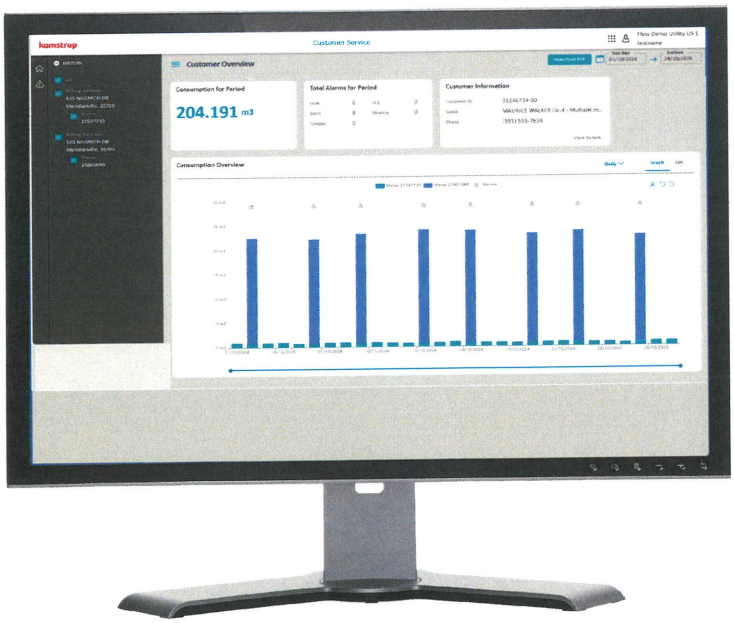
- Single software platform for AMR, AMI and NB-IoT data reading and alarm support
- High data security utilizing Kamstrup encryption keys for advance security with AES-128 bit encryption
- Alarm management for thresholds and normal vs. high priority alarms
- Data import and export functionality for customer integrations and data analysis
- Management of mobile route creation and AMR reads/ alarms
- Network Collector management and notifications
- Alarm notifications via email or SMS

Data Integration

- Flexible user-defined import and export integrations with customizable CSV, fixed width, or API formats for billing or data analysis
- Automatic import and export functionality (scheduling)
- Possibility of receiving readings by email (predefined intervals)
- Advanced filtering
- API integration using REST and Webhook (SHA-256) via JSON (e.g. for consumption to do billing)

Data Visualization

- At a Glance Dashboard for a fast operational overview
- An optimized customer service module that facilitates the good consumer dialog
- Meter/Collector location on a map
- Automatic GIS coordinates based on addresses
- Alarms overview with flexible filtering options
- Display of logged data from meters
- Grouping of meters
- User defined custom columns and groups
- Analysis of users by high/low or no consumption



READy Manager: Hardware and software requirements

PC core components

Type	Minimum	Recommended
Processor	Intel Core I3 compatible processor (2.4 GHz)	Intel Core i5 compatible processor (Intel Core i5-6300U, 2.4 GHz or faster)
RAM	8 GB	16 GB

System and connectivity requirements

Microsoft Windows 10 (64 bit) compatible device (e.g., PC). The device must be fully updated via Windows Update.

Internet access and open outgoing TCP/443 is required.

Data retention

Reading data collected via network and drive-by is thinned according to the following rules:

- During the first 13 months, all readings are stored
- After 13 months, readings are compressed to 1 per day
- After 5 years, all readings are deleted

Security

Kamstrup is ISAE3000 and ISO27001:2022 certified, and works in alignment to relevant aspects of CIS18 and the IEC62443 set of standards.

READy App – mobile reading and installation tool

READy App is a mobile application that – together with a Bluetooth®-connected converter – changes your smartphone into an efficient installation, reading, data logging, and field tool. READy App is extremely intuitive and enables meter reading and data synchronization with the READy HES data management software easy.

The application supports meter installation, AMR meter reading (incl. AMI fallback reading), and exchange of meters. Additionally, it can be used together with a Bluetooth®- connected optical read-out head to read the data logger in the meter.

In reading mode, a map shows the geographical position of not yet read meters, making meter reading with READy App very simple and efficient. Visual and audible notifications guide the user on the progress of meter reading.

READy App features

- Easy and intuitive user interface
- Map and list view of meters and routes
- Graphical display of logged data from meters
- Display of alarms
- In-field synchronization of data with READy Manager
- Verification of the signal strength from meters
- Configuration of network components.



READy App recommended hardware

Supported smart phones	Supported tablets
Samsung Galaxy S23	Samsung Galaxy Tab S9
Samsung A Series A54	
HUAWEI P60	

Must be Android OS version 11.0 or newer to comply with security updates.

Hardware

Memory	Minimum 8 GB
Connection	Wi-Fi, Bluetooth 5.0
Display size and resolution	Minimum 4.3" and 1024 x 768

In addition, some features require the following:

Memory	Minimum 12 MB
Connection	Wi-Fi, Bluetooth 2.1
Display size and resolution	Minimum 4.3" and 1024 x 768

- Mobile data access (SIM card) for using map view
- Integrated camera in smartphone (for easy pairing of PC software and smartphone app).

Software

Andriod OS	Minimum version 11 (Security updated)l

IP access to PC software via Wi-Fi Google Play access (Google account).

Kamstrup Water Metering, LLC
2855 Forsyth Commerce Way, Building 200
Cumming, GA 30040, USA
T: +1 (404) 835-6716
info-us@kamstrup.com
kamstrup.com

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Data Sheet

Water Intelligence US

- Cloud based platform for analyzing data
- Intuitive dashboards and detailed overview of the distribution network
- Advanced algorithm processing based on meter data
- Utilizing new technologies to help utilities reduce their non-revenue water



Contents

Water Intelligence	2
Modules for Water Intelligence	3
Hardware requirements	5
Data requirements	5
System requirements	6
Other requirements	7
Data hosting	7

Water Intelligence

Non-revenue water is a well-known global problem that results in large volumes of water being lost. It is a challenge faced by many water utilities, and it is often caused by increased urbanization and ageing distribution networks, which lead to a higher demand and increased prices.

There are different approaches to find the root cause of the water loss problem and different approaches of how it can be reduced. However, the complexity is often underestimated because of the different types of water loss, each of which needs to be dealt with differently.

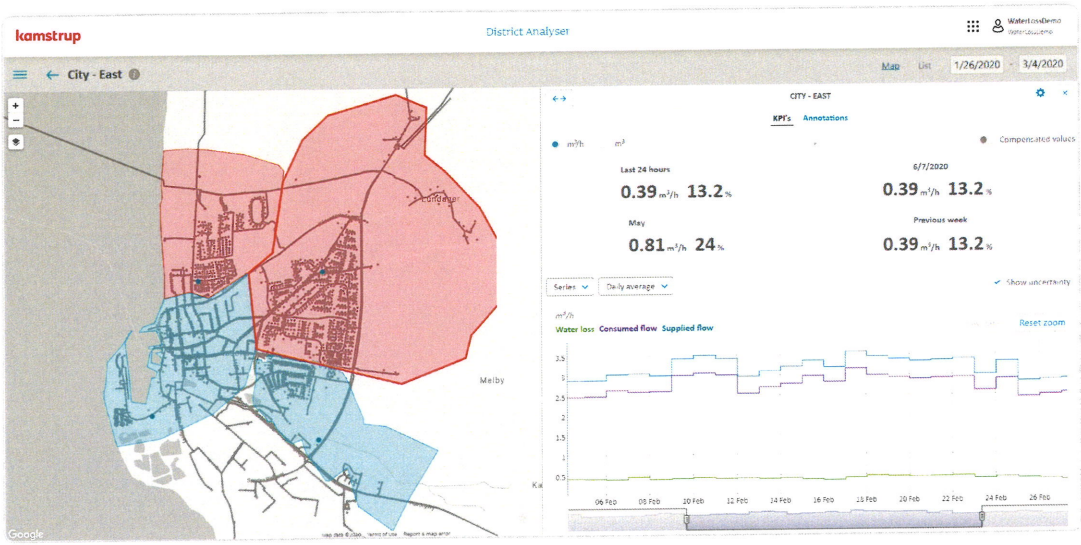
With our Water Intelligence platform, you will be provided with a solution that scales to meet the demands of your utility.

With a simple and intuitive web interface, Water Intelligence is tailored and designed to bring power and simplicity to the process of fighting non-revenue water.

Modules for Water Intelligence

District Analyzer

Get a complete overview of your distribution network split into districts. For each district, you will receive detailed information on inlet flow, consumption, night flow and water loss, which lets you monitor developments closely, target your efforts and act as soon as the water loss increases in a district.



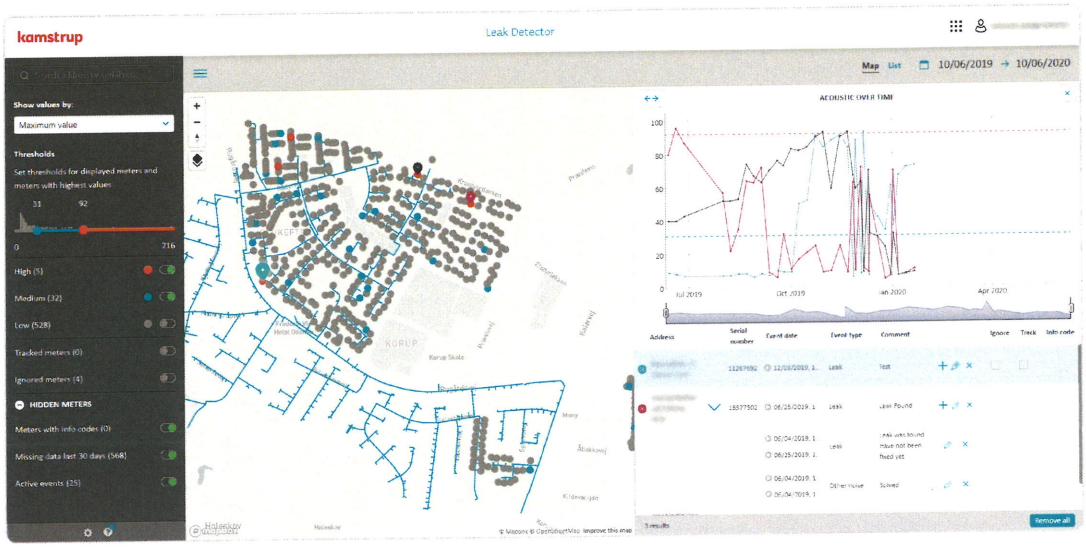
Features that are included in District Analyzer consists of:

- Map view with color coded districts
- List view with meta data for districts
- Graphical representation of consumed water, supplied water and water loss
- KPI reporting based on water loss during last day, week and month
- Intuitive drawing tool for districts/sections
- Integration of pipe layer network to know where meters are in connection to the pipes
- Addition of compensated water such as pipe flushing
- Alarm system to indicate if a water balance is moving in a wrong direction.
- Advanced algorithms to monitor water balances

Modules for Water Intelligence

Leak Detector

It can be difficult to find leaks in the system, especially those on the service pipes. With the advanced technology of Leak Detector, you get a complete overview of potential leakages in your distribution network, without searching for them yourself. With this application, you will receive 24/7 monitoring of your distribution network, which lets you target your efforts where they will be most effective.



Features that are included in Leak Detector consists of:

- Map view with color coded installations
- List view with meta data for all meters
- Track meters to always have a list of important installations that needs to be tracked every day, week or month
- Add events and comments to installations with findings from the field, to easier make a decisions based on past findings
- Graphical representation of data to quickly determine if an installation is requiring immediate action
- Integration of pipe layer network to know where meters are in connection to the pipes
- Advanced filtering giving you the possibility to quickly find high-risk installations
- Build a work-order list with installations that have active events
- Correlate alarms with active alarms to determine if a leak is before or after the meter

Hardware requirements

Windows
To use the Water Intelligence website on Windows, you need the following:

- Windows 7, Windows 8, Windows 8.1, Windows 10 or later
- An Intel Pentium 4 processor or later that is SSE2-capable
- 2 GB of RAM

Linux
To use the Water Intelligence website on Linux, you need the following:

- 64-bit Ubuntu 14.04+, Debian 8+, openSUSE 13.3+ or Fedora Linux 24+
- An Intel Pentium 4 processor or later that is SSE2-capable
- 2 GB of RAM

Data requirements

District Analyzer
To make a coherent analysis of the network, it is a requirement that we can receive data from the district meter(s) in your network.

- The district meter(s) must be remotely read from an API or an FTP server
- The district meter(s) must be remotely read on a daily or hourly basis
- It must be possible to define inbound and outbound district meter(s) for each district
- The consumption meter(s) must be present in READy Manager at all times
- The consumption meter(s) must be read either through AMR or AMI

Leak Detector
To utilize the full potential of the Leak Detector module, we advise you to have the solution with daily values.

- The consumption meter(s) must be present in READy Manager at all times
- The consumption meter(s) must be read either through AMR or AMI

System requirements

Kamstrup recommends that you use the Water Intelligence website using a modern web or mobile browser to get the optimal experience. This section covers the system requirements for viewing and using the Water Intelligence website.

Browser requirements
The Water Intelligence website supports many popular web and mobile browsers. By using one of the following browsers, we can guarantee an optimal experience:

- Microsoft Internet Explorer 8 or newer (it is recommended to use the latest Microsoft Edge browser)
- Google Chrome, latest version

Recommended settings for mobile devices
With the rapid development of mobile devices, it is utterly important for us that you can have the same experience on your mobile device as you have on your desktop computer. This is why we have also optimized the Water Intelligence website to be compatible with the following mobile devices:

Android
- Devices: All android phones and tablets
- Android 5.0+

Windows
- Devices: All tablets and smartphones
- Windows 8.1+

For Android, the Water Intelligence website does not fully support the earlier versions of the WebKit browsers that were previously used in 2013 by Google. Instead, consider using the Chrome Mobile browser if you experience any problems.

Other requirements

JavaScript
Water Intelligence uses JavaScript for many functions and features. For the full experience, it is required to enable JavaScript in your browser. Consult your browser's Help section for information on how to change this setting.

Cookies
Some features and functions of the Water Intelligence website, e.g. region selection for the map, user sign-in and statistical analysis, require browser cookies to be enabled. Consult your browser's Help section for information on how to change this setting. For more information about Kamstrup's use of cookies, see https://www.kamstrup.com/en-en/about-kamstrup/cookie-information.

Internet connection
To use the Water Intelligence website, it is required to have an internet connection. As with any other web-based application, it is a must that we can get in contact with the data that we need in order to make the analysis reports as coherent as possible. 1 Mbps is recommended for using the Water Intelligence website.

Data hosting

All data that rests within the Water Intelligence suite is hosted on the Microsoft Azure platform on a cloud hosted environment in the United States of America to ensure optimal performance on load times.

We have also created the data center in US to ensure that data stays within US, thus complying with data regulations and laws.

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Data Sheet

READy Converter, Advanced

- All-in-one box solution
- Flexible converter suitcase for meter reading
- Rugged design
- Long battery lifetime
- Support of Wireless M-Bus Communication, C mode



Contents

Part of READy Suite	2
What is in the suitcase?	3
Technical data	3
Mechanical data	4
Power supply	4
Dimensions	5
Marking/standards	5
FCC Cautions	6
Canadian Compliance Statement	7
Safety information/disposal	8
Order information	8
Accessories	8

Part of READy Suite

READy Converter, Advanced is part of the READy Suite and is responsible for the automatic data collection from smart water meters equipped with Wireless M-Bus communication.

READy Suite is a unique standardized Wireless M-Bus solution for easy and fast reading of smart water meters.

The reading of the smart water meters takes place using the READy Converters which receives data and sends this to a smartphone/tablet which is responsible for storing the data. Each READy device can contain data from up to 15,000 meters.

The direct communication between the smart water meters and READy Converter is based on a comprised one-way communication protocol focusing on fast, safe and robust data communication and long battery lifetime. This comprised communication protocol is called C mode.

Due to the optimized Wireless M-Bus communication protocol, the READy Converter advanced can receive data from up to 30 smart water meters per second, making it a perfect drive-by solution.



What is in the suitcase?

READy Converter is delivered ready to use in a box containing:

- 2 x READy Converter
- 2 x whip antenna
- 2 x mobile holders
- 2 x magnetic roof antenna w/ 118" cable
- 1 x quick guide

The intuitive quick guide leads you through the installation of the PC software and the smartphone app and shows you how to connect software, app and converter unit with each other.

Technical data

READy Converter

Communication interfaces

Meter reading	Wireless M-Bus, C mode
Data transfer to smartphone/tablet	Smartphone/tablet wireless interface

Further interfaces

Charging	Micro USB
Optical interface	3 x LED for battery status
User interface	ON/OFF button

Frequencies

Wireless M-Bus	912.5 / 915 / 918.5 MHz
Wireless reader interface	2.4 – 2.5 GHz

Mechanical data

READy Converter

LxWxD (in inches)	4.7" x 2.5" x .94" (without whip antenna) 10.8" x 2.5" x .94" (with whip antenna)
Weight (incl. antenna)	5.6 oz
IP protection class	IP41
Antenna plug	SMA (reversed polarity)
Charging plug	Micro USB

Suitcase

LxWxD	14.96" x 10.43" x 6.10"
Weight	141 oz
IP protection class	IP41

Temperature range

Charging	50 °F – 113 °F
Operation	14 °F - +131 °F
Storage	32 °F – 140 °F
Humidity	< 85 %, non-condensing

Power supply

READy Converter

3.6 VDC internal, rechargeable battery

Operation time (fully charged)	Up to 8 hours
Charging time (fully discharged)	Up to 9 hours
Charging consumption	Min. 500 mA

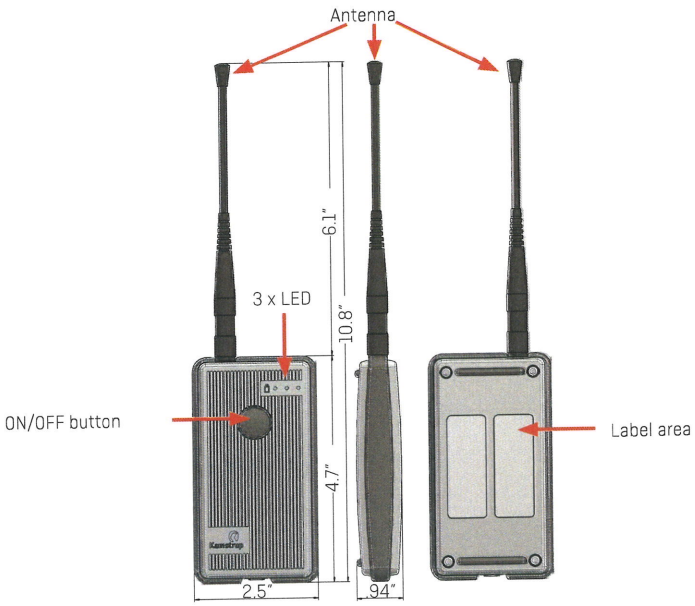
To function optimally, READy Converter must be fully charged at least once every half year.

Supported meter types

Kamstrup meters and modules supporting AMR communication (912.5 - 918.5 MHz).

Dimensions

READy Converter



Marking/standards

FCC ID: OUY-READYAMR3
RoHS
FCC part 15B
FCC part 15C
IC: 22376-READYAMR3

FCC Cautions

Caution: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of FCC rules.

Operation is subject to the following 2 conditions:

1. This device may not cause harmful interference, and

2. This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and the receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

This equipment has been approved for portable operation, and unless otherwise advised in separate supplemental instructions for individual wireless transmitter(s), requires minimum 0.6" spacing be provided between antenna(s) and all person's body (excluding extremities of hands, wrist and feet) during wireless modes of operation.

Canadian Compliance Statement

English:

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

(1) This device may not cause interference, and

(2) This device must accept any interference, including interference that may cause undesired operation of the device.

Complies with the Canadian ICES-003 Class B specifications.

This device complies with RSS 247 of Industry Canada. This Class B device meets all the requirements of the Canadian interference-causing equipment regulations.

This radio transmitter IC ID 22376-READYAMR4 has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

Whip antenna:
2.5 dBi

Roof top antenna:
5.2 dBi

Français:

Cet appareil est conforme aux normes CNR exemptes de licence d'Industrie Canada. Le fonctionnement est soumis aux deux conditions suivantes:

(1) Cet appareil ne doit pas provoquer d'interférences et

(2) Cet appareil doit accepter toute interférence, y compris celles susceptibles de provoquer un fonctionnement non souhaité de l'appareil.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Cet appareil est conforme à la norme canadienne RSS 247. Cet appareil numérique de la Classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Cet émetteur radio IC ID 22376-READYAMR4 a été approuvé par Innovation, Sciences et Développement économique Canada pour fonctionner avec les types d'antenne énumérés cidessous, avec le gain maximal autorisé indiqué. Les types d'antenne non inclus dans cette liste et ayant un gain supérieur au gain maximum indiqué pour tout type répertorié sont strictement interdits pour l'utilisation avec cet appareil.

Antenne fouet:
2,5 dBi

Antenne de toit:
5,2 dBi

Safety information/disposal

Do not try to disassemble READy Converter.
Do not expose READy Converter to open fire.
Please return READy Converter to Kamstrup A/S if the above specifications cannot be fulfilled.

Order information

READy Converter	READyConverterI

Accessories

Magnetic roof antenna, complete	6696 010
Mobile holder	6696 025
Whip antenna	5005 001

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Kamstrup Water Metering, LLC
245 Hembree Park Drive, Ste. 110
Roswell, GA 30076, USA
T: +1 (404) 835-6716
info-us@kamstrup.com
kamstrup.com

D | Propagation Study

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Propagation Study

Jerome, AZ

Consultant/Radio Planner	DEGN
Date	October 24th, 2025
Version	01.00
Approver	MAHS

Facts – from the questionnaire

No. of Meters: 332

Meter location: 100% indoor

Requested Performance: hourly

Extra info:

Conditions

The following situations are not included in the measured performance:

- Failure of third-party communications (e.g. GSM network or IP infrastructure)
- Defective meters or collectors
- Poor meter box/pit maintenance
- Meters or collectors that have been affected by external factors (e.g. vandalism, physical harm or enclosure)
- Installations that are not performed or not possible to perform in accordance with the installation instructions and training of the vendor.
- The sites should be established within 150 feet of the specified locations. Alternative locations need approval by Kamstrup.
- Antenna must be placed at minimum the specified height (above ground) and free from surrounding roofs and structures.

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Service Area

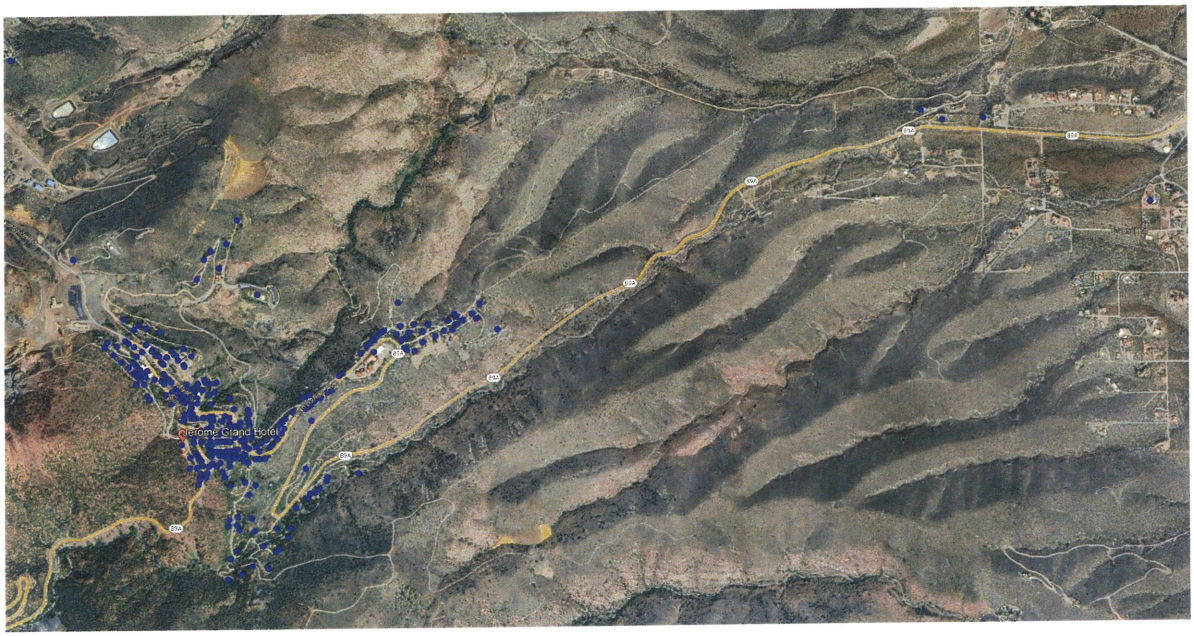

Figure 1: Service Area

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Site placement & Radio cover

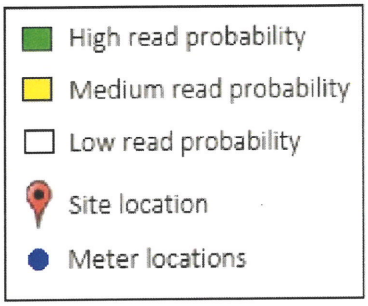
Assets Used

Asset Name	Structure Type	Address/Coordinates	Min. antenna height
Jerome Grand Hotel	New Pole	34.747629°, -112.114937°	65’

Table 1 Assets Used

Study results

When analyzing the scenarios presented in this section, refer to the legend below:



High Read Probability: Highlighted Green on the Map – very likely to receive daily reads from meter

Medium Read Probability: Highlighted Yellow on the map – likely to receive reads every other day to every seven days

Low read Probability: No highlighting shown on map – likely to not have radio signal coverage from collector

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Coverage – Indoor

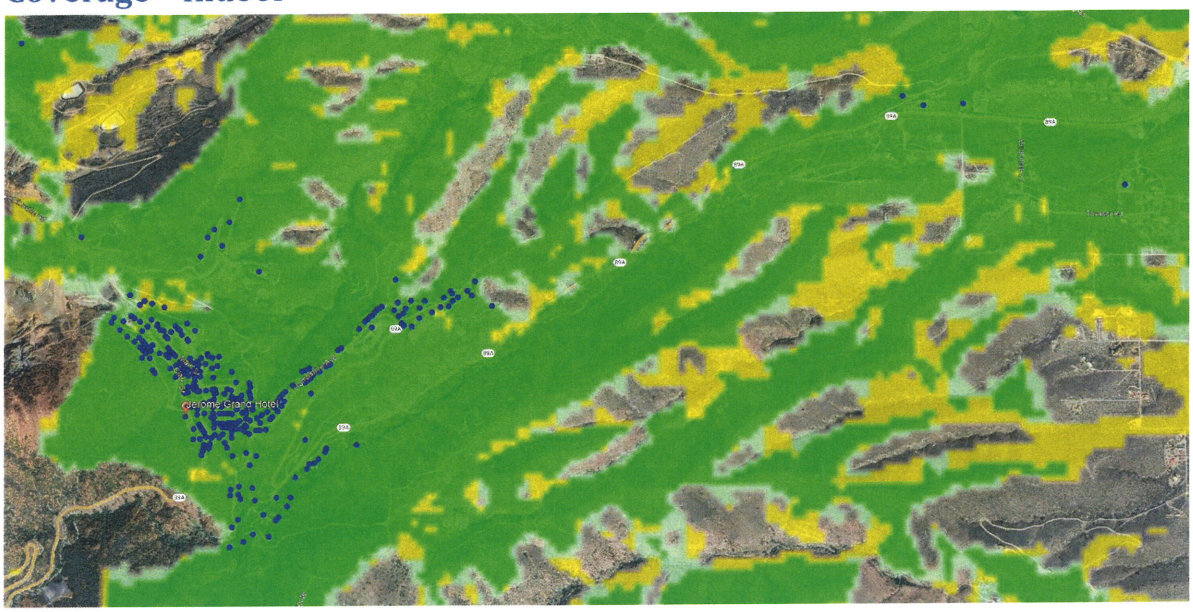

Figure 3: Indoor

Results of the propagation study

Budget with 1 collector and 1-2% external antennas for 99% coverage and 97% hourly reads for all ground floor meters with approximately 3 meters outside of coverage.

*Please note items indoors may impede signal in some cases

E | Special Conditions, Disclaimers, and Exceptions

FORTILINE
SMART UTILITY SOLUTIONS

Fortiline, Inc. d/b/a Fortiline Waterworks ("Fortiline") Exceptions to Customer Bids and Purchase Orders

These Exceptions are incorporated into and are part of Fortiline's response to Customer's request for bids or acceptance of Customer's purchase order and specifically amend or replace, as applicable, any contrary provisions in Customer's documents (the "Agreement") as follows:

1. Pricing: Due to current supply chain issues impacting pricing, the actual unit price for the Customer's project can only be determined as each product is released for shipment.
2. Payment: In no event shall Fortiline agree to payment from Customer contingent upon their receipt of payment from their customer.
3. Retainage/Offsets/Setoffs: In no event shall Fortiline agree to any retainage, offsets, and setoffs by Customer.
4. Delivery:
   a. Deliveries of all products shall be made as agreed upon by written approval by both parties. Notwithstanding the foregoing, due to current supply chain challenges, including manufacturers' declaring force majeure, Fortiline will, use commercially reasonable efforts to meet the delivery requirements of Customer.
   b. Notwithstanding the foregoing and regardless of other provisions in the Agreement,
      i. Fortiline shall not be liable for any liquidated damages due to any circumstances beyond its reasonable control; and
      ii. Fortiline may suspend deliveries if Customer's account is delinquent.
5. Lien Waiver: Fortiline shall issue a lien waiver to Customer after receipt of full payment from Customer.
6. Warranty:
   a. Fortiline makes no warranties, express or implied, related to the products other than Fortiline warrants that products shall meet the specifications set forth in the Agreement. In addition, Fortiline shall furnish to Customer the manufacturers' certificates of warranty for the products listed in the Agreement. The warranty supplied by Fortiline shall remain in force for the full period identified by the warranty certificates.
   b. Notwithstanding the foregoing, Fortiline's warranty obligations shall not apply to any defect which arises from an improper installation or use.
7. Patents and Copyrights:
   a. Fortiline shall use commercially reasonable efforts to assist Customer in any claims or suits brought against Customer, its officers, agents, and/or employees based on a claim that the products sold by Fortiline pursuant to this Agreement constitute infringement of any United States Letters Patent or violate any other proprietary interest (including copyrights, trademarks and trade secrets), provided Customer notifies Fortiline in writing promptly of such claim or suit.
   b. Notwithstanding the foregoing, Fortiline will provide Customer with the same license rights provided to Fortiline as it relates to any use of patented and copyrighted design, device, tool, material, equipment, or process to be performed under the Agreement, to the extent permitted by Fortiline's provider. Fortiline will assist Customer in any indemnification claim against the provider for patent or copyright infringement as it relates to any such patented and copyrighted design, device, tool, material, equipment, or process.
   c. Irrespective of provisions to the contrary, with respect to any patent and copyright claims, Fortiline shall have no liability unless Fortiline has actual knowledge of a potential patent and copyright claim and fails to disclose such knowledge to Customer prior to the delivery of any services which become subject to a patent and copyright claim. In addition, Fortiline shall have no duty or obligation to conduct any patent and copyright searches or legal analysis of the results of any such search, unless Customer agrees to pay for costs associated therewith.
8. Indemnification: Fortiline shall defend, indemnify and hold Customer, its agents and employees harmless from any claims or suits, actual monetary damages, costs (including reasonable attorney fees) (collectively, "Claims") to the extent caused by Fortiline's negligence or willful misconduct. Fortiline shall not, however, defend, indemnify or hold Customer, its agents and employees harmless from any Claims to the extent caused by the negligence or willful misconduct of Customer or its agents or employees.
9. Limitation of Liability:
   a. In no event shall Fortiline be liable for any amount in excess of amounts paid by Customer under the Agreement during the twelve-month period prior to the event giving rise to such liability. Under no circumstances will Fortiline be liable for any type of incidental, special, punitive, indirect or consequential damages to Customer or any of its customers, including but not limited to, lost revenue, lost profits, replacement goods, cost of replacement goods, loss of technology, rights or services, loss of information or interruption or loss of use of service or equipment, even if advised of the possibility of such damages, arising under any theory of agreement, tort (including negligence), strict liability or otherwise.
   b. The parties acknowledge that Fortiline set its prices and entered into this Agreement in reliance upon the limitations of liability and the disclaimers of warranties and damages set forth herein and that the same form an essential basis of the bargain between the parties. The parties agree that the limitation and exclusions of liability and disclaimer specified in this Agreement will survive and apply even if found to have failed of their essential purpose.

If any conflict exists between the Exceptions and any provision contained in the Agreement or any other Customer document, the provisions of these Exceptions shall control and prevail.

FORTILINE
SMART UTILITY SOLUTIONS

Pricing Disclaimer

1. Prices may include applicable taxes, which the utility will be responsible for payment of said taxes if they are not able to produce a state tax-exempt certificate for Fortiline, Inc. to keep on file.
2. If, after the date of this Quote/Purchase Order, any new or increased tariffs, duties, or other government-imposed costs on materials used in the work becomes effective, the Contract Price shall be adjusted to reflect the actual increased cost to the Contractor. The Contractor shall promptly notify the [Owner/Buyer] of any such cost impact. Failure to agree on a price adjustment shall not relieve the Buyer's obligation to pay the increased cost, and the Contractor shall be entitled to an extension of time if such tariffs result in material shortages or delays and/or Contractor may permanently suspend performance because of a delay or the inability of the parties to agree upon an adjusted price.
3. Fortiline's standard terms and conditions of sale apply.
4. Payment for all meters, software, hardware, electronics, training and project management is due 30 days from the receipt of invoice.
5. Washers, flange kits, and bolt and gasket kit pricing are included as separate line items based on the meter quantities given and are subject to change. Large meter pricing and ancillary items like filler flanges, spool pieces, or additional parts necessary to ensure the new meter fits in place of the old meter are not included.
6. Installation prices given are for normal installs. Installation costs are for labor only unless otherwise noted and are for replacement of existing meter with a new meter of the same laying length and connection configuration. Additional adapters such as yoke expansion fittings, tailpieces, setting modifications, spacers, meter boxes etc. are to be supplied by Fortiline at additional costing and subject to additional installation charges. Fortiline takes every reasonable precaution to avoid damage to utility piping and meter settings. The installer will inspect each meter and setting for leaks, fragile materials, etc. before proceeding. If a valve or connection nut cannot be operated with reasonable effort, Fortiline will consult the utility. A breakdown of installation costs outside of normal installs available upon request.
7. The term Force Majeure as employed herein, shall mean acts of God, strikes, lockouts, or other industrial disturbance, act of public enemy, orders of any kind of government of the United States or any civil or military authority, insurrections, riots, epidemics, landslides, lightning, earthquakes, fires, hurricanes, storms, floods, washouts, droughts, arrests, restraints of government and people, civil disturbances, explosions, breakage or accidents to machinery, pipelines, or canals, government tariffs or government interference or other causes not reasonably within control of the party claiming such inability. It is understood and agreed that the settlement of strikes and lockouts shall be entirely within the discretion of the party having the difficulty, and that the above requirements that any Force Majeure shall be remedied with all reasonable dispatch shall not require the settlements of strikes and lockouts by exceeding to the demands of the opposing party or parties when such settlement is unfavorable in the judgment of the party having the difficulty.
8. Any additional bond requirements, Performance, Payment, etc. will result in additional charges.
9. The Municipality shall be solely responsible for providing and maintaining a continuous and reliable power source to each collector location.

Submittal Disclaimer

1. We have always prided ourselves on delivering quality products, the best value, and superior customer service. What sets us apart in this industry is this dedication to service. Since Fortiline was formed in 1997, our goal has remained the same: to supply customers with the latest products by reputable manufacturers at the most competitive prices. Exceeding our customers' expectations is what we strive for in every aspect of our business.
2. As a part of our dedication to service, we point out that this submittal contains certain information provided to Fortiline by manufacturers. Fortiline makes no warranties, express or implied, related to the products other than Fortiline warrants that the products shall meet the specifications set forth in the Agreement. Fortiline also disclaims the warranties of merchantability, fitness for a particular purpose and any warranty of non-infringement. In addition, Fortiline shall furnish to Customer any manufacturers certificates of warranty for the products listed in this submittal to the extent possible. Fortiline will not be liable for any type of incidental, special, punitive, indirect or consequential damages.

F | Warranties

kamstrup

General terms and conditions of sale and delivery for AMI READy Collector

of Kamstrup Water Metering L.L.C.

1.0 Definitions

1.1. Definitions. As used herein: (a) Seller. Seller shall refer to Kamstrup Water Metering L.L.C. and shall include its agents, subsidiaries, parent company, and any affiliated entity of Seller; (b) Buyer. Buyer shall refer to the purchaser of goods sold by Seller as set forth in the particular Sales Order, and shall include all agents, subsidiaries, parent company, and any affiliated entity of Buyer; (c) Sales Order. Sales Order shall refer to the purchase order acceptance, order confirmation or invoice issued by Seller reflecting the sale of the Products to Buyer; and (d) Products. Products shall refer to the Kamstrup AMI READy Collector, and related services if any, sold by Seller to Buyer as identified in the Sales Order.

2.0 Application

2.1. These terms and conditions shall apply to and shall govern all Sales Orders, agreements or other documents which memorialize an agreement to purchase Products from Seller, regardless of whether such Sales Order or other document references these terms and conditions. All shipments, services, sales and quotations between Seller and Buyer are subject to these terms and conditions.

3.0 Acceptance

3.1. No order by Buyer shall be effective until confirmed by Seller. No effect shall be given to any terms proposed in Buyer's purchase order, proposal, sales note, acknowledgment or other document which add to, vary from, or conflict with the Sales Order or with these terms and conditions unless otherwise agreed in writing. Any such proposed terms shall be void. Except as set forth herein, the Sales Order and these terms and conditions constitute the entire agreement between Buyer and Seller with respect to the subject matter of a Sales Order. Buyer shall be deemed to have accepted and acknowledged the Sales Order and these terms and conditions unless Buyer notifies Seller in writing of its rejection of the Sales Order and/or these terms and conditions within three (3) working days of Buyer's receipt of the Sales Order.

4.0 Termination

4.1. Seller may terminate any Sales Order or any part thereof without liability at any time by written notice. If Seller terminates any part of a Sales Order, then Buyer shall be relieved of any obligation with regard to the terminated portion of the Sales Order. Any sums paid by Buyer pursuant to a Sales Order or any portion of a Sales Order that has been terminated shall be refunded by Seller.

5.0 Price

5.1. Unless another currency is specified on the Sales Order, all monetary amounts are deemed to be expressed in US$. For orders up to $15,000, the price specified in the Sales Order shall not include any packaging, shipping or transportation costs or charges for any international or domestic freight, import duties or storage. For orders over $15,000, those items are included in the price specified in the Sales Order. A handling fee in the amount of $30.00 shall be added to all Sales Orders for less than $150.00. Unless otherwise specified in the Sales Order, the price does not include any services related to the Products, including installation, travel, consultation, evaluation, or service. Buyer may return the packaging materials to Seller, at Buyer's own expense, and shall be credited the cost of the returned packaging if such materials are received by Seller in undamaged condition.

5.2. In the event the Buyer requests changes in respect of customised Products already in progress:

5.2.1. More than 30 working days prior to date of dispatch: Kamstrup will apply an alteration/cancellation fee of $165 per cancellation.

5.2.2. 0-30 working days prior to date of dispatch: No alteration or cancellation is possible (except for return fee model – see below).

6.0 Return of goods

6.1. Products may be returned to Seller within 30 days from the date of delivery for any reason, subject to the following terms:

6.1.1. Minimum sales value of returned goods: $385. Return will not be accepted below this amount.

6.1.2. Configured Products: a credit note shall be issued for the invoice amount reduced by eighty (80) percent.

6.1.3. Non-configured Products: a credit note shall be issued for the invoice amount reduced by forty (40) percent.

6.1.4. Products that Kamstrup has purchased from third parties specially for Buyer cannot be returned.

7.0 Payment

7.1. Buyer shall pay for Products in accordance with the terms set forth in the Sales Order, or as otherwise set forth in a

General terms and conditions for AMI READy Collector

subsequent writing executed by both Buyer and Seller. If no such terms are set forth, Seller shall issue an invoice to Buyer via email or mail to the address of Buyer set forth in the Sales Order. All invoices are payable no later than thirty (30) days after receipt by Buyer. Payment shall not be contingent upon any payment to the Buyer from any third party. Seller may, at its discretion, require pre-payment from Buyer, or may require such credit terms as it deems appropriate. Seller may change any credit terms, at any time, in its discretion. If Buyer has a delinquent account with Seller, then any subsequent purchasing orders will not be processed until Buyer's account balance becomes current. Buyer may not set off any sums owed to Seller for any reason.

8.0 Taxes

8.1. Buyer shall pay, in addition to any invoiced amounts, all taxes, if applicable, upon the production, sale, shipment, or use of the Products, including, without limitation, all federal, state, or local property, license, privilege, sales, use, excise or gross receipts taxes or other like taxes and tariffs. In the event that Seller is required to pay any such taxes, Buyer shall reimburse Seller on demand for such payments and any penalties or fees related thereto.

9.0 Product Descriptions, Modifications, Improvements

All representations or references on Seller's website, in sales brochures, technical data sheets and offers as to size, weight, technical specifications, price and other details of the Products are approximate and shall not be binding on Seller unless expressly incorporated in a Sales Order. Such references are not to be deemed warranties. Seller reserves the right, at any time, to alter, change, or modify the Products without notification to Buyer, provided that the alteration, change or modification does not adversely affect the price, quality or substantial function of the Products.

10.0 Delivery

10.1. Subject to section 5.1, delivery shall be "Delivered At Place" (DAP) (Incoterms® 2020).

10.2. Shipment; Installments

10.2.1. All dates of delivery set forth in a Sales Order are approximate and nonbinding. Seller will use commercially reasonable efforts to ship the Products on or before the estimated supply date set forth in the Sales Order.

10.3. Shipment; Delays

10.3.1. Buyer acknowledges and agrees that lead time will vary according to availability of supply, transportation delays, manufacturing problems and other conditions, and that, consequently, all delivery dates communicated by Seller are estimates. Delay in delivery of any shipment of Products shall not relieve Buyer of its obligations to accept that shipment or any other shipment. Under no circumstances shall Seller, because of late delivery or non-delivery, be liable to Buyer, its agents or any other persons for any special or consequential damages, whether based upon lost goodwill, lost profits, work stoppage, impairment of or breach of contract, negligence or other alleged causes of losses to Buyer.

10.4. Seller reserves the right to deliver in installments. All such installments shall be separately invoiced and paid when due, without regard to subsequent deliveries. Delay in delivery of any installment shall not relieve Buyer of its obligation to accept remaining deliveries.

10.5. Risk of Loss

10.5.1. All risk of loss during shipment of the Products shall be in accordance with Incoterms® (2020) as referenced in the Sales Order. If no such Incoterm® is referenced, all shipments shall be shipped DAP (Delivered At Place, Incoterms® 2020).

11.0 Claims

11.1. Buyer shall inspect the Products immediately upon receipt and shall, within three (3) business days from the date of delivery, give written notice of any claim that the Products do not conform to their description as set forth in the Sales Order covering the Products or that the Products are damaged. Notations regarding such a claim shall be made on the applicable bill of lading, air waybill or delivery receipt. If Buyer does not provide such notice within the three (3) day period, the Products shall be deemed accepted by Buyer. Buyer expressly waives any rights it may have to reject or revoke acceptance of the Products after such three (3) day period. In no event, however, shall Seller be responsible for any damage or loss to Products resulting from the transportation, importation or storage of the Products.

12.0 Limited Warranty

12.1. Material and workmanship

12.2. Seller warrants that the Products shall be free from defects in Materials and Workmanship for a period (the "Warranty Period") of 24-month from date of delivery to Buyer.

During the relevant Warranty Period, Seller shall, at its sole discretion, repair or replace any defective Products at no cost or refund the purchase price for the defective Products.

12.3. WARRANTY EXCLUSIONS

ALL KAMSTRUP WARRANTIES SHALL NOT APPLY IN ANY OF THE FOLLOWING CASES: (A) PRODUCTS THAT ARE DEFECTIVE OR DAMAGED BY NEGLIGENCE OR ACCIDENT OR NATURAL DISASTERS OR EXTREME WEATHER CONDITIONS OR BY OTHER CIRCUMSTANCES BEYOND KAMSTRUP'S REASONABLE CONTROL; (B) PRODUCTS THAT HAVE BEEN IMPROPERLY STORED, COMMISSIONED, INSTALLED, USED OR MAINTAINED BY BUYER OR A THIRD PARTY, OR THAT HAVE BEEN USED OR MAINTAINED NOT IN ACCORDANCE WITH ANY INSTRUCTIONS, MANUALS, SPECIFICATIONS OR OTHER DOCUMENTATION PROVIDED BY KAMSTRUP, OR IN THE ABSENCE OF SUCH DOCUMENTATION, GENERALLY ACCEPTED INDUSTRIAL PRACTICES; (C) PRODUCTS WHICH HAVE BEEN USED IN ENVIRONMENTS WITH EXPOSURE TO ELECTROMAGNETIC PHENOMENA OR OTHER ABNORMAL ELECTRICAL INTERFERENCE, INCLUDING WITHOUT LIMITATION UNNATURAL MAGNETIC FIELDS, RADIATION OR ELECTROMAGNETIC PULSES, OR EXCESSIVE ELECTRICAL CURRENT, EXCEPT

General terms and conditions for AMI READy Collector

TO THE EXTENT PERMITTED IN THE PRODUCT SPECIFICATION; (D) PRODUCTS WHERE ANY SERIAL NUMBER OR SECURITY SEAL HAS BEEN INTERFERED WITH; (E) NORMAL WEAR AND TEAR, WHICH DOES NOT AFFECT ITS FUNCTIONALITY; (F) PRODUCTS THAT ARE EXPERIMENTAL, DEVELOPMENTAL, PROTOTYPE, OR PILOT; OR (G) PRODUCTS WHICH HAVE BEEN USED AFTER DISCOVERY OF THE DEFECT.

12.4. Product Return

12.4.1. IF, WITHIN THE APPLICABLE WARRANTY PERIOD, (I) BUYER DISCOVERS ANY DEFECTS IN MATERIALS OR WORKMANSHIP, AND (II) NOTIFIES SELLER IN WRITING OF SUCH DEFECTS, AND (III) RETURNS THE DEFECTIVE PRODUCTS TO SELLER, SELLER SHALL, AT SELLER'S SOLE DISCRETION, REPAIR OR REPLACE THE DEFECTIVE PRODUCTS, OR REFUND THE PURCHASE PRICE FOR THE DEFECTIVE PRODUCTS. NO WARRANTY CLAIMS WILL BE PROCESSED IF RECEIVED AFTER THE WARRANTY PERIOD. REJECTED PRODUCTS MAY BE RETURNED ONLY WITH SELLER'S PRIOR EXPRESS WRITTEN CONSENT AND AT BUYER'S COST AND RISK. IF PRODUCTS ARE RETURNED WITHOUT SELLER'S PRIOR CONSENT, SELLER MAY REFUSE TO ACCEPT THE RETURNED PRODUCTS AND MAY RETURN THEM TO SELLER AT BUYER'S COST AND EXPENSE.

12.5. Set-Off

12.5.1. IN NO CASE WHATSOEVER, INCLUDING JUSTIFIED WARRANTY CLAIMS, IS THE BUYER ENTITLED TO RETAIN ANY MONIES OWED TO SELLER, EXCEPT UPON THE WRITTEN CONSENT OF SELLER. FURTHER, THE WARRANTIES PROVIDED FOR HEREIN SHALL NOT APPLY IN THE EVENT BUYER HAS FAILED TO REMIT PAYMENT IN FULL FOR SUCH PRODUCTS.

12.6. WARRANTY DISCLAIMER

12.6.1. WARRANTY DISCLAIMER. THE FOREGOING LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR NON-INFRINGEMENT, ALL OF WHICH ARE HEREBY EXPRESSLY DISCLAIMED.

13.0 Limitation of Liability

13.1. NOTWITHSTANDING ANY OTHER PROVISION OF THESE TERMS AND CONDITIONS, THE LIABILITY OF SELLER, WHETHER BASED IN TORT, BREACH OF CONTRACT, BREACH OF WARRANTY, OR OTHERWISE, SHALL NOT EXCEED THE PRICE OF THE PRODUCTS IN QUESTION OR WITH RESPECT TO WHICH SUCH BREACH, DEFAULT, OR NEGLIGENCE IS CLAIMED. BUYER ACKNOWLEDGES THAT THE REMEDIES PROVIDED HEREIN ARE EXCLUSIVE AND IN LIEU OF ALL OTHER REMEDIES. IN NO EVENT SHALL SELLER BE LIABLE TO BUYER OR ANY THIRD PARTY, IN CONTRACT, TORT OR OTHERWISE, FOR ANY LOSS OF PROFITS OR BUSINESS, LOSS OF USE OR DATA, OR FOR ANY SPECIAL, INCIDENTAL, INDIRECT, EXEMPLARY, PUNITIVE OR CONSEQUENTIAL DAMAGES RELATING TO THE PRODUCTS, EVEN IF SELLER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. NOTWITHSTANDING THE FOREGOING, IN THE EVENT THAT ANY CLAIM IS BROUGHT AGAINST SELLER FOR PRODUCT LIABILITY, SELLERS'S LIABILITY SHALL BE LIMITED TO A MAXIMUM OF AVAILABLE INSURANCE COVERAGE AVAILABLE FOR SUCH DAMAGE, IF ANY. ANY AMOUNT IN EXCESS THEREOF SHALL BE BORNE BY THE BUYER. SELLER SHALL NOT BE LIABLE FOR ANY DEFECT THAT WAS CAUSED BY THE PRODUCTS HAVING BEEN INTEGRATED INTO PRODUCTS OF BUYER OR THOSE OF ITS CUSTOMERS. SELLER SHALL NOT BE LIABLE IN THE EVENT THE PRODUCTS SUPPLIED WERE IMPROPERLY USED, TREATED, HANDLED, STORED OR SUPPLIED BASED ON BUYER'S INSTRUCTIONS (INCLUDING, WITHOUT LIMITATION, DESIGN DETAILS, SPECIFICATIONS, PLANS, TEMPLATES OR STORAGE AND TRANSPORT RULES).

13.2. SELLER SHALL HAVE NO LIABILITY TO BUYER IF ANY PATENT INFRINGEMENT OR CLAIM THEREOF IS BASED UPON THE USE OF THE PRODUCTS DELIVERED HEREUNDER IN CONNECTION WITH A PROCESS OR IN COMBINATION WITH EQUIPMENT, DEVICES, OR SOFTWARE NOT SUPPLIED OR APPROVED IN WRITING BY SELLER, OR USED IN A MANNER FOR WHICH THE PRODUCTS WERE NOT DESIGNED.

14.0 Indemnity

14.1. Buyer agrees to defend, indemnify and hold Seller, its officers, directors and employees, harmless from and against losses, damages, expenses, actions, attorney fees, liabilities, penalties, fines, duties as well as for any claims for injury, illness, or death of persons and damage to property arising out of, or in connection with: i) the Products after their delivery; ii) any action or inaction taken by Buyer, its employees, agents or independent contractors, with regard to the services provided with regard to the Products comprising the Sales Order; iii) arising out of or resulting from any violation by Buyer, its employees, agents, or independent contractors, of any applicable law, regulation or other mandate by a competent authority; or iv) the infringement or violation of any third party intellectual property rights which may be suffered by Seller due to the act or omission of Buyer, its employees, agents, or independent contractors.

15.0 Intellectual Property

15.1. Buyer acknowledges Seller's exclusive right, title, and interest in trademarks, logos and other markings of Seller relating to the Products, as well as in any and all manuals or documents provided by Seller relating to the Products (collectively, "Seller's Marks"), and will not at any time do or cause to be done any act or thing contesting or in any way impairing or tending to impair this right, title, and interest.

15.2. Buyer acknowledges that Seller reserves all rights and benefits afforded under federal and international intellectual property laws in all Intellectual Property relating to the Products. "Intellectual Property" means all intellectual property and/or proprietary rights, including without limitation all rights of inventorship and authorship, in inventions, patents, patent applications, and know how, for any Product, process, method, machine, manufacture, design,

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composition of matter, or any new or useful improvement thereof, as well as all copyrights, trademark, trade dress and service mark rights and all rights in trade secrets, computer software, data and databases, and mask works.

15.3. Buyer is not authorized to make any changes, additions, improvements, alterations, or modifications of any sort to the Products. Whether authorized or unauthorized, any changes, additions, improvements, alterations, or modifications of any sort to the Products made by Buyer shall inure to the benefit of Seller, and Seller shall have full right, title, and interest in them.

15.4. The rights and obligations set forth in this Section shall survive the termination of these terms and conditions.

16.0 Security Interest

16.1. Buyer hereby grants a security interest in the Collateral to the Seller to secure the payment and performance of the Obligations listed below. The Collateral shall consist of all Products now owned and hereafter acquired and wherever located, as defined in Article 9 of the Uniform Commercial Code as enacted in Georgia, which are Products acquired by the Buyer from Seller, and, all proceeds (cash and non-cash) and Products of the foregoing. The Obligations shall consist of: (i) all of Buyer's present and future indebtedness and obligations to Seller; (ii) all amounts owed under any modifications, additional advances, renewals, extensions or substitutions of any of the foregoing obligations; (iii) all costs associated with Seller's exercise of its rights hereunder; and (iv) any of the foregoing that may arise after the filing of a petition by or against Buyer under the Bankruptcy Code, even if the obligations do not accrue because of the automatic stay under Bankruptcy Code § 362 or otherwise. Any capitalized term used in this Section 16, and not otherwise defined in these Terms, shall have the meaning given to it in Article 9 of the Georgia Uniform Commercial Code. Buyer agrees to execute and deliver to Seller any and all documents necessary to perfect Seller's security interest, including all financing statements.

17.0 Cancellation for Default

17.1. Seller reserves the right to cancel all or any part of any Sales Order, without liability towards Buyer, if Buyer fails to perform under any applicable provision of these terms and conditions or of any applicable Sales Order and the failure is not cured within ten (10) days after delivery of written notice to Buyer by Seller. In the event of cancellation, Seller may exercise all rights and remedies available to it hereunder and under law.

18.0 Remedies

18.1. Seller's remedies shall be cumulative and shall include any remedies allowed by law. Seller's waiver of any breach by Buyer shall not constitute a waiver of any other breach of the same or any other provision. Acceptance of any payments shall not waive any breach. In any dispute involving moneys owed to Seller, Seller shall be entitled to all costs of collection, including reasonable attorney's fees and interest at 15% per annum or the highest rate allowed by law, whichever is greater, unless Seller agrees to a lower amount. The confiscation or detention of a shipment by any governmental authority shall not affect or diminish the liability of the Buyer to the Seller to pay all charges or other money due promptly on demand.

19.0 Insolvency

19.1. Seller shall have the right to cancel any outstanding Sales Order or any part thereof, without any liability whatsoever in the event of (i) insolvency, or anticipated insolvency, of Buyer, (ii) commencement of any proceedings, voluntary or involuntary, in bankruptcy or insolvency by or against Buyer; or (iii) the appointment of an assignee for the benefit of creditors of Buyer or a receiver or trustee for Buyer.

20.0 Disputes

20.1. Any controversy or claim arising out of or relating to these terms and conditions, or the breach thereof, shall be subject to the exclusive jurisdiction of the State courts of Georgia.

21.0 Force Majeure

21.1. Seller shall not be liable for any delay in performance of its obligations and responsibilities under a Sales Order due to causes beyond its control, and without its fault or negligence, such as but not limited to war, epidemics, embargo, national emergency, insurrection or riot, acts of the public enemy, fire, flood or other natural disaster, provided that said party has taken reasonable measures to notify the other promptly in writing, of delay.

22.0 Governing Law

22.1. These terms and conditions shall be governed by and interpreted in accordance with the laws of the State of Georgia, U.S.A., exclusive of the U.N. Convention on the International Sale of Goods.

23.0 Severability

23.1. If any provision of a Sales Order, including these terms and conditions, shall be judged by a court of competent jurisdiction to be invalid, illegal or unenforceable in any respect, such adjudication shall not affect or modify any other provision of the Sales Order, or these terms and conditions and the effect thereof shall be confined to the provision as to which such adjudication is made.

24.0 Notice

24.1. Any notice or other communication required or permitted by these terms and conditions must be given in writing and must be delivered by personal delivery (including personal delivery by overnight courier such as Federal Express, DHL, or similar overnight courier), first class mail (registered or certified), telecopy or e-mail (with a copy sent by personal delivery or first class mail), in each case addressed as follows, or to such other address or addresses as may be hereafter furnished by one party to the other

General terms and conditions for AMI READy Collector

party in compliance with the terms hereof. Notice will be deemed given when received or delivered to the principal business address of the relevant party.

25.0 Miscellaneous

25.1. Seller reserves the right to change, modify, add, or delete portions of these terms and conditions from time to time without further notice. The headings contained in these terms and conditions are included for convenience and shall not affect the language included herein.

26.0 Entire Agreement

26.1. Except as provided for herein, these terms and conditions, together with the Sales Order contain all of the terms and conditions governing the sale of the Products and may not be modified or amended by Buyer except by written agreement duly executed by the parties. Aside from the terms of any Sales Order, all prior agreements, representations, statements, negotiations and undertakings, whether oral or written, are superseded by these terms and conditions.

kamstrup

General terms and conditions of sale and delivery for Stainless Steel/PPS Meters and other Products.

for Kamstrup Water Metering L.L.C.

1.0 Definitions

1.1. Definitions. As used herein: (a) Seller. Seller shall refer to Kamstrup Water Metering L.L.C.; (b) Buyer. Buyer shall refer to the purchaser of goods sold by Seller as set forth in the particular Sales Order; (c) Sales Order. Sales Order shall refer to the purchase order acceptance, order confirmation or invoice issued by Seller reflecting the sale of the Products to Buyer; and (d) Products. Products shall refer to Kamstrup's flowIQ® water meters with a stainless steel or PPS housing (referred to as "Meters") and/or products other than meters (e.g. flow parts, antennas, collectors, other accessories and spare parts, referred to as "Non-Meter Products"), and related services if any, sold by Seller to Buyer as identified in the Sales Order.

2.0 Application

2.1. These terms and conditions shall apply to and shall govern all Sales Orders, agreements or other documents which memorialize an agreement to purchase Products from Seller, regardless of whether such Sales Order or other document references these terms and conditions. All shipments, services, sales and quotations between Seller and Buyer are subject to these terms and conditions.

3.0 Acceptance

3.1. No order by Buyer shall be effective until accepted or confirmed in writing by Seller. No effect shall be given to any terms proposed or referenced in Buyer's purchase order, proposal, sales note, acknowledgment or other document issued by Buyer which add to, vary from, or conflict with the Sales Order or with these terms and conditions. Any such Buyer proposed terms shall be void. Except as set forth herein, the Sales Order and these terms and conditions constitute the entire agreement between Buyer and Seller with respect to the subject matter of a Sales Order. Buyer shall be deemed to have accepted and acknowledged the Sales Order and these terms and conditions unless Buyer notifies Seller in writing of its rejection of the Sales Order and/or these terms and conditions within three (3) working days of Buyer's receipt of the Sales Order.

4.0 Termination

4.1. Seller may terminate any Sales Order or any part thereof without liability at any time by written notice. If Seller terminates any part of a Sales Order for convenience, then Buyer shall be relieved of any obligation with regard to the terminated portion of the Sales Order. Any sums paid by Buyer pursuant to a Sales Order or any portion of a Sales Order that has been terminated shall be refunded by Seller.

5.0 Price

5.1. Unless another currency is specified on the Sales Order, all monetary amounts are deemed to be expressed in US$. For orders up to $2000, the price specified in the Sales Order shall not include any packaging, shipping or transportation costs or charges for any international or domestic freight, import duties or storage. For orders over $2000, packaging and transportation on a DAP (Delivery at Place) Incoterms 2020 basis are included in the price specified in the Sales Order, unless otherwise stated in the Sales Order.

5.2. A handling fee in the amount of $500 shall apply to all shipments with a value of less than $2000. Unless otherwise specified in the Sales Order, the price for Products does not include any related services, including without limitation installation, travel, consultation, evaluation, or maintenance. Buyer may return the packaging materials to Seller, at Buyer's own expense, and shall be credited the cost of the returned packaging if such materials are received by Seller in undamaged condition.

5.3. No Sales Order may be canceled, altered or held, in whole or in part, without Seller's prior written consent, which may be granted or denied at Seller's sole discretion and in its own interest. If approved, the following cancellation and/or alteration fee shall apply to cover Seller's costs for materials, fabrication, engineering, testing, handling, and administration. This fee is calculated as a percentage of the canceled Product's price (excluding taxes) and is applied as follows:

5.3.1. 50% for approved cancellation or alteration requests received 60–90 days before shipment,

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5.3.2. 75% for approved cancellation or alteration requests received 30–60 days before shipment, and

5.3.3. 100% for approved cancellation or alteration requests received less than 30 days before shipment.

5.4. Seller may revise the prices for Products and services listed in its published price list at any time, by giving 30-day notice.

6.0 Return of goods

6.1. No Products or parts may be returned to Seller, without Seller's prior written consent, which may be granted or denied at Seller's sole discretion and in its own interest. If approved, returns must be made within 30 days from the date of delivery, and are subject to the following conditions:

6.1.1. Returned Products must have a value of at least $385. Products valued below this amount are not eligible for return.

6.1.2. Configured Meters and configured Non-Meter Products are not eligible for return.

6.1.3. For approved returns of non-configured Meters and non-configured Non-Meter Products, a return fee of 50% of the invoice amount will apply. Seller will issue a credit note for 50% of the invoice amount.

6.1.4. Products that Seller has purchased from third parties specifically for Buyer cannot be returned.

7.0 Payment

7.1. Buyer shall pay for Products in accordance with the terms set forth in the Sales Order, or as otherwise set forth in a subsequent writing executed by both Buyer and Seller. If no such terms are set forth, Seller shall issue an invoice to Buyer via email or mail to the address of Buyer set forth in the Sales Order. All invoices are payable no later than thirty (30) days after receipt by Buyer. Seller reserves the right to suspend its performance of any obligations under the Contract, including but not limited to delivery of Products, until such time as the overdue payment is made in full or security satisfactory to Seller has been provided.

7.2. Payment shall not be contingent upon any payment to the Buyer from any third party. Seller may, at its discretion, require pre-payment from Buyer, or may require such credit terms as it deems appropriate. Seller may change any credit terms, at any time, in its discretion. If Buyer has a delinquent account with Seller, then any subsequent purchasing orders will not be processed until Buyer's account balance becomes current. Buyer may not set off any sums owed to Seller for any reason.

8.0 Taxes

8.1. Buyer shall pay, in addition to any invoiced amounts, all taxes, if applicable, upon the production, sale, shipment, or use of the Products, including, without limitation, all federal, state, or local property, license, privilege, sales, use, excise or gross receipts taxes or other like taxes and tariffs. In the event that Seller is required to pay any such taxes, Buyer shall reimburse Seller on demand for such payments and any penalties or fees related thereto.

9.0 Product Descriptions, Modifications, Improvements

All representations or references on Seller's website, in sales brochures, technical data sheets and quotations as to size, weight, technical specifications, price and other details of the Products are approximate and shall not be binding on Seller unless expressly incorporated in a Sales Order. Such references are not to be deemed warranties. Seller reserves the right, at any time, to alter, change, or modify the Products without notification to Buyer, provided that the alteration, change or modification does not adversely affect the price, quality or substantial function of the Products.

10.0 Delivery

10.1. Subject to section 5.1, delivery shall be "Delivered At Place" (DAP) (Incoterms® 2020).

10.2. Shipment; Installments

10.2.1. All dates of delivery set forth in a Sales Order are approximate and nonbinding. Seller will use commercially reasonable efforts to ship the Products on or before the estimated supply date set forth in the Sales Order.

10.3. Shipment; Delays

10.4. Buyer acknowledges and agrees that lead time will vary according to availability of supply, transportation delays, manufacturing problems and other conditions, and that, consequently, all delivery dates communicated by Seller are estimates.

10.4.1. Delay in delivery of any shipment or installment of Products shall not discharge Buyer of its obligations to accept that or any other shipment or installment. Under no circumstances shall Seller, because of late delivery or non-delivery, be liable to Buyer, its agents or any other persons for any special or consequential damages, whether based upon lost goodwill, lost profits, work stoppage, impairment of or breach of contract, negligence or other alleged causes of losses to Buyer.

10.5. Seller reserves the right to deliver in installments. All such installments shall be separately invoiced and paid when due, without regard to subsequent deliveries. Delay in delivery of any installment shall not relieve Buyer of its obligation to accept remaining deliveries.

10.6. Risk of Loss

10.6.1. All risk of loss during shipment of the Products shall be in accordance with Incoterms® (2020) as referenced in the Sales Order. If no such Incoterm® is referenced, all shipments shall be shipped DAP (Delivered At Place, Incoterms® 2020).

11.0 Claims

11.1. Buyer shall inspect the Products immediately upon receipt and shall, within three (3) business days from the date of delivery, give written notice of any claim that the Products do not conform to their description as set forth in the Sales Order covering the Products or that the Products are damaged. Notations regarding such a claim shall be made on the applicable bill of lading, air waybill or delivery receipt. If Buyer does not provide such notice within the three (3) day period, the Products shall be deemed

accepted by Buyer. Buyer expressly waives any rights it may have to reject or revoke acceptance of the Products after such three (3) day period. In no event, however, shall Seller be responsible for any damage or loss to Products resulting from the transportation, importation or storage of the Products.

12.0 Limited Warranty

12.1. Material and workmanship
Seller warrants that the Products shall be free from defects in Materials and Workmanship during the Warranty Period defined as follows:
For Meters:
(a) of 5/8"x1/2" – 1", the Warranty Period is twenty (20) years from the date of delivery to Buyer; and
(b) of 1½" and larger, the Warranty Period is ten (10) years from date of delivery to Buyer.
For Non-Meter Products:
the Warranty Period is twenty-four (24) months from the date of deliver to Buyer.

12.2. During the relevant Warranty Period, Seller shall, at its sole discretion, repair or replace any defective Products at no cost or refund the purchase price for the defective Products.

12.3. The following sections 12.4 (Accuracy) and 12.5 (Battery Life) apply only with respect to Meters.

12.4. Accuracy

12.4.1. Seller warrants that the Meters (except for those covered in 12.4.2 below) will perform to the accuracy as defined in AWWA C715-18 (section 4.2.8 thereto) and to AWWA M6 manual (chapter 5, Testing new meters and table 5-3 defining test rates in accordance with AWWA C715).

12.4.2. In case the Meters do not comply with the warranties set out in 12.4.1 or 12.4.2, Seller shall, at its sole discretion, repair or replace any defective Meter at no cost or refund the purchase price of such defective Meters:
(a) for year one (1) through year twenty (20) following the date of delivery for the defective Meters in the size range of 5/8" x 1/2" – 1"; and
(b) for year one (1) through year ten (10) following the date of delivery for the defective Meters in the size range of 1½" and larger.

12.4.3. Any Meter accuracy claims shall be subject to verification - initiated by Seller - through testing by a NIST Traceable laboratories or ISO 17025 accredited laboratories.

12.5. Battery Life

12.5.1. Based on operation of the Meters with either communication via the three wire encoded output or with communication via the embedded radio at an ambient operating temperature not higher than stated in the technical documentation, the warranty on the system battery in the Meter shall be for a period of (a) for 5/8" x 1/2" – 1" Products, twenty (20) years from date of delivery to Buyer, (b) for 1½" and larger Meters, ten (10) years from date of delivery to Buyer and (c) for 6" – and larger Meters, ten (10) years from date of delivery to Buyer.

For (a) and (b) of section 12.5.1 Seller shall, at its sole discretion, (i) replace any Meters that contain defective batteries at no cost for year one (1) through year ten (10) following the date of delivery or (ii) refund the purchase price for the Meters that contain defective batteries. For (c) of section 12.5.1, Seller shall, at its sole discretion, during year one (1) through year ten (10) following the date of delivery, at no cost (i) replace any defective batteries or (ii) replace any Meter that contain defective batteries.
For 5/8"x1/2" – 1" Meter only, during the period commencing with year eleven (11) through year twenty (20) following the date of delivery to Buyer, Seller shall, at its sole discretion, replace any Meters that contain defective batteries at a cost to Buyer equal to the price set out in the price list valid at the time of return of the Meter, minus the discount according to the following schedule:

Year	Discount	Year	Discount
11	75%	16	40%
12	75%	17	30%
13	50%	18	20%
14	50%	19	10%
15	50%	20	10%

The warranty related to battery life for the Meters is void if the Meters at any time have been configured into priority mode.

12.6. WARRANTY EXCLUSIONS

12.6.1. ALL SELLER WARRANTIES SHALL NOT APPLY IN ANY OF THE FOLLOWING CASES: (A) PRODUCTS THAT ARE DEFECTIVE OR DAMAGED BY NEGLIGENCE OR ACCIDENT OR NATURAL DISASTERS OR EXTREME WEATHER CONDITIONS OR BY OTHER CIRCUMSTANCES BEYOND SELLER'S REASONABLE CONTROL; (B) PRODUCTS THAT HAVE BEEN IMPROPERLY STORED, COMMISSIONED, INSTALLED, USED, REPAIRED, MAINTAINED OR ALTERED BY BUYER OR A THIRD PARTY, OR THAT HAVE BEEN USED OR MAINTAINED NOT IN ACCORDANCE WITH ANY INSTRUCTIONS, MANUALS, SPECIFICATIONS OR OTHER DOCUMENTATION PROVIDED BY SELLER, OR IN THE ABSENCE OF SUCH DOCUMENTATION, GENERALLY ACCEPTED INDUSTRIAL PRACTICE); (C) PRODUCTS WHICH HAVE BEEN (I) USED WITH WATER WHICH CONTAINS LEVELS OF FOREIGN MATTER, INCLUDING WITHOUT LIMITATION, DIRT, SAND, MINERALS, DEBRIS, DEPOSITS, BIOFILMS, CHEMICAL SUBSTANCES OR OTHER IMPURITIES WHICH INTERFERE WITH OR DEGRADE THE PRODUCT OR IS NOT IN ACCORDANCE WITH MINIMUM POTABLE WATER STANDARDS REQUIRED BY APPLICABLE LAW, PROVIDED THAT, WITH RESPECT ONLY TO RECLAIMED WATER METERS: (x) USING SUCH METERS WITH WATER THAT IS NOT POTABLE WILL NOT INVALIDATE THE WARRANTY, EXCEPT WHERE POOR WATER QUALITY

ADVERSELY AFFECTS THE ACCURACY OF THE METERING EQUIPMENT TO AN UNUSUAL DEGREE, IN WHICH CASE THE WARRANTY WILL BE INVALIDATED; AND (y) USING SUCH METERS WITH WATER THAT CONTAINS FOREIGN MATTER WILL NOT INVALIDATE THE WARRANTY UNLESS SELLER DETERMINES (AT ITS SOLE DISCRETION) THAT SUCH FOREIGN MATTER HAS DAMAGED THE METERS OR AFFECTED THEIR ACCURACY TO A DEGREE WHICH IS OUTSIDE THE ACCURACY LEVELS STATED IN SECTION 12.4; OR (II) USED IN OTHER UNUSUAL ENVIRONMENTAL CONDITIONS OR IN ENVIRONMENTS WITH EXPOSURE TO ELECTROMAGNETIC PHENOMENA OR OTHER ABNORMAL ELECTRICAL INTERFERENCE, INCLUDING WITHOUT LIMITATION UNNATURAL MAGNETIC FIELDS, RADIATION OR ELECTROMAGNETIC PULSES, OR EXCESSIVE ELECTRICAL CURRENT, EXCEPT TO THE EXTENT PERMITTED IN THE PRODUCT SPECIFICATION; (D) PRODUCTS WHERE ANY SERIAL NUMBER OR SECURITY SEAL HAS BEEN INTERFERED WITH; (E) NORMAL WEAR AND TEAR; (F) PRODUCTS THAT ARE EXPERIMENTAL, DEVELOPMENTAL, PROTOTYPE, OR PILOT; OR (G) THE DISCONTINUATION OF NETWORK/COMMUNICATION SERVICES (INCLUDING BY LOSS OF CONCESSION, DISSOLUTION, BANKRUPTCY, OR CESSATION OF BUSINESS), OR THE PHASE-OUT OR REPLACEMENT OF THE NETWORKS AND/OR COMMUNICATION TECHNOLOGIES SUPPORTING THE PRODUCTS IF SUCH CHANGES RENDER THE PRODUCT UNABLE TO FUNCTION AS REPRESENTED AT THE TIME OF ENTERING INTO THE CONTRACT; (H) ANY DISRUPTION OR DEGRADATION IN PRODUCT PERFORMANCE DUE TO VULNERABILITIES OR DEFICIENCIES IN NETWORKS TO WHICH THE PRODUCT IS CONNECTED; OR ANY DEFECT OR DAMAGE ARISING DIRECTLY OR INDIRECTLY FROM CYBER-RELATED INCIDENTS, INCLUDING WITHOUT LIMITATION HACKING, MALWARE, VIRUSES, RANSOMWARE, DATA BREACHES, UNAUTHORIZED ACCESS, OR ANY OTHER FORM OF CYBER-ATTACK OR DIGITAL INTERFERENCE (COLLECTIVELY, "CYBER-RELATED INCIDENTS"); OR (I) PRODUCTS WHICH HAVE BEEN USED AFTER DISCOVERY OF THE DEFECT.

12.7. Product Return

12.7.1. IF, WITHIN THE APPLICABLE WARRANTY PERIOD, (I) BUYER DISCOVERS ANY DEFECTS IN MATERIALS OR WORKMANSHIP, AND (II) NOTIFIES SELLER IN WRITING OF SUCH DEFECTS, AND (III) RETURNS THE DEFECTIVE PRODUCTS TO SELLER, SELLER SHALL, AT SELLER'S SOLE DISCRETION, REPAIR OR REPLACE THE DEFECTIVE PRODUCTS, OR REFUND THE PURCHASE PRICE FOR THE DEFECTIVE PRODUCTS. NO WARRANTY CLAIMS WILL BE PROCESSED IF RECEIVED AFTER THE WARRANTY PERIOD. REJECTED PRODUCTS MAY BE RETURNED ONLY WITH SELLER'S PRIOR EXPRESS WRITTEN CONSENT AND AT BUYER'S COST AND RISK. IF PRODUCTS ARE RETURNED WITHOUT SELLER'S PRIOR CONSENT, SELLER MAY REFUSE TO ACCEPT THE RETURNED PRODUCTS AND MAY RETURN THEM TO SELLER AT BUYER'S COST AND EXPENSE.

12.8. Set-Off

12.8.1. IN NO CASE WHATSOEVER, INCLUDING JUSTIFIED WARRANTY CLAIMS, IS THE BUYER ENTITLED TO RETAIN ANY MONIES OWED TO SELLER, EXCEPT UPON THE WRITTEN CONSENT OF SELLER. FURTHER, THE WARRANTIES PROVIDED FOR HEREIN SHALL NOT APPLY IN THE EVENT BUYER HAS FAILED TO REMIT PAYMENT IN FULL FOR SUCH PRODUCTS.

12.9. WARRANTY DISCLAIMER

12.9.1. WARRANTY DISCLAIMER. THE FOREGOING LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR NON-INFRINGEMENT, ALL OF WHICH ARE HEREBY EXPRESSLY DISCLAIMED.

13.0 Limitation of Liability

13.1. NOTWITHSTANDING ANY OTHER PROVISION OF THESE TERMS AND CONDITIONS, THE LIABILITY OF SELLER, WHETHER BASED IN TORT, BREACH OF CONTRACT, BREACH OF WARRANTY, OR OTHERWISE, SHALL NOT EXCEED THE PRICE OF THE PRODUCTS IN QUESTION OR WITH RESPECT TO WHICH SUCH BREACH, DEFAULT, OR NEGLIGENCE IS CLAIMED. BUYER ACKNOWLEDGES THAT THE REMEDIES PROVIDED HEREIN ARE EXCLUSIVE AND IN LIEU OF ALL OTHER REMEDIES. IN NO EVENT SHALL SELLER BE LIABLE TO BUYER OR ANY THIRD PARTY, IN CONTRACT, TORT OR OTHERWISE, FOR ANY LOSS OF PROFITS OR BUSINESS, OPERATING LOSS, LOSS OF USE OR DATA, LOSS OF TIME, LOSS OF GOODWILL, LOSSES INCURRED UNDER CONTRACTS WITH THIRD PARTIES, OR FOR ANY SPECIAL, INCIDENTAL, INDIRECT, EXEMPLARY, PUNITIVE OR CONSEQUENTIAL DAMAGES RELATING TO THE PRODUCTS OR ARISING OUT OF BREACH OF CONTRACT, EVEN IF SELLER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. NOTWITHSTANDING THE FOREGOING, IN THE EVENT THAT ANY CLAIM IS BROUGHT AGAINST SELLER FOR PRODUCT LIABILITY, SELLERS'S LIABILITY SHALL BE LIMITED TO A MAXIMUM OF AVAILABLE INSURANCE COVERAGE AVAILABLE FOR SUCH DAMAGE, IF ANY. ANY AMOUNT IN EXCESS THEREOF SHALL BE BORNE BY THE BUYER. SELLER SHALL NOT BE LIABLE FOR ANY DEFECT THAT WAS CAUSED BY THE PRODUCTS HAVING BEEN INTEGRATED INTO PRODUCTS OF BUYER OR THOSE OF ITS CUSTOMERS. SELLER SHALL NOT BE LIABLE IN THE EVENT THE PRODUCTS SUPPLIED WERE IMPROPERLY USED, TREATED, HANDLED, STORED OR SUPPLIED BASED ON BUYER'S INSTRUCTIONS (INCLUDING, WITHOUT LIMITATION, DESIGN DETAILS, SPECIFICATIONS, PLANS, TEMPLATES OR STORAGE AND TRANSPORT RULES).

13.2. SELLER SHALL HAVE NO LIABILITY TO BUYER IF ANY PATENT INFRINGEMENT OR CLAIM THEREOF IS BASED UPON THE USE OF THE PRODUCTS DELIVERED HEREUNDER IN CONNECTION WITH A PROCESS OR IN COMBINATION WITH EQUIPMENT, DEVICES, OR SOFTWARE NOT SUPPLIED OR APPROVED IN WRITING BY SELLER, OR USED IN A MANNER FOR WHICH THE PRODUCTS WERE NOT DESIGNED.

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14.0 Indemnity

14.1. Buyer agrees to defend, indemnify and hold Seller, its officers, directors and employees, harmless from and against losses, damages, expenses, actions, attorney fees, liabilities, penalties, fines, duties as well as for any claims for injury, illness, or death of persons and damage to property arising out of, or in connection with: i) the Products after their delivery; ii) any action or inaction taken by Buyer, its employees, agents or independent contractors, with regard to the services provided with regard to the Products comprising the Sales Order; iii) arising out of or resulting from any violation by Buyer, its employees, agents, or independent contractors, of any applicable law, regulation or other mandate by a competent authority; or iv) the infringement or violation of any third party intellectual property rights which may be suffered by Seller due to the act or omission of Buyer, its employees, agents, or independent contractors.

15.0 Intellectual Property

15.1. Buyer acknowledges Seller's exclusive right, title, and interest in trademarks, logos and other markings of Seller relating to the Products, as well as in any and all manuals or documents provided by Seller relating to the Products (collectively, "Seller's Marks"), and will not at any time do or cause to be done any act or thing contesting or in any way impairing or tending to impair this right, title, and interest.

15.2. Buyer acknowledges that Seller reserves all rights and benefits afforded under federal and international intellectual property laws in all Intellectual Property relating to the Products. "Intellectual Property" means all intellectual property and/or proprietary rights, including without limitation all rights of inventorship and authorship, in inventions, patents, patent applications, and know how, for any Product, process, method, machine, manufacture, design, composition of matter, or any new or useful improvement thereof, as well as all copyrights, trademark, trade dress and service mark rights and all rights in trade secrets, computer software, data and databases, and mask works; in each case whether registered or unregistered, existing now or in the future worldwide.

15.3. Buyer is not authorized to disassemble, decompile, or reverse engineer the Products; or make any changes, additions, improvements, alterations, or modifications of any sort to the Products. Whether authorized or unauthorized, any changes, additions, improvements, alterations, or modifications of any sort to the Products made by Buyer shall inure to the benefit of Seller, and Seller shall have full right, title, and interest in them.

15.4. If Buyer establishes or acquires by operation of law or otherwise any rights to the Intellectual Property Rights, or any part thereof, it hereby transfers and assigns such rights, to the extent transferable, to Seller (or to another member of the Kamstrup Group, as directed by Seller) free of charge. For non-transferable rights, Buyer grants Seller an exclusive, irrevocable, royalty-free, worldwide license to use, exploit, and sublicense such rights.

15.5. The rights and obligations set forth in this Section shall survive the termination of these terms and conditions.

16.0 Security Interest

16.1. Buyer hereby grants a security interest in the Collateral to the Seller to secure the payment and performance of the Obligations listed below. The Collateral shall consist of all Products now owned and hereafter acquired and wherever located, as defined in Article 9 of the Uniform Commercial Code as enacted in Georgia, which are Products acquired by the Buyer from Seller, and, all proceeds (cash and non-cash) and Products of the foregoing. The Obligations shall consist of: (i) all of Buyer's present and future indebtedness and obligations to Seller; (ii) all amounts owed under any modifications, additional advances, renewals, extensions or substitutions of any of the foregoing obligations; (iii) all costs associated with Seller's exercise of its rights hereunder; and (iv) any of the foregoing that may arise after the filing of a petition by or against Buyer under the Bankruptcy Code, even if the obligations do not accrue because of the automatic stay under Bankruptcy Code § 362 or otherwise. Any capitalized term used in this Section 16, and not otherwise defined in these Terms, shall have the meaning given to it in Article 9 of the Georgia Uniform Commercial Code. Buyer agrees to execute and deliver to Seller any and all documents necessary to perfect Seller's security interest, including all financing statements.

17.0 Cancellation for Default

17.1. Seller reserves the right to cancel all or any part of any Sales Order, without liability towards Buyer, if Buyer fails to perform under any applicable provision of these terms and conditions or of any applicable Sales Order, including a payment default, and the failure is not cured within ten (10) days after delivery of written notice to Buyer by Seller. In the event of cancellation, Seller may exercise all rights and remedies available to it hereunder and under law.

18.0 Remedies

18.1. Seller's remedies shall be cumulative and shall include any remedies allowed by law. Seller's waiver of any breach by Buyer shall not constitute a waiver of any other breach of the same or any other provision. Acceptance of any payments shall not waive any breach. In any dispute involving moneys owed to Seller, Seller shall be entitled to all costs of collection, including reasonable attorney's fees and interest at 15% per annum or the highest rate allowed by law, whichever is greater, unless Seller agrees to a lower amount. The confiscation or detention of a shipment by any governmental authority shall not affect or diminish the liability of the Buyer to the Seller to pay all charges or other money due promptly on demand.

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19.0 Insolvency

19.1. Seller shall have the right to cancel any outstanding Sales Order or any part thereof, without any liability whatsoever in the event of (i) insolvency, or anticipated insolvency, of Buyer, (ii) commencement of any proceedings, voluntary or involuntary, in bankruptcy or insolvency by or against Buyer; or (iii) the appointment of an assignee for the benefit of creditors of Buyer or a receiver or trustee for Buyer.

20.0 Product Compliance

20.1. Products are configured for use in the State or Country in which they are delivered by Seller and according to specific requirements. If used elsewhere, they may not comply with applicable laws and regulations and may not function according to specifications. Seller assumes no liability for non-compliance and performance issues arising from such use. Buyer agrees to indemnify and hold Seller and its affiliates harmless from all liabilities, claims, damages, losses, penalties, costs and expenses (including reasonable attorney fees and legal costs) resulting from or arising in connection with any non-compliance with applicable laws, regulations, and standards required for the sale and use of the Products in a State other than where they are delivered.

21.0 Force Majeure

21.1. Seller shall not be liable for any delay in performance of its obligations and responsibilities under a Sales Order due to causes beyond its control, and without its fault or negligence, such as but not limited to war, epidemics, embargo, national emergency, insurrection or riot, acts of the public enemy, fire, flood or other natural disaster, industrial disputes (including local strikes and/or lockouts), Cyber-Related Incidents, breakdowns or disruptions in telecommunication, discontinuation of network/communication services (including by loss of concession, dissolution, bankruptcy, or cease of business), or sunsets or replacements of networks and/or communication technologies, import or export restrictions, acts of government, inability to source components affecting the industry as a whole, as well as any similar conditions affecting a sub-supplier's performance vis-à-vis Seller; provided that, said party has taken reasonable measures to notify the other promptly in writing, of delay.
If the effects of the relevant event continue for a period of more than three consecutive months, then either party shall be entitled to terminate the Contract.

21.2. If, between the date of Seller's quotation (or, if none, order confirmation) and the date of Product delivery, there is an aggregate increase exceeding 10% in the Seller's cost of any raw material, component, transportation, duties, taxes, or any combination thereof (relative to the cost at the time of the quotation or, if none, order confirmation), or if changes in laws, regulations, tariffs, or other governmental requirements result in such an increase, the full amount of such increased costs shall be automatically and unilaterally added to the price payable by Buyer. Seller reserves the right to adjust the price accordingly or require Buyer to pay these additional costs as a condition for delivery. Any delay in payment of such costs entitles Seller to suspend or cancel delivery without liability. Buyer assumes all risks associated with such cost increases, and Seller has no obligation to absorb or mitigate these costs. This provision is without prejudice to Section 8.1.

22.0 Export Control and Sanctions

22.1. Products may be subject to export controls and the delivery is conditional upon obtaining required export authorizations. Buyer shall at all times comply with all applicable U.S. Anti-boycott, sanctions and export control laws, rules and regulations for any subsequent export, re-export or transfer.

22.2. Each Party represents and warrants that it is not subject to any sanctions or trade restrictions imposed by the United States (US), the United Nations (UN), or the European Union (EU), any other applicable jurisdiction. If either Party becomes subject to such sanctions or restrictions, preventing performance of the Contract, the other Party shall have the right to terminate the Sales Order immediately upon written notice, without liability or obligation for such termination.

22.3. Buyer shall not knowingly transfer, export, or re-export Products, directly or indirectly, to any country, entity or individual that is under sanctions or embargo by the UN, EU, US or any other relevant international regulatory body. Buyer shall conduct appropriate screening and due diligence to ensure compliance with these restrictions.

22.4. In compliance with U.S. export controls and sanctions laws, Buyer shall not sell, export, or re-export, directly or indirectly, any Products to the Russian Federation or Belarus, or for use therein. Buyer shall use best efforts to prevent any third parties downstream, including resellers distributors, or end-users, from circumventing these restrictions and shall maintain adequate monitoring mechanisms to ensure compliance.

22.5. Seller may suspend or terminate any agreement with Buyer without notice and claim damages if Buyer breaches any representation or undertaking under clauses 21.1–21.4.

23.0 Governing Law and Dispute Resolution

23.1. The Contract shall be governed by and interpreted in accordance with the laws of the State of Georgia, U.S.A., exclusive of the U.N. Convention on the International Sale of Goods.

23.2. Any controversy or claim arising out of or relating to the Contract, or the breach thereof, shall be subject to the exclusive jurisdiction of the State courts of Georgia.

24.0 Severability

24.1. If any provision of a Sales Order, including these terms and conditions, shall be judged by a court of competent jurisdiction to be invalid, illegal or unenforceable in any

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respect, such adjudication shall not affect or modify any other provision of the Sales Order, or these terms and conditions and the effect thereof shall be confined to the provision as to which such adjudication is made.

25.0 Notice

25.1. Any notice or other communication required or permitted by these terms and conditions must be given in writing and must be delivered by personal delivery (including personal delivery by overnight courier such as Federal Express, DHL, or similar overnight courier), first class mail (registered or certified), telecopy or e-mail (with a copy sent by personal delivery or first class mail), in each case addressed as follows, or to such other address or addresses as may be hereafter furnished by one party to the other party in compliance with the terms hereof. Notice will be deemed given when received or delivered to the principal business address of the relevant party.

26.0 Miscellaneous

26.1. Seller reserves the right to change, modify, add, or delete portions of these terms and conditions from time to time without further notice. The headings contained in these terms and conditions are included for convenience and shall not affect the language included herein.

27.0 Entire Agreement

27.1. Except as provided for herein, these terms and conditions, together with the Sales Order contain all of the terms and conditions governing the sale of the Products and may not be modified or amended by Buyer except by written agreement duly executed by the parties. Aside from the terms of any Sales Order, all prior agreements, representations, statements, negotiations and undertakings, whether oral or written, are superseded by these terms and conditions.

kamstrup

General Licensing Conditions for software

Delivered by Kamstrup A/S – CVR No. 21 24 81 18

1.0 General terms and conditions

1.1. These General Licensing Conditions (the "Conditions") shall apply to any agreement (the "Agreement") between Kamstrup A/S ("Kamstrup") and Licensee for the use of the Software and relevant documentation ("Documentation") provided by Kamstrup. Licensee terms of any form shall not apply unless specifically agreed.

2.0 Software License

2.1. Kamstrup hereby grants to Licensee the non-exclusive and non-transferable right to use the Software as defined in the Agreement. No further license or right to use is granted under these Conditions and any intellectual property contained in the Software shall remain Kamstrup's property at all times. "Use" shall mean (i) install, store, read, run and display the Software for the purpose of executing the program instructions for data processing and (ii) make the required temporary copies necessary for this process. The license remains in force until the Licensee stops using the Software or until termination of the Agreement in accordance with these Conditions. The Parties agree that these Conditions shall also apply (i) to any Software and/or Documentation updates, upgrades, error corrections, enhancements etc. and (ii) to customer-specific adaptations and extensions to standard Software.

2.2. Conditions of Use:

2.2.1. The Software and Documentation shall only be Used in accordance with these Conditions and Licensee shall comply with the instructions given by Kamstrup (including, but not limited to the Documentation).

2.2.2. The license is limited to the number of metering points, number of users and/or use at the agreed server locations as agreed between the Parties.

2.2.3. Unless otherwise agreed in writing, Licensee is entitled to use the Software and the Documentation for its own business only and shall not use or permit the use by, on behalf of or for the benefit of any third party or company in any way whatsoever, either free of charge or against payment. Subject to Kamstrup´s written consent, Licensee shall be entitled to have the Software installed at an operations provider (outsourcing) provided that the provider is located in the country where the Software will be used and the provider´s use of the Software is strictly limited to the purpose of Licensee being able to use the Software in accordance with these Conditions.

2.2.4. Licensee may make one backup copy of the Software solely for replacing the original Software if the original Software is not in working order. The copy may not be used at the same time as the original version of the Software. Otherwise, Licensee is not entitled to sub-license, copy, translate, alter, modify, produce derived forms of, disassemble, reverse engineer, decompile or use the Software and the Documentation other than in the contractually agreed manner or to the extent permitted by mandatory law, and shall prevent others from carrying out such prohibited activities.

2.2.5. All security matters of the IT-system on which the Software is used are Licensee's sole and exclusive responsibility. Licensee shall implement the necessary measures such as a disaster recovery and business continuity plans and shall make regular backup copies of all stored data (including all reported measurement data, databases, computer records and computer programs) in accordance with best computing practices.

2.2.6. Use of the Software outside the documented hardware, peripheral and software configurations is permitted (i) if the configured hardware and software infrastructure is temporarily inoperable; in this case the license is temporarily and without additional charge extended to suitable replacement infrastructure until the failure is remedied, provided the replacement infrastructure is under Licensee's direct control, or (ii) if the Software is used with suitable replacement infrastructure if the use of the infrastructure according to the original configurations is permanently discontinued. The use of the Software with temporary or permanent replacement infrastructure shall be at Licensee's sole risk and responsibility. Licensee shall track and keep records on the use, copying, storage and disclosure of the Software.

2.2.7. Kamstrup, or an independent auditor appointed by Kamstrup, may inspect any systems, records, documents or copies at Licensee's premises in order to audit the compliance with the obligations related to the Software. The costs for such inspection shall be borne by Kamstrup, unless it is determined that Licensee is in breach of its obligations under the Agreement, in which case Licensee shall

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bear the costs. Licensee shall make available such records to Kamstrup or its representative for this purpose.

3.0 Fee

3.1. The License Fee covers the delivery and use of the Software and the Documentation by Licensee in accordance with these Conditions. The License Fee is an one-time fee.

3.2. The Maintenance Fee covers the delivery and use of Patches and Releases. The Maintenance Fee is a yearly fee.

4.0 Invoicing and Terms of Payment

4.1. The agreed Fees shall be payable in advance, not in arrears. Except where otherwise agreed, all fees, costs and prices shall be payable in EUR. They shall be exclusive of any value added tax or other taxes and costs that may apply under the relevant jurisdiction. All payments shall be made in full without any deduction or set off to the bank account specified by Kamstrup no later than thirty (30) days after receipt of the invoice. If any sum payable under the Agreement is not timely paid in full, Kamstrup may charge interest at a rate of two (2) per cent per commenced month as from the due date (or, if lower, the maximum rate permitted by law) and/or, in case of failure to make payments within twenty (20) days after the due date, terminate the Agreement. Without limiting Kamstrup's right for late or non-payment, the User may not Use any new Data from the due date of the payment until to the date of actual payment.

5.0 Warranty

5.1. Kamstrup warrants that, if no maintenance or hosting contract has been concluded between the Parties for the software, for a period of 90 days, or otherwise, for the period of the maintenance or hosting contract, the Software materially fulfils the functionality as set out in the Documentation. Kamstrup further warrants the compatibility / interoperability of the Software with the tested and documented Kamstrup hardware; however, Kamstrup does not warrant that the Software will operate in all configurations and applications which Licensee may select for use.

5.2. In the event of a defect (i.e. breach of the warranty defined in this clause) during the warranty period, Licensee shall notify Kamstrup without undue delay in writing and provide all information to Kamstrup to analyse the defect. Kamstrup shall, within a reasonable time after receipt of the timely and substantiated defect notification, at its discretion (i) rectify such a defect by providing an adequate workaround solution, (ii) supply a replacement solution substantially fulfilling the same functional specifications or (iii) reimburse the reduction in value of the non-complying parts of the delivery.

5.3. This warranty is subject to Licensee's compliance with its obligations under the Agreement and does not apply to (i) third party software (ii) copies of the Software not originating from Kamstrup or not produced in the contractually agreed manner, (iii) Software used or installed on other than approved hardware and software configuration, (iv) Software that was subjected to improper or negligent installation or use or that suffered an accident for which Kamstrup is not responsible, (v) Software modified, extended or combined with other programs by Licensee or a third party without previous written approval, or (vi) Software that was subjected to treatment not conforming with environment, energy supply or operational limitation requirements specified in the Documentation or (vii) defects resulting from interfacing to third party systems.

5.4. THE WARRANTIES AND REMEDIES STATED IN THIS CLAUSE SHALL BE LICENSEE'S SOLE AND EXCLUSIVE WARRANTIES AND REMEDIES IN CASE OF SOFTWARE DEFECTS OR DEFAULTS; ALL WARRANTIES AT LAW ARE EXCLUDED.

6.0 Intellectual Property Rights

6.1. All rights, title and legal claims, including but not limited to copyright, trademarks and other intellectual property rights relating to the Software, Documentation and other deliveries made available hereunder to Licensee (including intellectual property rights to customer specific adaptations of standard Software, even if funded by Licensee), with the exception of the rights expressly granted in the Agreement, remain in their entirety the ownership of Kamstrup, its licensors or suppliers.

6.2. Kamstrup warrants that, to the best of its knowledge, the Software does not infringe third party intellectual property rights in a way prohibiting the use in the country where the Software is licensed for use.

6.3. In case the Software infringes third party intellectual property rights that Kamstrup should have been aware of, Kamstrup shall indemnify Licensee for all reasonable costs and fees, provided that Licensee (a) immediately notifies Kamstrup of any claim, (b) allows Kamstrup to conduct any proceedings or accept any settlement with the third party and (c) assists Kamstrup in defending such claims if required.

6.4. If the Software infringes third party intellectual property rights, Kamstrup shall, at its own cost and at its sole discretion, either (i) modify the Software and Documentation so that it no longer infringes the respective third party intellectual property right, (ii) supply to Licensee a replacement solution essentially fulfilling the same functional specifications, (iii) obtain at its own cost the authorization for Licensee to use the respective third party intellectual property right or (iv) reimburse to Licensee the reduction in value of the infringing parts of the Software or Documentation.

6.5. Kamstrup's warranty under this Clause does not apply for any infringement of third party intellectual property rights caused by implementing Licensee's specifications, or for any use or modification by Licensee which is not in accordance with the Documentation or Kamstrup´s instructions.

6.6. THE WARRANTIES AND REMEDIES STATED HEREIN SHALL BE LICENSEE'S SOLE AND EXCLUSIVE WARRANTIES AND REMEDIES IN CASE OF INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

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7.0 Liability

7.1. Notwithstanding any other provision in the Agreement

7.1.1. Kamstrup´s aggregate liability under or in connection with the Agreement shall be limited to 50 % of the License Fee or (if applicable) the Maintenance Fee payable for the 12 month period in which any claim arises.

7.1.2. Kamstrup shall not be liable, whether by way of indemnity, breach of statutory duty, in contract or in tort (including negligence) or under any other legal theory for any operating loss, loss of profits or revenues, loss of production, loss of contract, cost of capital or for any financial or economic loss, loss of data or any indirect, incidental or consequential damage whatsoever.

7.1.3. The remedies set out in the Agreement are Licensee´s sole and exclusive remedies for any claim arising out of or in connection with the Agreement.

7.1.4. The limitations of liability shall not apply in case of gross negligence or wilful misconduct.

8.0 Termination

8.1. Each Party may terminate the Agreement by written notice with immediate effect if (i) the other Party materially fails to perform or comply with the Agreement or the applicable laws relating to the subject matter of the Agreement and fails to cure such default within a period of 30 days or (ii) the other Party goes into involuntary dissolution or bankruptcy or has a receiver appointed. Kamstrup may also terminate the Agreement with immediate effect in case of a non-authorized transfer or assignment of the Software, Documentation, the Agreement or parts thereof by Licensee, or, if Licensee merges with, has substantially all assets or stock acquired by a third party or acquires substantially all assets or stock of a third party which is in direct competition with Kamstrup.

8.2. Upon termination of the Agreement, Licensee shall immediately and permanently discontinue the use of and delete on its IT system the Software and Documentation and shall return the Software and Documentation (including any modification, electronic and other copies and recordings thereof) to Kamstrup without delay. For avoidance of doubt, there shall be no refund of any element of the License Fee, Maintenance Fee or other fees by reason of termination.

9.0 Miscellaneous

9.1. End of Life

9.1.1. Kamstrup may, at its discretion, decide to cease to support Software. Kamstrup will provide the Licensee with at least 90 days' written notice of the last date of commercial availability of the affected product (the "End of Sale Date"). Kamstrup will continue to support such products for a period of 3 years after the End of Sale Date, on the terms of Kamstrup's software support agreement. Kamstrup will have no obligation to continue support of such products after such 3 year period has expired.

9.2. Delivery and Acceptance

9.2.1. Kamstrup shall deliver (transmit, hand over or otherwise make available) one (1) copy of the Software in object code/machine-readable form on the appropriate media, the required license keys and one (1) set of the Documentation. Third party software and Documentation shall be delivered in the form and number as delivered by the third party supplier. In case a hosting contract is in place, the Software will be installed on a Kamstrup server and Licensee will be provided adequate access.

9.3. Confidentiality

9.3.1. All documents, information and data, whatever the medium, form or content, that Licensee receives from Kamstrup during the performance of the Agreement (i) shall be treated as confidential, (ii) shall not be transmitted or disclosed to third parties without Kamstrup's prior written consent. Licensee shall ensure that its employees and subcontractors receive such confidential information on a need-to-know basis only and comply with the confidentiality obligations as set out in this clause. This confidentiality obligation shall survive expiry or termination of the Agreement.

The confidentiality obligation does not apply to documents, information and data that (i) is generally available from public sources or in the public domain through no fault of Licensee, (ii) was received from a third party without breach of a nondisclosure obligation, (iii) is required to be disclosed by law subject to Licensee's obligation to notify Kamstrup of such disclosure in a timely manner; or (iv) approved for disclosure with Kamstrup's prior written consent.

9.4. Amendments

9.4.1. Modifications and amendments to the Agreement shall only be valid when made in writing and signed by authorized representatives of both Parties. This procedure may only be waived in writing.

9.5. Assignment

9.5.1. Licensee shall not assign, sub-license, lease or otherwise transfer, share or commercialize, whether in whole or in part, the Software and Documentation or any rights or obligations under the Agreement without the prior written consent of Kamstrup. Any breach of this obligation shall constitute a material breach and entitle Kamstrup to terminate the Agreement with immediate effect.

9.6. Force Majeure

9.6.1. Force Majeure shall be defined as an occurrence resulting from any cause beyond a Party's reasonable control, including blackouts, power failures, inclement weather, fire, explosions, natural disasters, epidemics, strikes, work stoppages, labour slow-downs, industrial disputes, sabotage, destruction of production facilities, riots or civil disturbances, acts of government or governmental agencies, including changes in laws or regulations that materially and adversely impact the Party, its suppliers or licensors or any virus, worm or other harmful computer program. The affected Party shall not be considered to be in breach of the Agreement during the Force Majeure event and its consequences. The affected Party shall inform the other Party in writing as soon as practicable after the Force Majeure event has occurred and provide information on

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the consequences of such Force Majeure event. Payment obligations shall never be impaired by Force Majeure.

9.7. Severability

9.7.1. Should any provision of the Agreement be invalid or unenforceable, the remaining provisions shall not be affected thereby and the invalid or unenforceable provision shall be substituted by a valid and enforceable provision reflecting as closely as possible the Parties' original intent and commercial effect.

9.8. Contractual Documents

9.8.1. In the event that the Agreement and the documents mentioned herein contain contradictory provisions, and provided that circumstances do not indicate otherwise, the provisions shall apply in the order as follows: 1. The Agreement; 2. Appendices to the Agreement.

9.9. Entire Agreement

9.9.1. The Agreement (with its Appendices) shall be the entire agreement between the Parties in respect of the subject matter hereof and shall supersede any prior agreement, whether in writing or any other form.

10.0 Applicable Law and Dispute Resolution

10.1. The parties shall seek to settle any dispute arising out of or in connection with the Agreement, including disputes relating to the existence or validity of the Agreement, through mediation administered by the Danish Institute of Arbitration in accordance with its rules on mediation in force at the time the request for mediation was submitted. The mediation shall take place in Aarhus, Denmark.

10.2. If the mediation has not resulted in a settlement within 45 days of the request for mediation having been submitted by either party, then the dispute shall be settled by arbitration administered by the Danish Institute of Arbitration in accordance with the rules of arbitration procedure adopted by the Danish Institute of Arbitration and in force at the time when such proceedings are commenced. The arbitration shall take place in Aarhus, Denmark.

10.3. The laws of Denmark, excluding any choice of law rules, shall govern the Agreement and the settlement of disputes. The United Nations Convention on Contracts for the International Sale of Goods shall not apply.