LCTX
LEAGUE CITY

STANDARD AGREEMENT

(Version 9-22-2023)

This AGREEMENT ("Agreement") is entered by and between **Thirkettle, DBA Aqua Metric Sales Company** ("Contractor"), located at **4050 Flat Rock Dr. Riverdale, California 92505** and the **City of League City** ("City"), a home-rule municipality, located at 300 W. Walker St., League City, Texas 77573 on the date set forth below.

Terms:

1. **Scope of Services:** Contractor will perform the services and/or provide the products as set forth in **Exhibit A**, which is attached and incorporated herein, and which can be generally described as **the purchase of new water meters and parts**. If there is a conflict between the terms of this Agreement and Exhibit A, the terms of this Agreement will prevail.

2. **Term and Termination:** This Agreement shall commence on **July 1, 2024** and shall expire on **September 30, 2024** The period from commencement to expiration is the Contract Term. City reserves the right to terminate this Agreement for convenience upon seven (7) days written notice to Contractor. Upon such termination, City shall pay Contractor, at the rate set out in **Exhibit A,** for services satisfactorily performed or products satisfactorily provided up through the date of termination. Notwithstanding any provision in this Agreement to the contrary, City will not be required to pay or reimburse Contractor for any services performed or for expenses incurred by Contractor after the date of the termination notice that could have been avoided or mitigated by Contractor.

3. **Compensation:** Contractor shall be paid for the services/products as set forth in **Exhibit A**. In no event shall the total compensation exceed $**250,000** during the term of this Agreement. City shall tender payment (including progress/partial payments) for services/goods only after such services are completed or goods are delivered and are deemed to be acceptable under this Agreement, in the sole reasonable discretion of City. Contractor must submit to City invoices for all goods delivered and services provided, which invoices must include details and dates of service or delivery. Payment by City shall be made within thirty (30) days of receipt of an invoice, except for any portion of the invoiced amount that City disapproves as not compliant under this Agreement, in the sole reasonable discretion of City. If City disapproves any amount submitted for payment by Contractor, City shall give Contractor specific reasons for disapproval in writing.

4. **Insurance:** Contractor **is not** required during the Contract Term to maintain insurance as follows: (a) Comprehensive General Commercial Liability insurance covering bodily injury and property damage, with minimum coverage limits—exclusive of defense costs—of $1,000,000 per occurrence and $2,000,000 aggregate; (b) If Contractor will provide City "professional services," as that term is used in Chapter 252 of the Texas Local Government Code, Professional Liability (errors and omissions/malpractice) insurance with minimum coverage limits—exclusive of defense costs—of $2,000,000 per occurrence; and (c) If at any point during the Contract Term it is foreseeable that Contractor will enter upon City premises: (i) Worker's Compensation coverage with statutory limits for the State of Texas, and (ii) Commercial Automobile Liability coverage with minimum coverage limits—exclusive of defense costs—of $1,000,000 per occurrence and

$2,000,000 aggregate. All policies must contain a waiver of subrogation against City. Comprehensive General Liability and Commercial Automobile Liability policies must name the City as Additional Insured. Contractor shall pay all insurance deductibles and deductibles must not exceed $10,000 unless approved in advance by City. Contractor shall provide City Certificates of Insurance evidencing these insurance requirements prior to the start of work.

5. **Liquidated Damages:** Liquidated damages **are not** applicable to this transaction. Contractor acknowledges that time is of the essence in performing this Agreement. City and Contractor (collectively, the "Parties") agree that if Contractor is late in performing any obligation of this Agreement, City will suffer loss, damages, or other harm from Contractor's delay. The Parties agree that the amount of loss, damages, or harm likely to be incurred is incapable or difficult to precisely estimate, and therefore Contractor agrees to pay City liquidated damages for delay at a daily rate equal to the total compensation allowed under the Agreement divided by the number of days in the Contract Term. The Parties further agree that: (i) the liquidated damages specified herein are not a penalty but rather bear a reasonable relationship to, and is not plainly or grossly disproportionate to, the probable loss likely to be incurred by City as a result of Contractor's delay; (ii) one of the reasons for City and Contractor to agree to such amounts is the uncertainty and cost of litigation regarding the question of actual damages; and (iii) City and Contractor are sophisticated business parties and negotiated this Agreement at arm's length.

6. **Independent Contractor:** Contractor is an independent contractor and is not an employee, partner, joint venture, or agent of City. Contractor understands and agrees that he/she will not be entitled to any benefits generally available to City employees. Contractor shall be responsible for all expenses necessary to carry out the services under this Agreement and shall not be reimbursed by City for such expenses except as otherwise provided in this Agreement.

7. **Intellectual Property:** This Agreement shall be an Agreement for services and the parties intend and consider any work created as a result of this Agreement, including any and all documentation, images, products or results, to be a work (the "Work") for hire under federal copyright law. Ownership of the Work shall belong to and remain the exclusive property of City. The Work may be edited at any time within City's discretion. If the Work would not be considered a work-for-hire under applicable law, Contractor hereby assigns, transfers, and conveys any and all rights, title and interest to City, including without limitation all copyrights, patents, rights of reproduction, rights to ownership, and right to secure registrations, renewals, reissues and extensions thereof. As the sole copyright holder of the Work, City maintains and asserts the rights to use, reproduce, make derivative works from, and/or edit the Work in any form of medium, expression or technology now known or hereafter developed, at any time within City's discretion. Contractor shall not sell, disclose or obtain any other compensation for the services provided herein or the Work. If the Work is one to which the provisions of 17 U.S.C. § 106A apply, Contractor hereby waives and appoints City to assert on Contractor's behalf Contractor's moral rights or any equivalent rights regarding the form or extent of any alteration to the Work (including, without limitation, removal or destruction) or the making of any derivative works based on the Work, including, without limitation, photographs, drawings or other visual reproductions of the work, in any medium, for City's purposes.

8. **Confidentiality:** During the course of the services to be provided under this Agreement, Contractor may become privy to confidential information of City. Contractor agrees to treat as confidential the information or knowledge that becomes known to Contractor during performance of this Agreement and to not use, copy, or disclose such information to any third party unless authorized in writing by City. This provision does not restrict the disclosure of any

information that is required to be disclosed under applicable law. Contractor shall promptly notify City of any misuse or unauthorized disclosure of City's confidential information and upon expiration of this Agreement shall return to City all confidential information in Contractor's possession or control. Contractor shall further comply with all information security policies of City that may apply and shall not make any press releases, public statements or advertisement referring to the services provided under this Agreement or the engagement of Contractor without the prior written approval of City.

9. **Warranties and Representations:** Contractor warrants and agrees that Contractor shall perform its services and conduct all operations in conformity with all applicable federal, state, and local laws, rules, regulations, and ordinances. For any service performed on premises owned or controlled by City, Contractor warrants and agrees that Contractor will perform said services in compliance with all City rules, including but not limited to, prohibitions related to tobacco use, alcohol, and other drugs.

10. **Licenses/Certifications:** Contractor represents and warrants that it will obtain and maintain in effect, and pay the cost of, all licenses, permits or certifications that may be necessary for Contractor's performance of this Agreement. If Contractor is a business entity, Contractor warrants, represents, covenants, and agrees that it is duly organized, validly existing and in good standing under the laws of the state of its formation; and is duly authorized and in good standing to conduct business in the State of Texas, that it has all necessary power and has received all necessary approvals to execute and deliver the Agreement and is authorized to execute this Agreement according to its terms on behalf of Contractor.

11. **Performance/Qualifications:** Contractor agrees and represents that Contractor has the personnel, experience, and knowledge necessary to qualify Contractor for the particular duties to be performed under this Agreement. Contractor warrants that all services performed under this Agreement shall be performed consistent with generally prevailing professional or industry standards.

12. **Conflict of Interest:** Contractor warrants, represents, and agrees that Contractor presently has no interest and shall not acquire any interest, direct or indirect, that would conflict in any manner or degree with Contractor's performance of the services hereunder. Contractor further warrants and affirms that no relationship or affiliation exists between Contractor and City that could be construed as a conflict of interest with regard to this Agreement.

13. **INDEMNIFICATION: CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD HARMLESS CITY , AND EACH OF ITS OFFICIALS, OFFICERS, AGENTS AND EMPLOYEES FROM AND AGAINST ALL CLAIMS, ACTIONS, SUITS, DEMANDS, PROCEEDINGS, COSTS, DAMAGES AND LIABILITIES, INCLUDING WITHOUT LIMITATION ATTORNEYS' FEES AND REASONABLE LITIGATION COSTS, ARISING OUT OF, CONNECTED WITH, OR RESULTING FROM ANY ACTS OR OMISSIONS OF CONTRACTOR OR ANY AGENT, EMPLOYEE, SUBCONTRACTOR, OR SUPPLIER OF CONTRACTOR IN THE EXECUTION OR PERFORMANCE OF THIS CONTRACT, TO THE EXTENT THE CLAIM ARISES FROM**

NEGLIGENCE, WILLFUL ACT, BREACH OF CONTRACT OR VIOLATION OF LAW.

14. **Force Majeure:** Neither City nor Contractor shall be liable for any delay in the performance of this Agreement, nor for any other breach, nor for any loss or damage arising solely from uncontrollable forces such as fire, theft, storm, war, or any other force majeure that could not have been reasonably avoided by the exercise of due diligence.

15. **Notices:** Any notice given under this Agreement by either party to the other may be affected either by personal delivery in writing or by mail, registered or certified postage prepaid with return receipt requested. Mailed notices shall be addressed to the addresses of the Parties as they appear in the contract. Notices delivered personally shall be deemed communicated at the time of actual receipt. Mailed notices shall be deemed communicated three (3) days after mailing.

16. **Texas Family Code Child Support Certification:** Pursuant to Section 231.006 of the Texas Family Code, Contractor certifies that it is not ineligible to receive the award of or payments under the Agreement and acknowledges that the Agreement may be terminated, and payment may be withheld if this certification is inaccurate.

17. **State and/or City Auditor:** Contractor understands that acceptance of funds under the Agreement constitutes acceptance of the authority of the Texas State Auditor's Office, or any successor agency or the City's internal auditor (collectively, the "Auditor"), to conduct an audit or investigation in connection with those funds. Contractor agrees to cooperate with the Auditor in the conduct of the audit or investigation, including without limitation providing all records requested. Contractor will include this provision in all contracts with permitted subcontractors.

18. **Jurisdiction:** Any disputes under this Agreement shall be brought in a court of competent jurisdiction in Galveston, Texas and governed by Texas law.

19. **Alternative Dispute Resolution:** To the extent that Chapter 2260, Texas Government Code, is applicable to this Contract and is not preempted by other applicable law, the dispute resolution process provided for in Chapter 2260 and the related rules adopted by the Texas Attorney General Pursuant to Chapter 2260, shall be used by City and Contractor to attempt to resolve any claim for breach of contract made by Contractor that cannot be resolved in the ordinary course of business. The Director of Finance of City shall examine Contractor's claim and any counterclaim and negotiate with Contractor in an effort to resolve such claims. This provision shall not be construed as a waiver by City of its right to seek redress in the courts.

20. **Entire Agreement:** This Agreement contains the entire understanding between the Parties and supersedes all prior agreements, arrangements, and understanding, oral or written between the Parties relating to this Agreement. This Agreement may not be modified except by mutual written agreement of the Parties executed subsequent to this Agreement.

21. **Eligibility to Receive Payment:** Contractor certifies that, as a matter of state law, it is not ineligible to receive the Agreement and payments pursuant to the Agreement and acknowledges that the Agreement may be terminated, and payment withheld if this representation is inaccurate.

22. **Payment of Debt/Delinquency to State:** Contractor certifies that it is not indebted to the City of League City and is current on all taxes owed to the City of League City. Contractor agrees that any payments owing to Contractor under the Agreement may be applied directly toward any debt

or delinquency that Contractor owes the City of League City regardless of when it arises, until such debt or delinquency is paid in full.

23. **Products and Materials Produced in Texas:** If Contractor will provide services under the Agreement, Contractor covenants and agrees that in performing its duties and obligations under the Agreement, it will purchase products and materials produced in Texas when such products and materials are available at a price and delivery time comparable to products and materials produced outside of Texas.

24. **Risk of Loss:** If applicable, all work performed by Contractor pursuant to the Agreement will be at Contractor's exclusive risk until final and complete acceptance of the work by City. In the case of any loss or damage to the work prior to City's acceptance, bearing such loss or damage will be Contractor's responsibility.

25. **Publicity:** Contractor shall not use City's name, logo or likeness in any press release, marketing materials or other public announcement without receiving City's prior written approval.

26. **Legal Construction/Severability:** In the event that any one or more of the provisions contained in this Agreement shall for any reason be held to be invalid, illegal or unenforceable in any respect, such invalidity, illegality or unenforceability shall not affect any other provision, and this Agreement shall be construed as if such invalid, illegal or unenforceable provisions had never been contained in it. To this end, the provisions of this Agreement are declared to be severable. The Parties may mutually agree to renegotiate the Agreement to cure such illegality/invalidity or unconstitutionality if such may be reasonably accomplished.

27. **Limitations:** The Parties are aware that there are constitutional and statutory limitations on the authority of City to enter into certain terms and conditions of the Agreement, including, but not limited to, those terms and conditions relating to liens on City's property; disclaimers and limitations of warranties; disclaimers and limitations of liability for damages; waivers, disclaimers and limitations of legal rights, remedies, requirements and processes; limitations of periods to bring legal action; granting control of litigation or settlement to another party; liability for acts or omissions of third parties; payment of attorneys' fees; dispute resolution; indemnities; and confidentiality (collectively, the "Limitations"). Any terms and conditions related to the Limitations will not be binding on City except to the extent authorized by the laws and Constitution of the State of Texas.

28. **Sovereign Immunity:** The Parties agree that neither the execution of the Agreement by City nor any other conduct, action or inaction of any City representative relating to the Agreement constitutes a waiver of sovereign immunity by City. The Parties also agree that this Agreement constitutes a governmental function and is not a proprietary function.

29. **Authority:** The Parties stipulate that in entering into this Agreement, the City is performing a solely governmental function and not a proprietary function. Contractor warrants and represents that Contractor has full power and authority to enter into and perform this Agreement and to make the grant of rights contained herein. The person signing on behalf of City represents that he/she has authority to sign this Agreement on behalf of City.

30. **Non-Waiver:** The Parties specifically agree that neither the occurrence of an event giving rise to a breach of contract claim nor the pendency of a claim constitute grounds for the suspension of performance by Contractor. No covenant or condition of this Agreement may be waived except

by written consent of the waiving party. Forbearance or indulgence by one party in any regard whatsoever shall not constitute a waiver of the covenant or condition to be performed by the other party.

31. **Prohibitions Pursuant to Texas Government Code:** By executing this Agreement Contractor verifies that Contractor (1) does not boycott Israel and will not during the term of this Agreement per Section 2274.002; (2) is not engaged in business with Iran, Sudan, or any company on the list referenced in Section 2252.152; (3) does not boycott energy companies and will not during the term of this Agreement per 2274.002; and (4) does not have a practice, policy, guidance, or directive of this Agreement against a firearm entity or firearm trade association and will not during the term of this Agreement per 2274.002.

(signature block on next page)

Executed on _____. *(date to be filled in by City Secretary)*

THIRKETTLE DBA AQUA METRIC SALES CO. - "Contractor"

DocuSigned by:
Christopher Newville
3887BDD955C54B7...

Chris Newville, Manager

CITY OF LEAGUE CITY – "City"

John Baumgartner, City Manager

Attest:

Diana Stapp, City Secretary

Approved as to Form:

Office of the City Attorney

Exhibit A

Scope of Services/Description of Products/Payment Schedule
(There are **15** pages for Exhibit A, including this page)

Scope of Work: To purchase Sensus meters for new construction and replacement meters and parts for existing meters within League City.

Jim Grillo
Sensus USA, Inc
Mid-West Director of Sales
612-867-3283
jim.grillo@xyleminc.com

June 1, 2024

To Whom It May Concern:

Sensus USA, Inc is pleased to announce that **Aqua Metric of Selma, TX** is the exclusive Authorized Distributor of Sensus products and Value Added Reseller (VAR) for Sensus Services such as SaaS in the territory of Central, East and South Texas and the state of Louisiana.

Please contact Aqua Metric for all of your Sensus needs. Purchasing Sensus products and services from the authorized distributor for your area ensures that your products will be properly supported and warranted.

We look forward to the opportunity of providing your firm with quality water measurement equipment and support in the near future. Please feel free to contact me at jim.grillo@xyleminc.com regarding this or any other matter.

Sincerely

James C. Grillo
Mid-West Director of Sales
Sensus USA, Inc

Aqua-Metric Sales Company
16914 Alamo Parkway, Bldg. 2 | Selma, TX 78154
Phone: (210) 967-6300 | Facsimile: (210) 967-6305

Client: City of League City, Texas
Attention: Lindsey Sinibaldi
Address 300 W Walker Street
City, State, Zip: League City, Texas 77573
Phone: (281) 554-1000
Email: Lindsey.Sinibaldi@leaguecitytx.gov

Item
520M Dual Port SmartPoint
3/4" SL iPERL Meter USG
1" iPERL Meter USG
1 1/2" OMNI R2 Meter USG
2" OMNI R2 Meter USG
1 1/2" OMNI C2 Compound Meter USG
2" OMNI C2 Compound Meter USG
3" OMNI C2 Compound Meter USG
4" OMNI C2 Compound Meter USG
6" OMNI C2 Compound Meter USG
8" OMNI C2 Compound Meter USG
1 1/2" OMNI T2 Turbo Meter USG
2" OMNI T2 Turbo Meter USG
3" OMNI T2 Turbo Meter USG
4" OMNI T2 Turbo Meter USG
6" OMNI T2 Turbo Meter USG
8" OMNI T2 Turbo Meter USG
520M Pit Lid Housing, Ill No. 85B
520M Pit Locking Nut, Ill No. 85E
iPERL Cable Only, 6' TR/PL Two-Wire
1 1/2" OMNI R2 Register Only7
1 1/2" OMNI T2/C2 Register Only7
Nicor 6x9 Lid Read-Rite
Nicor 11.5 Lid Read-Rite
Nicor 10x14 Lid Read-Rite
Nicor MBDual Lid Read-Rite

xylem
Let's Solve Water

iPERL Smart Water Meter

Electromagnetic Flow Measurement System

Sensus iPERL® smart water meters are designed to capture both lost water and lost revenue. The innovative magnetic technology delivers unmatched low flow registration and minimal pressure loss. With no moving parts, iPERL maintains its accuracy over a 20 year lifetime and is equipped with smart water alarms – delivering the intelligence you need to quickly resolve issues in the field.

FEATURES

- 5/8", 5/8" x 3/4", 3/4" and 1" sizes available in potable and reclaim versions
- 3/4" and 1" available in residential fire service (UL 327b)
- Starts registering flow as low as 0.03 gpm (0.007 m³/hr)
- Can be installed horizontally, vertically or diagonally
- Compatible with current Sensus AMI/ AMR systems

BENEFITS

- Maximize investment with iPERL's electromagnetic technology, which delivers a 20-year accuracy warranty, with no required maintenance, and no loss in accuracy over 20 years
- Smart alarms detect issues such as leaks, reverse flow, empty pipe, etc.
- Improve low flow accuracy to drive additional revenue

Industry Leading Performance

The patented measurement technology of the iPERL water meter provides continuous and enhanced accuracy ranges at both low and high flows and perpetual accuracy over the life of the product. The iPERL meter has a 20-year accuracy warranty and a 20-year battery life guarantee. Over this 20-year lifespan, your iPERL will measure just as accurately as the day it was installed.

Construction

The iPERL meter body is made of composite alloy and contains no metal material. Inside the meter body is an electronic register and a measuring device that is comprised of a composite alloy flow tube.

Electronic Register

The 9-digit hermetically-sealed electronic register with LCD display was designed to eliminate dirt, water, and moisture contamination in pit settings. The large, easy-to-read display includes AMI/AMR digits, direction of flow, units of measure, and empty pipe detection. The AMI/AMR digits and units of measure are fully programmable. The register also provides user configurable data logging.

Solid State Electromagnetic Technology

By avoiding the use of a mechanical measuring element inside the flow tube, metering performance is linear over the entire flow range – ensuring no reduction in accuracy at any flow rate over the life of the meter. The iPERL meter uses our patented remanent magnetic field technology – requiring far less energy and delivering superior accuracy.

Tamperproof

The integrated construction of the iPERL water meter prevents removal of the register to obtain free water. The magnetic tamper and low field alarms will both indicate any attempt to tamper with the magnetic field of the iPERL meter. The meter communication alarm indicates a possible cut cable.

Alarms

Quick resolution of field issues is made possible with smart water alarms including leak detection, reverse flow, empty pipe, magnetic tamper and low battery. When integrated with our FlexNet® communication network, remotely gathering and transmitting data has never been more reliable or profitable.

sensus
a xylem brand

iPERL Smart Water Meter

Electromagnetic Flow Measurement System

Smart Alarms

iPERL meters have many configurable smart alarms designed to protect your utility's investment, enhance customer service, and monitor/optimize distribution systems. These alarms include:

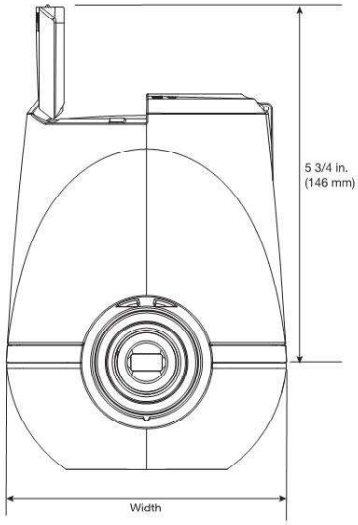
- Empty Pipe
  Detects the absence of water in the flow tube and sends an alert. Allows you to identify main breaks downstream and water shortages for quicker resolution to ensure water availability. This alarm can also indicate the water meter has been removed from service, or notify you of potential tamper.
- Tampering
  Detect magnetic interference to reduce apparent water losses and protect against unauthorized activities.
- Customer Leak
  Detect continual consumption of water over a period of time to indicate downstream leaks. This protects your utility, infrastructure and customers through alarm notifications that can reduce water loss and leak adjustment costs.
- Low Battery
  Replace your meters before they stop recording consumption through alerts indicating battery capacity to the meter or valve is running low.
- Reverse Flow
  Keep untreated water from re-entering your distribution system and deter tampering attempts through an alarm triggered when reverse flow is detected at the meter.

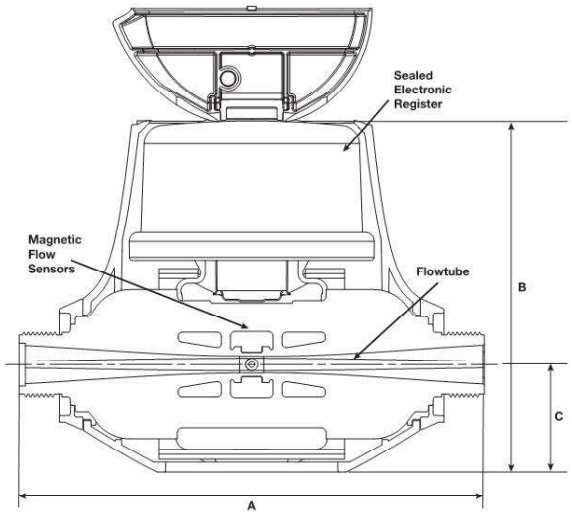
SPECIFICATIONS

Service	Measurement of potable and reclaim water, and Residential Fire Service (UL 327b). 0-100% humidity. Fully submersible. IP68+ rated.			
Temperature Ranges	Water operating: Ambient air operating: Storage air:	33 °F (0.55 °C) to 80 °F (26.7 °C) -22 °F (-30 °C) to 140 °F (60 °C) -30 °F (-34.4 °C) to 158 °F (70 °C)		
Starting Flow	5/8" (DN 15 mm) size: 0.03 gpm (0.007 m3/h)	5/8" x 3/4" (DN 15x20 mm) size: 0.03 gpm (0.007 m3/h)	3/4" (DN 20 mm) size: 0.03 gpm (0.007 m3/h)	1" (DN 25 mm) size: 0.11 gpm (0.025 m3/h)
Low Flow Range (±3%)	5/8" (DN 15 mm) size: >0.10 gpm (0.025 m3/hr) to <0.18 gpm (0.041 m3/hr)	5/8" x 3/4" (DN 15 mm) size: >0.10 gpm (0.025 m3/hr) to <0.18 gpm (0.041 m3/hr)	3/4" (DN 20 mm) size: >0.10 gpm (0.025 m3/hr) to <0.18 gpm (0.041 m3/hr)	1" (DN 25 mm) size: >0.3 gpm (0.068 m3/hr) to <0.4 gpm (0.09 m3/hr)
Normal Water Operating Flow Range (±1.5%)	5/8" (DN 15 mm) size: 0.18 to 25 gpm (0.04 to 5.7 m3/hr)	5/8" x 3/4" (DN 15x20 mm) size: 0.18 to 35 gpm (0.04 to 5.7 m3/hr)	3/4" (DN 20 mm) size: 0.18 to 35 gpm (0.04 to 8.0 m3/hr)	1" (DN 25 mm) size: 0.4 to 55 gpm (0.09 to 12.5 m3/hr)
Maximum Operating Pressure	5/8'', 5/8" x 3/4", and 3/4'' size: 200 psi (13.8 bar) 1'' size: 175 psi (12.1 bar)			
Measurement Technology	Solid state electromagnetic flow			
Register	Hermetically sealed, 9-digit programmable electronic register			
Capacity	10,000,000 gallons, 1,000,000 cubic feet or 100,000 m3 capacity.			
Register Resolution	.01 gallons/imperial gallons, .001 cubic foot, or .0001 m3.			
Conformance to Standards	Meets the requirements of NSF 61, Annex G and NSF 372. Exceeds the most current revision of AWWA Standard C-715.			
Materials	External housing – Thermal plastic Flowtube – Polyphenylene sulfide alloy		Electrode – Silver/silver chloride Register cover – Tempered glass	

iPERL Smart Water Meter

Electromagnetic Flow Measurement System





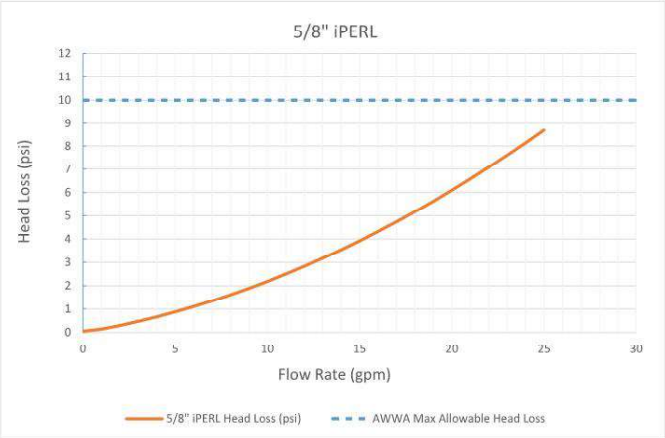
DIMENSIONS AND NET WEIGHTS

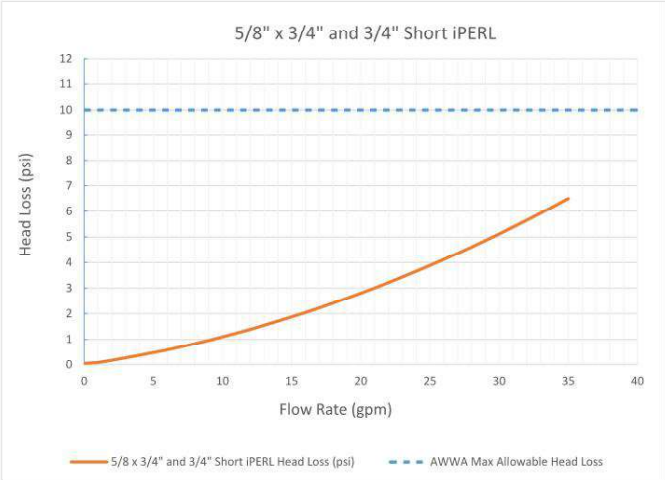
Meter Size	A	B	C	Spud Ends	NPSM Thread Size	Width	Net Weight
5/8″ (DN 15 mm)	7-1/2″ (190 mm)	6-1/10″ (155mm)	1-3/4″ (44 mm)	5/8″ (15 mm)	3/4″ (20 mm)	4-1/2″ (114 mm)	3.1 lb. (1.4 kg)
5/8″ x 3/4″ (DN 15mm x 20 mm)	7-1/2″ (190 mm)	6-1/10″ (155mm)	1-3/4″ (44 mm)	3/4″ (20 mm)	1″ (25 mm)	4-1/2″ (114 mm)	3.1 lb. (1.4 kg)
3/4″Short (DN 20 mm)	7-1/2″ (190 mm)	6-1/10″ (155 mm)	1-3/4″ (44 mm)	3/4″ (20 mm)	1″ (25 mm)	4-1/2″ (114 mm)	3.1 lb. (1.4 kg)
3/4″ (DN 20 mm)	9″ (229 mm)	6-1/10″ (155 mm)	1-3/4″ (44 mm)	3/4″ (20 mm)	1″ (25 mm)	4-1/2″ (114 mm)	3.2 lb. (1.45 kg)
1″ (DN 25 mm)	10-3/4″ (273 mm)	6-1/10″ (155 mm)	1-3/4″ (44 mm)	1″ (25 mm)	1-1/4″ (32 mm)	4-1/2″ (114 mm)	3.3 lb. (1.5 kg)

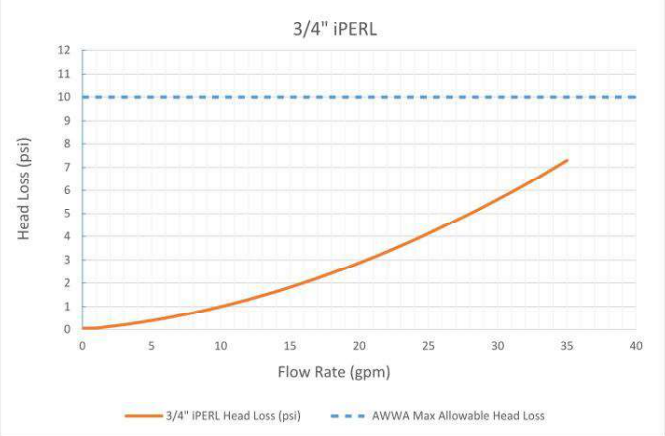
iPERL Smart Water Meter

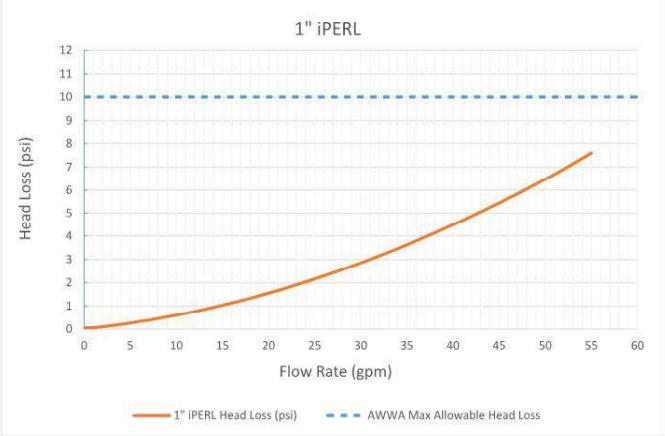
Electromagnetic Flow Measurement System

Head Loss Curves









xylem

Xylem.com | Sensus.com

SENSUS | 637 Davis Drive | Morrisville, NC 27560 | 800.638.3748

1-1/2", 2", 3", 4", 6", 8" and 10" Sizes

SCOPE

These specifications set forth the minimum acceptable design criteria and performance requirements for Compound-type cold water meters including the following potential service applications and general considerations:

- Intended where a wide flow range is anticipated
- Measurement of water usage for critical billing applications
- Measurement intended for typical commercial and industrial applications requiring lower flow sensitivities
- Measurement of low flow usage below OMNI T² Meter threshold levels
- Measurement of constant low to medium flows up to high flow usage

CONFORMANCE TO STANDARDS

The meter package shall meet or exceed all requirements of ANSI/AWWA Standard C701 and C702 for Class II compound and turbine meter assemblies. Each meter assembly shall be performance tested to ensure compliance.

The meter package shall meet or exceed all requirements of NSF/ANSI Standard 61, Annex F and G.

MAINCASES

The meter maincase shall be of epoxy coated ductile iron composition. The epoxy coating shall be provided as standard fusion-bonded and adhere to NSF for non-lead regulation compliance.

PERFORMANCE

The meter assembly shall have performance capability of continuous operation up to the rated maximum flows as listed below without affecting long-term accuracy or causing any undue component wear. The meter assembly shall also provide a 25% flow capacity in excess of the maximum flows listed for intermittent flow demands. Maximum headloss through the meter / strainer assembly shall not exceed those listed in the following table per meter size.

OPERATING CHARACTERISTICS

Meter Size	Low Flow (95% Min.)	Operating Range (98.5 - 101.5%)	Intermittent Flows (98.5 - 101.5%)	Pressure Loss (Not to Exceed)
1-1/2"	.25 GPM	.5 to 160 GPM	200 GPM	6.9 PSI @ 160 GPM
2"	.25 GPM	.5 to 160 GPM	200 GPM	4.3 PSI @ 160 GPM
3"	.5 GPM	1.0 to 400 GPM	500 GPM	3.2 PSI @ 400 GPM
4"	.75 GPM	1.5 to 800 GPM	1000 GPM	6.4 PSI @ 800 GPM
6"	1.5 GPM	3.0 to 1600 GPM	2000 GPM	5.5 PSI @ 1600 GPM
8"	2.5 GPM	4 to 2700 GPM	3400 GPM	4 PSI @ 2700 GPM
10"	3.5 GPM	5 to 4000 GPM	5000 GPM	4.5 PSI @ 4000 GPM

MEASURING CHAMBER

The measuring chamber shall consist of a measuring element, removable housing, and all-electronic register. The measuring element shall be mounted on a horizontal, stationary stainless steel shaft with sleeve bearings and be essentially weightless in water. The measuring element comes integrated with the advanced Floating Ball Technology design. The measuring chamber shall be capable of operating within the above listed accuracy limits without calibration when transferred from one maincase to another of the same size. The measuring shall be so configured to capture all flows as specified above, without the requirement of an automatic valve.

DIRECT MAGNETIC DRIVE SYSTEM

The direct magnetic drive shall occur between the motion of the measuring element blade position and the electronic register. The OMNI direct drive system with Floating Ball Technology is designed to extend service life, enhance low flow sensitivity and provide extended flow capacity and overall accuracy of the meter assembly. Any and all additional intermediate, magnetic or mechanical, drive couplings are not acceptable.

ELECTRONIC REGISTER

The meter's register is all-electronic and does not contain any mechanical gearing to display flow and accurate totalization. The electronic register includes the following patial list of features:

- AMR resolution units fully programmable
- Pulse output frequency fully programmable
- Integral data logging capability
- Integral resettable accuracy testing feature
- Large, easy-to-read LCD display
- 10-year battery life guarantee

MAXIMUM OPERATING PRESSURE

The meter assembly shall operate properly without leakage, damage, or malfunction up to a maximum working pressure of 200 pounds per square inch (psig).

STRAINERS

The meter strainer shall be integral and cast as part of the meter's maincase. The strainer's screen shall have a minimum net open area of at least two (2) times the pipe opening and be a V-shaped configuration for the purpose of maintaining a full unobstructed flow pattern. The strainer body shall be a coated ductile iron fusion-bonded epoxy identical to that of the meter's maincase. All fasteners shall be stainless steel capable of maintaining the following static pressure ratings and physical dimensions:

Meter Size	Maximum Working Pressure	Centerline to Strainer Base	Overall Length (Not to Exceed)
1-1/2"	200 PSIG	2-5/16 INCHES	13 INCHES
2"	200 PSIG	2-5/16 INCHES	15-1/4 INCHES
3"	200 PSIG	4-1/8 INCHES	17 INCHES
4"	200 PSIG	4-3/4 INCHES	20 INCHES
6"	200 PSIG	5-3/4 INCHES	24 INCHES
8"	200 PSIG	6-3/4 INCHES	30-1/8 INCHES
10"	200 PSIG	8-1/2 INCHES	41-1/8 INCHES

STRAIGHTENING VANES

A straightening vane assembly is mandatory and shall be positioned directly upstream of the measuring element. The straightening vane assembly shall be an integral component of the measuring chamber.

CONNECTIONS

Flanges for the 1-1/2" and 2" size meter assemblies shall be of the 2-bolt oval flange configuration. The 3", 4", 6", 8" and 10" size meter assemblies shall have flanges of the Class 125 round type, flat faced and shall conform to ANSI B16.1 for specified diameter, drilling and thickness.

CERTIFICATIONS AND MARKINGS

All sizes of meter packages shall display the sizes, model, manufacturer name, and direction of flow. Such display shall be cast on the side of the meter maincase.

GUARANTEE AND MAINTENANCE PROGRAM

Meters shall be guaranteed against defects in material and workmanship for a period of one (1) year from date of shipment. In addition, the meter supplier shall submit nationally published literature clearly outlining its factory maintenance program and current price schedule covering complete measuring chamber exchange.

INTENT

Subject meter specifications are designed to establish minimum guidelines for selecting an extremely critical metering device. Areas of concern to be evaluated in the selection process include, but are not limited to, ease of installation, operational features and benefits, readability and future system maintenance expense. A design, which reflects longevity of proper operation in all elements and high degree of sustained accuracy within the entire range of the meter assembly, is to be considered mandatory. Enhanced accuracy levels and performance are desired and will not be compromised.

RECOMMENDATION

Sensus OMNI C^2 Meter

8601 Six Forks Road, Suite 700
Raleigh, NC 27615
1-800-638-3748
www.sensus.com/water

1-1/2" and 2" Sizes

SCOPE

These specifications set forth the minimum acceptable design criteria and performance requirements for Turbine-type cold water meters used in residential settings, including the following potential service applications and general considerations:

- Intended where a moderately wide flow range is anticipated
- Measurement of water usage for typical billing applications
- Measurement intended for typical commercial, residential and industrial applications
- Measurement of constant low to extended high flow usage

CONFORMANCE TO STANDARDS

The meter package shall meet or exceed all requirements of AWWA Standard C701 for Class II turbine meter assemblies and exceeds AWWA C700 Residential Standard using Sensus Turbo technology. Each meter assembly shall be performance tested to ensure compliance.

The meter package shall meet or exceed all requirements of NSF/ANSI Standard 61, Annex F and G.

MAINCASES

The meter maincase shall be of epoxy coated ductile iron composition. The epoxy coating shall be provided as standard fusion-bonded and adhere to NSF for non-lead regulation compliance.

PERFORMANCE

The meter assembly shall have performance capability of continuous operation up to the rated maximum flows as listed below without affecting long-term accuracy or causing any undue component wear. Maximum headloss through the meter / strainer assembly shall not exceed those listed in the following table per meter size..

OPERATING CHARACTERISTICS

Meter Size	Low Flow (95% Min.)	Operating Range (98.5 - 101.5%)	Pressure Loss (Not to Exceed)
1-1/2	.75 GPM	2 to 150 GPM	6.7 PSI @ 150 GPM
2"	1.0 GPM	2.5 to 200 GPM	7.0 PSI @ 200 GPM
2" without Strainer	1.0 GPM	2.5 to 200 GPM	4.4 PSI @ 200 GPM

MEASURING CHAMBER

The measuring chamber shall consist of a measuring element, removable housing, and all-electronic register. The measuring element shall be mounted on a horizontal, stationary stainless steel shaft with sleeve bearings and be essentially weightless in water. The measuring element comes integrated with the advanced Floating Ball Technology design. The measuring chamber shall be capable of operating within the above listed accuracy limits without calibration when transferred from one maincase to another of the same size. The measuring shall be so configured to capture all flows as specified above.

DIRECT MAGNETIC DRIVE SYSTEM

The direct magnetic drive shall occur between the motion of the measuring element blade position and the electronic register. The OMNI direct drive system with Floating Ball Technology is designed to extend service life, enhance low flow sensitivity and provide extended flow capacity and overall accuracy of the meter assembly. Any and all additional intermediate, magnetic or mechanical, drive couplings are not acceptable.

ELECTRONIC REGISTER

The meter's register is all-electronic and does not contain any mechanical gearing to display flow and accurate totalization. The electronic register includes the following patial list of features:

- AMR resolution units fully programmable
- Large, easy-to-read LCD display
- 10-year battery life guarantee

MAXIMUM OPERATING PRESSURE

The meter assembly shall operate properly without leakage, damage, or malfunction up to a maximum working pressure of 200 pounds per square inch (psig).

STRAINERS

The meter strainer shall be integral and cast as part of the meter's maincase. The strainer's screen shall have a minimum net open area of at least two (2) times the pipe opening and be a V-shaped configuration for the purpose of maintaining a full unobstructed flow pattern. The strainer body shall be a coated ductile iron fusion-bonded epoxy identical to that of the meter's maincase. All fasteners shall be stainless steel capable of maintaining the following static pressure ratings and physical dimensions:

Meter Size	Maximum Operating Pressure	Centerline to Strainer Base	Overall Length (Not to Exceed)
1-1/2"	200 PSIG	2-5/16 INCHES	13 INCHES
2"	200 PSIG	2-5/16 INCHES	17 INCHES
2" without strainer	200 PSIG	2-5/16 INCHES	10 INCHES

STRAIGHTENING VANES

A straightening vane assembly is mandatory and shall be positioned directly upstream of the measuring element. The straightening vane assembly shall be an integral component of the measuring chamber.

CONNECTIONS

Flanges for the 1-1/2" and 2" size meter assemblies shall be of the 2-bolt oval flange configuration.

CERTIFICATIONS AND MARKINGS

All sizes of meter packages shall display the sizes, model, manufacturer name, and direction of flow. Such display shall be cast on the side of the meter maincase.

GUARANTEE AND MAINTENANCE PROGRAM

Meters shall be guaranteed against defects in material and workmanship for a period of one (1) year from date of shipment. In addition, the meter supplier shall submit nationally published literature clearly outlining its factory maintenance program and current price schedule covering complete measuring chamber exchange.

INTENT

Subject meter specifications are designed to establish minimum guidelines for selecting an extremely critical metering device. Areas of concern to be evaluated in the selection process include, but are not limited to, ease of installation, operational features and benefits, readability and future system maintenance expense. A design, which reflects longevity of proper operation in all elements and high degree of sustained accuracy within the entire range of the meter assembly, is to be considered mandatory. Enhanced accuracy levels and performance are desired and will not be compromised.

RECOMMENDATION

Sensus

OMNI R^2 Meter

8601 Six Forks Road, Suite 700
Raleigh, NC 27615
1-800-638-3748
www.sensus.com/water

xylem
Let's Solve Water

SmartPoint 520M

Pit Set Module

The SmartPoint® 520M Pit Set Module is a radio transceiver that provides water utilities inbound and outbound access to water measurement and ancillary device diagnostics via radio signal. The SmartPoint 520M is designed for submersible, pit-set environments.

TouchCoupler Design

The SmartPoint 520M Module utilizes TouchCoupler, the patented Sensus inductive coupling communication platform, to interface with the encoded meter. With TouchCoupler, the SmartPoint 520M Module can connect to the meter using existing two wire AMR installations instead of requiring utilities to access the meter to install a new three-wire connection. This results in a fast, efficient and reliable connection at minimal cost.

Operation

With its migratable, two-way communication ability, the M-Series SmartPoint functions as a walk-by/drive-by endpoint, fixed-base endpoint, or combination of the two. This flexibility increases utility data collection capabilities and streamlines operations. The SmartPoint 520M Module receives input from the meter register and remotely sends data to a walk-by/drive-by or fixed-base collection device. The SmartPoint 520M Module easily migrates from walk-by/drive-by to fixed base by simply installing a Base Station.

In walk-by/drive-by mode, the SmartPoint 520M Module collects data and awaits an activation signal from the Vehicle Gateway Basestation (VGB) or Hand-Held Device (HHD). Upon signal receipt, it transmits readings, the meter identification number and any alarms.

As a fixed-base endpoint, the SmartPoint 520M Module interacts with one or more strategically placed Base Stations located in the utility service area. Top of the hour readings and other diagnostics are instantly forwarded to the Regional Network Interface (RNI)™ at time of transmission. The FlexNet® communication network provides unmatched reliability by using expansive tower receiver coverage of metering end points, data/message redundancy, failover backup provisions and operation on FCC primary use (unshared) RF spectrum.

Powerful Transmission, Flexible Platform

The SmartPoint® 520M Pit Set Module offers several advantages that control both deployment and lifetime operation costs. Its powerful, industry-leading two watt transmitter broadcasts over large distances and minimizes collection infrastructure. And after the SmartPoint is installed, its migratable, two-way system platform can be updated without requiring personnel to visit each meter and/or inconveniencing customers.

BENEFITS

- Easily receives input from either walk-by/drive-by or fixed-base collection device
- Controls both deployment and lifetime operation costs
- Compact installation that saves time, space and money - without reducing system performance
- Delivers a fast, efficient and reliable connection at minimal cost
- Minimizes new infrastructure investment
- Enables effective leak detection

sensus
a xylem brand

SmartPoint 520M

Pit Set Module

Additional Smartpoint 520M Module Features

The SmartPoint 520M Module obtains hourly readings and can monitor continuous flow over a programmable period of time, alerting the utility to leak conditions. In addition, the SmartPoint stores up to 840 consumption intervals (35 days of hourly consumption), providing the utility with the ability to extract detailed usage profiles for consumer information and dispute resolution. The SmartPoint also incorporates a two-port design, allowing the utility to connect multiple registers and ancillary devices (such as acoustic monitoring) to a single SmartPoint. This results in a compact installation that saves time, space and money - without reducing system performance.

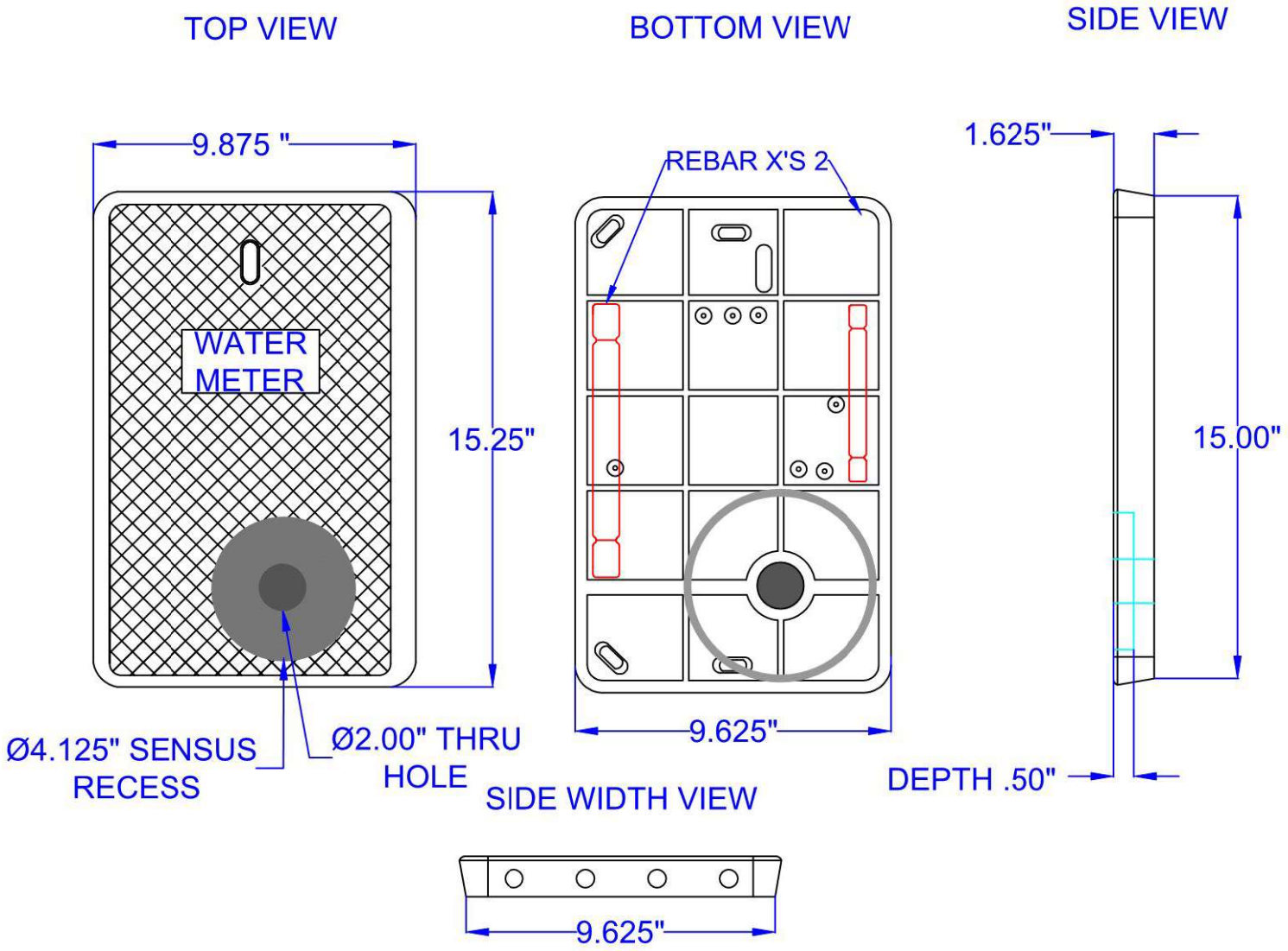
SPECIFICATIONS

Service	Pit set installation interfacing the utility meter to the Sensus FlexNet communication network. Unit requires 1.75" diameter hole in pit lid; fits pit lid thicknesses up to 1.75"
Physical characteristics	Width: 4.43" x Height: 5.09" x Depth: 3"
Weight	1.0 lbs/16.0 oz
Color	Black
Frequency range	900 – 950 MHz, 8000 channels X 6.25 kHz steps
Modulation	Proprietary Narrow Band
Memory	Non-Volatile
Power	Lithium Thionyl Chloride batteries
Approvals	US: FCC CFR 47: Part 24D, Part 101C, Part 15 Licensed operation Canada: Industry Canada (IC) RSS-134, RSS-119
Operating temperature	- 22° F to +185° F - 30° C to + 85° C
Options	Dual or single port availability; TouchCoupler only, wired only
Installation environment	100% condensing, water submersible
Compatibility	TouchCoupler and Wired Version: Sensus Encoder Registers, Badger ADE water registers, Master Meter AccuLinx, and Hersey Translator (approved TR/PL Lead) Wired Version Only: Elster Encoder (Sensus protocol), Neptune ARB VI (ProRead), Hersey Translator, Zenner PMN Nitro 01, McCrometer flowcom FC100-00M, and Kamstrup flowIQ 2100 Refer to the 510M/520M SmartPoint® Module Water Meter and Ancillaries Compatibility Quick Guide for the latest compatibility information.
Warranty	20 years – Based on six transmissions per day. Refer to Sensus G-500 for warranty.

xylem

Xylem.com | Sensus.com

SENSUS | 637 Davis Drive | Morrisville, NC 27560 | 800.638.3748



MATERIAL: MAIN LID POLYMER
FINISH PROCESS
SURFACE FINISH 125

FINISH OR TREATMENT
(UNLESS OTHERWISE SPECIFIED)

BEFORE FINISH PROCESS:
DIMENSIONS IN INCHES
(DIMENSIONS) IN MILLIMETERS
TOLERANCES UNLESS SPECIFIED: XXX+-.0010 (.0254)
XXX+-.005 (.127)
XX +- .010 (.254)
ANGLES +- .010 1/2°
REMOVE BURRS AND BREAK CORNERS
.005 (.127) MAX. UNLESS SPECIFIED
INSIDE CORNERS .010 R. MAX.
CONCENTRICITY .005 F.I.M.

NICOR, INC.

PROPRIETARY NOTICE

NICOR

B9E with Sensus Recess & Thru Hole

CUSTOMER DRAWING | 04

9"x15"

PROPRIETARY