



# WE ARE BUILDING A BETTER HARVEY

*Integrity . Unity . Pride*

Christopher J. Clark, Mayor  
CITY OF HARVEY

## REQUEST FOR BIDS

**Bid Number: 2021-06-01**

for

## WATER METER REPLACEMENT PROGRAM

<b>BID NUMBER:</b>	2021-06-01
<b>BID ISSUE DATE:</b>	Thursday, June 3, 2021
<b>BID DUE:</b>	Thursday, June 24, 2021 by 10:00am (CT)
<b>BID OPENING DATE:</b>	Thursday, June 24, 2021 at 10:15am (CT)
<b>AWARD OF BID:</b>	The City anticipates awarding the contract on or before Thursday, July 8, 2021

# INVITATION TO BID

## WATER METER REPLACEMENT PROGRAM

### CITY OF HARVEY

THE CITY OF HARVEY, ILLINOIS, acting pursuant to the City's charter, will receive bids by email at [procurement@cityofharveyil.gov](mailto:procurement@cityofharveyil.gov) for furnishing and performing work necessary for and incidental to the replacement of water meters within the City until Thursday, June 24, 2021 by 10:00am (CT). Bids should be submitted via email with the subject line "WATER METER REPLACEMENT PROGRAM – [COMPANY NAME]."

Bids will be publicly opened and read aloud Thursday, June 24, 2021 at 10:00am (CT) at Harvey City Hall, Council Chambers, 15320 Broadway Avenue, Harvey, IL 60426. All bidders are invited to attend. Bidders planning to attend the bid opening must email [procurement@cityofharveyil.gov](mailto:procurement@cityofharveyil.gov) to confirm attendance.

Bids are being solicited only from responsible and established bidders known to be experienced and regularly engaged in the work of water meter replacement. Satisfactory evidence that the bidder has the necessary capital, equipment, experience, and personnel to do the work may be required.

Proposal forms and specifications can be accessed at <https://www.cityofharveyil.gov/requests-for-proposals-RFBs/>



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# 1. GENERAL INFORMATION FOR THE BIDDER

## 1.1. QUALIFICATION REQUIREMENTS

Bids are solicited only from responsible bidders known to be experienced and regularly engaged work of similar character and scope to that covered in this Request for Bids (“RFB”). Satisfactory evidence that the bidder has the necessary capital, equipment, experience, and personnel to do the work may be required.

## 1.2. BID FORM

Bids must be submitted using the bid forms furnished by the City (See Section 3). Bidders not responding to all of information requested in this RFB may have their bids rejected. The City Council reserves the right to reject any and all bids and to accept any bid which, in its opinion, is most advantageous to the City. Bids submitted must remain valid for at least sixty (90) days past the response date provided in this RFB.

## 1.3. RESPONSE DATE

To be considered, bids must be received at the City on or before the time specified in the Invitation to Bid. The contractor’s name must be included in the email subject line. All information submitted in the bid, including but not limited to bid prices, equipment, etc., must remain valid and available for acceptance by the City for at least ninety (90) days past the submission deadline.

## 1.4. OPENING OF BIDS

All bids received will be publicly opened and read at the time and place specified in the Invitation to Bid. All bidders are invited to attend. Bidders planning to attend the bid opening must email [procurement@cityofharveyil.gov](mailto:procurement@cityofharveyil.gov) to confirm attendance.

## 1.5. REJECTION OF BIDS

The City reserves the right to reject any or all bids, in part or in their entirety, or to waive any informality or defect in any bid, or to accept any bid which, in its opinion is deemed most advantageous to the City.

## 1.6. RESPONSE TO BIDDER QUESTIONS

Explanations desired by a prospective bidder shall be requested of the City by email, and if explanations are necessary, a reply shall be made in the form of an addendum, a copy of which will be forwarded to each bidder. Every request for such explanation shall be submitted by email to [procurement@cityofharveyil.gov](mailto:procurement@cityofharveyil.gov) by Thursday, June 10, 2021 at 1:00pm (CT). No inquiry or request received after this deadline will be given consideration.

## 1.7. BIDDER RESPONSIBILITY

The City of Harvey will not be liable for any cost incurred in the development of a proposal responsive to this request. By submitting a bid to do the work, the Bidder represents that it is fully informed concerning the scope of the project, the requirements of the Contract, the physical conditions likely to be encountered in the work, and the character, quality, and quantity of services required by the City.

The Successful Bidder shall furnish all labor materials, supplies, devices, or tools needed to perform the required services. The Bidder will not be entitled to additional compensation if it later determines that conditions require methods or equipment other than those anticipated in making its bid. In addition, the Successful Bidder shall provide all vehicles and other equipment and material necessary for the work.



Bidders having questions regarding this RFB should request clarification before submitting a bid. Negligence or inattention of the Bidder in filing a bid, or in any phase of the performance of the work, shall be grounds for refusal of the City to agree to additional compensation. Bidders having questions regarding this RFB contact the City for clarification.

#### 1.8. CONTRACT EXECUTION

The bidder to whom the Contract is awarded shall, within ten (10) calendar days after the notice of award, enter into a written contract with the City. Failure to execute a contract will be considered abandonment of the award and the City shall have no further obligation to that bidder.

#### 1.9. INCURRING COSTS

The City is not liable for any costs incurred by contractors prior to the issuance of a Contract.

#### 1.10. MATERIAL SUBMITTED

All materials submitted as part of a bid will become the property of the City. The City reserves the right to use any or all ideas presented.

#### 1.11. LENGTH OF CONTRACT

Bids shall address, to the greatest extent possible, all possible service delivery impacts, including, but not limited to, bid prices, equipment, etc., throughout the term of the contract. The City seeks to have the replacement of all water meters completed by November 30, 2021.

This contract shall also be subject to appropriation by the City Council. In the absence of an appropriation, a contract issued pursuant to this RFB shall be void and of no effect.



## 2. BID SPECIFICATIONS

### 2.1. DEFINITIONS

“Bids” – shall be defined as an announcement of terms indicating what items are needed to complete a project.

“Bidders” – shall be defined as any person(s) or company that attempts to meet the terms of the bid.

“City” – shall mean the City of Harvey.

“Contract” – shall mean the contract between the City and the Successful Bidder

“Successful Bidders” – shall be defined as the bidder who is chosen by the City Council to enter into a contract with the City.

These definitions are meant as guides for understanding and are not binding explanations.

### 2.2. PROJECT NARRATIVE

The City of Harvey is requesting proposals from qualified contractors to replace approximately 7,330 existing water meters with Advanced Metering Infrastructure (AMI)-compatible water meters. This water meter replacement program will improve data collection and enhance service by connecting the City’s existing AMI system. The more detailed Scope of Work is described in the following section.

### 2.3. SCOPE OF WORK

#### 2.3.1 Product Details

The existing residential water meters up to 1” in size will be replaced with equivalent size Sensus iPERL Water Meters, with 510M or 520M Single Port, 3-Wire FlexNet SmartPoints. Water meters 1½” and larger will be replaced with equivalent size Sensus Omni Meters, with 510M or 520M Single Port, 3-Wire FlexNet SmartPoints. All water meters will be purchased by the City. Reference **Appendix A** for product specifications. The following table provides the current estimated number of water meters to be replaced at each respective size.

Meter Size	5/8”	3/4”	1”	1.5”	2”	3”	4”	6”	8”	Total
No. of Meters	6055	20	772	219	223	14	14	6	7	7330

Within this meter replacement there are several instances of special case meter replacement. The successful bidder shall be responsible for replacing approximately 150 meters on shared shut-off lines with ally Smart Water Meters, as well as replacing approximately 25 fire meters. Reference **Appendix A** for product specifications.

#### 2.3.2 Project Delivery Scheduling

Upon receipt of the Notice to Proceed, the contractor shall determine a project delivery schedule. The schedule shall reflect work to be performed under the Water Meter Replacement Program authorized by the City. This project schedule must be approved by the City prior to commencement of work and shall reflect water meter replacement as scheduled by each of thirteen zones located within the City. Both parties must mutually agree upon the project delivery schedule.



### 2.3.3 Notification

The contractor shall be responsible for contacting residents and businesses prior to water meter installation to notify all parties regarding replacement. The method and scheduling of notification must be approved by the City prior to commencement of work.

### 2.3.4 Photo Documentation and Recordkeeping

The contractor shall maintain a record of meter replacements through meter exchange tickets. This contractor shall take a photograph of each existing meter and new meter once the meter has been replaced to verify replacement has occurred. The meter tickets and photos shall be provided to the City of Harvey.

### 2.3.5 Implementation

The contractor shall be responsible for the replacement of the water meter components in their entirety, including ensuring the water meters are fully operational within the AMI system prior to full deployment. To ensure all water meters are fully operational, the following will also be required:

- Each water meter will require programming by the City of Harvey Water Department with a Sensus FL6501 Hand Held Device. The contractor shall coordinate with the City to ensure each water meter replacement is programmed in a timely manner.
- Each water meter replacement located outdoors will require a hole to be drilled in the meter vault lid to ensure signal efficacy. A specific drill, Slugger JHM USA5, is required to complete this work. It is the City's preference that the contractor drill the holes in the meter vault lids. However, if the contractor does not have the necessary equipment, the contractor will be responsible for coordinating with the City to ensure drilled water meter vault lids are available ahead of planned water meter replacement work.

### 2.3.6 Warranty

The contractor shall provide warranties and services to ensure system functionality and availability of system components for 15 years. A 100% warranty on all equipment and labor on the water meters will be effective for 12 months following commissioning and acceptance. The chosen firm shall provide a price for software support and upgrades following the initial warranty period.

### 2.3.7 Unsuccessful Installation

The contractor shall provide a rate for site visits that result in unsuccessful meter replacement. This shall be limited to situations where existing plumbing is not compatible with the new water meter.

## 2.4. QUALIFICATIONS

A detailed description of the primary contact's background, as well as the bidder's background and previous experience shall be included with the proposal. Background information and experience shall also be submitted for all key personnel that will be working with the City. In the event that portions of the work are to be subcontracted or a joint affiliation utilized, details of such affiliation shall be furnished along with the same information as required for the bidder.



## 2.5. PROPOSAL REQUIREMENTS

A response to this RFB must outline in detail the manner in which they would work with the City to fulfill City's needs. A complete proposal will include the following:

- **Cover Letter.** Cover letter include a brief summary of the qualifications of the contractor.
- **Professional License.** Copies of current professional licenses, including any minority owned business forms.
- **Certifications.** Copies of any certifications achieved relevant to the services requested.
- **Statement of Qualifications.** The bidders shall include a brief work history, titles of employees, and list experience related to water meter replacement;
- **Price Proposal.** The cost to provide the following services outlined in the Scope of Work.
- **Expectations.** Expectations and requirements of the City of Harvey.
- **Additional Information.** Other such information that is required for the City to evaluate the quality and completeness of the proposed project:
  - Three (3) References: Please provide a list of at least three (3) professional references for whom the contractor has or is currently water meter replacement services. Please include the contact person's name, company or firm, and telephone number and email address for the contact. Professional references can be forgone if the contractor has performed water meter replacement services for the City of Harvey in the prior twelve (12) months.
  - Legal Actions: Please provide a list of any pending litigation in which the bidder may experience significant financial settlement and include a brief description of the reason for legal action. If no legal action is pending, include a section in the proposal marked "Legal Actions – None."
  - Conflict of Interest: Provide information regarding any potential conflict of interest. Failure to reveal any potential conflict of interest at the time of proposal may represent a breach of contract, subject to penalties as appropriate.
  - Statement concerning amount of anticipated participation by MBE/WBE firms as contractor or subcontractor in project, what steps Bidder has taken to secure MBE/WBE participation as per the requirements of the MBE/WBE county ordinance, and whether Bidder will seek a waiver to exempt Bidder from complying with MBE/WBE county policy.
  - Statement concerning efforts that have been or will be taken to recruit and hire local workers to meet project needs, if any.
  - Certificate of Insurance: To include general liability and errors and omissions. Bidder must list City of Harvey, Illinois as an additional insured party upon successful contract.
  - Certificate of Good Standing (Corporation) or Certificate of Existence (Limited Liability Company) issued by the Illinois Secretary of State (If Respondent is a joint venture, a Certificate of Good Standing or Certificate of Existence, as applicable, must be submitted for each entity comprising the joint venture.)

## 2.6. ASSIGNMENTS OF SUBCONTRACTING

The Successful Bidder shall not assign, subcontract or otherwise transfer its duties and/or obligations under this proposal, without prior written consent of the City. If the bidder anticipates that it will need





to subcontract its duties in order to fulfill the Contract requirements, that information must be disclosed in the Bidder's response.

## 2.7. FAIR EMPLOYMENT PRACTICES

The Successful Bidder agrees to not discriminate against any employee or applicant for employment, to be hired in the performance of the contract with respect to hire, tenure, term, conditions or privileges of employment, or any other matter directly or indirectly related to employment, because of sex, race, color, religion, nation origin, ancestry, handicap or any other basis prohibited by State or Federal law or regulations.

## 2.8. PREVAILING WAGES

As applicable when this Contract calls for the construction of a "public work", within the meaning of the Illinois Prevailing Wage Act, 820 ILCS 130/.01 et. seq. ("the Act"), then the Act requires all contractors and subcontractors to pay laborers, workers and mechanics performing services on public works projects no less than "prevailing rate of wages", defined as hourly cash wages plus fringe benefits, in the county where the work is performed. The Contractor is solely responsible to ascertaining the current and applicable Prevailing Wages for the work; and determining, and complying with, all other applicable provisions of Illinois statutes pursuant to this section. For information regarding current prevailing wage rates, please refer to the Illinois Department of Labor's website at:

<http://www.state.il.us/agency/idol/rates.HTM>. All contractors and subcontractors rendering services under this Contract must comply with all requirements of the Act, including but not limited to, all wage notice and benefits, posting and record keeping duties. The Contractor should contact the Illinois Department of Labor, if there is uncertainty as to the application of prevailing wages for the Work. By executing this Contract the Contractor acknowledges that it has received written notice from the City of Harvey pursuant to the Act that, as applicable, not less than the prevailing wages as found by the City of Harvey or The Department of Labor or determined by the court on review shall be paid to all laborers, workers and mechanics performing the Work.

## 2.9. CONTRACTOR'S PAYMENT OF TAXES, PERMITS, ETC.

The Successful Bidder shall be solely responsible for:

- A) Payment of wages to its work force in compliance with all Federal and State laws, including the Federal and State Wage and Hour laws.
- B) Payment of any and all FICA, unemployment contributions and other payroll-related taxes or contributions required to be paid by the Successful Bidder under State and Federal law.
- C) Payment of all applicable Federal, State, or Municipal taxes, charges or permit fees, whether now in force or subsequently enacted.
- D) Payment of any and all suppliers, merchants, or vendors from whom the Successful Bidder obtains items and materials related to the contract.

The Successful Bidder shall indemnify and hold the City harmless from all claims arising from the foregoing payment obligations of the Successful Bidder.



## 2.10. DAMAGE TO PERSONS OR PROPERTY

The Successful Bidder also accepts sole responsibility for any damage to any person or damage to public or private property resulting from their performance of the work, whether based on negligence or any other legal or equitable claim.

The Successful Bidder will protect, defend, and hold harmless the City from any and all damage, claim, liability, or expenses whatsoever, or any amounts paid in compromise there of arising out of or connected with the performance of this contract, including those related to the Successful Bidder's (or its subcontractors') negligence.

## 2.11. INSURANCE

The Contractor shall procure and maintain for the duration of the contract insurance against claims for injuries to persons or damages to property which may arise from, or in connection with the performance of the Work by the Contractor, his agents, representatives, employees or subcontractors.

Coverage shall be at least as broad as:

- Insurance Service Office Commercial General Liability occurrence form CG 0001 (Ed. 11/85).
- Insurance Service Office Business Auto Liability coverage form number CA 0001 (Ed. 10/90), Symbol 01 "Any Auto" or Business Auto Liability coverage form number CA 0001 (Ed. 1/87) and endorsement CA 0029 (Ed. 2/88) changes in Business Auto and Truckers coverage forms: Insured Contract.
- Workers' Compensation as required by the Labor Code of the State of Illinois and Employers' Liability Insurance.

Contractor shall maintain limits no less than:

- Commercial General Liability: \$1,000,000 combined single limit per occurrence for bodily injury, personal injury and property damage. The general aggregate shall be twice the required occurrence limit. Minimum General Aggregate shall be no less than \$2,000,000 or a project/contract specific aggregate of \$1,000,000.
- Business Automobile Liability: \$1,000,000 combined single limit per accident for bodily injury and property damage.
- Workers' Compensation and Employers' Liability: Workers' Compensation coverage with statutory limits and Employers' Liability limits of \$1,000,000 per accident.

Any deductibles or self-insured retentions must be declared to and approved by the City. At the option of the City, either: the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects the City of Harvey, its officials, agents, employees and volunteers; or the Contractor shall procure a bond guaranteeing payment of losses and related investigation, claim administration and defense expenses.

The policies are to contain, or be endorsed to contain, the following provisions: The City of Harvey, its officials, agents, employees and volunteers are to be covered as insured's in respect to liability arising out of activities performed by or on behalf of the Contractor; products and completed operations of the Contractor; premises owned, leased or used by the Contractor; or automobiles owned, leased, hired or borrowed by the Contractor. The coverage shall contain no special limitations on the scope of protection



afforded to the City of Harvey, its officials, agents, employees and volunteers. The Contractor's insurance coverage shall be primary as respects the City of Harvey, its officials, agents, employees and volunteers. Any insurance or self-insurance maintained by the City of Harvey, its officials, agents, employees and volunteers shall be excess of Contractor's insurance and shall not contribute with it.

Any failure to comply with reporting provisions of the policies shall not affect coverage provided to City of Harvey, its officials, agents, employees and volunteers.

The Contractor shall furnish the City with certificates of insurance naming the City of Harvey, its officials, agents, employees and volunteers as additional insured, and with original endorsements affecting coverage required by this clause. The certificates and endorsements for each insurance policy are to be signed by a person authorized by that insurer to bind coverage on its behalf. The certificates and endorsements shall be submitted to, approved by the City before any of the Work commences. The City reserves the right to request full certified copies of the insurance policies and endorsements.

An Additional Insured Endorsement providing coverage to the City of Harvey, its officials, agents, employees and volunteers shall also be furnished to the City.

## 2.12. CERTIFICATIONS OF INSURANCE

Included in bid package, Bidders shall provide to the City complete certificates of insurance to meet the above requirements. Policies shall be endorsed to provide the City at least 30 days written notice of reduction, cancellation or intent not to renew coverages as called for above. If insurance is canceled, reduced, non-renewed or otherwise is not in effect to the minimum required coverage, the Successful Bidder must cease work on this bid.

The Successful Bidder shall provide the City with a copy of its required insurance policies and certificates of insurance as described above. If the Successful Bidder does not provide such materials in the time provided for, the Successful Bidder will be disqualified and the bid will be awarded to the next lowest bidder or in the creation of a new request for bids.

## 2.13. QUALITY OF SERVICE

The City expects the Successful Bidder to maintain all equipment in a clean and well-operating fashion, with special consideration for proper maintenance and care of all elements, items and equipment mentioned in this document. The Successful Bidder will operate in a professional manner and keep all noise and other nuisances to a minimum at all times while under contract with the City. The City is looking to inconveniencing the public as little as possible, considering the service Successful Bidder is providing. The Successful Bidder shall file all documents outlined in this RFB in a timely and well-organized manner.

## 2.14. OPERATION OF VEHICLES

The Successful Bidder shall operate all company vehicles in a manner so as to not impede traffic flow on City streets. Company vehicles are not to be left unattended for any reason except for emergencies or in the actual performance of the job. When a vehicle is left unattended for the actual performance of the job, it shall be according to all City Codes and ordinance in place at that time.



## 2.15. SUPPORT FACILITIES

Successful Bidder shall have an available office with sufficient staff and communications facilities to assure ready accessibility and prompt response to the needs of the City.

## 2.16. BREACH OF CONTRACT AND CITY'S RIGHT TO TERMINATE CONTRACT

In the event that any of the provisions of this bid and/or resulting contract are breached by the Successful Bidder, the City shall give written notice to the Successful Bidder of the breach or pattern of behavior that constitutes the breach and allow the Successful Bidder to resolve the breach or pattern of behavior that constitutes the breach within ten (10) calendar days of Successful Bidder's receipt of notice. If the breach or pattern of behavior is not resolved, then the City Administrator of the City of Harvey shall have the right to cancel any contract by sending written notice to the Successful Bidder of the cancellation.

If the Successful Bidder should be judged bankrupt, if it should make a general assignment for the benefit of its creditors, if a receiver should be appointed on account of its insolvency, if it should persistently or repeatedly refuse to supply enough labor, materials and/or equipment to meet the scope of work of the contract, if it should persistently disregard laws of the State of Illinois and/or ordinances of the City, or if it fails to comply and fulfill its obligations under any provision of the contract resulting from its bid, the City may, without prejudice to any other right or remedy, terminate the contract immediately.

If the Successful Bidder fails to perform or complete the water meter replacement as agreed or otherwise breaches its duties under this bid or the resulting contract, the Successful Bidder shall be responsible for any and all costs the City incurs in obtaining satisfactory performance of the project and/or litigation costs and attorneys fees to enforce its rights under the bid and this contract. Such relief shall be in addition to any other legal and equitable remedies available to the City.

## 2.17. CITY'S RIGHT TO MODIFY CONTRACT

The City reserves the right to negotiate with the Successful Bidder for a change in terms of the contract during the term of the contract and to make adjustments relative to the implementation of a change that reduces or modifies the need for the engineering services. If the City and the Successful Bidder are unable to agree on a revised contract, the City may seek new proposals and, upon a minimum of ten (10) calendar days written notice from the City, may terminate the unexpired portion of the contract. The City shall not be liable for any cost under this section beyond the contract price for the period where service is actually provided.

## 2.18. NO CONFLICT OF INTEREST

The bidder must provide a statement that it has no conflicting financial or professional interests and is qualified to perform the services requested. A bidder working for the City would be considered to have a conflicting interest if they are also performing services for a builder, property owner, developer, or contractor, or might be expected to be active in the City.

## 2.19. REFERENCES

All Bidders shall include a list of current and prior projects similar to that proposed in this RFB as references for qualifying experience. The name, address, and telephone numbers of the responsible



individual(s) at the reference project site who may be contacted shall be included. Particular attention will be paid to references from other municipalities and/or public sector entities within Cook County.

#### 2.20. PAYMENT

The City shall pay for acceptable work within thirty (30) days of receipt of invoice, except that prior to approval of and final payment for the completion of the project, the Successful Bidder must thoroughly clear the project site and any other place affected by the work of all debris to the City's satisfaction, in the City's sole discretion.

#### 2.21. TIME IS OF THE ESSENCE

Time is of the essence in this matter. The Successful Bidder must schedule its work and that of its subcontractors to meet the needs and requirements of the City. The Successful Bidder must perform the work expeditiously in cooperation with the City. The Successful Bidder's sole remedy for any delay caused by the City or its agents, employees, contractors, or subcontractors will be an extension in the contract time; damages will be unavailable to Successful Bidder on such grounds.



### 3. BID FORM

Item	Unit	Quantity	Rate/Unit	Cost
A. Water Meter Replacement	No. of Meters	7,330	\$	\$
<b>Total</b>				\$

Total cost for replacement of 7,330 meters: \_\_\_\_\_.



## APPENDIX A – PRODUCT SPECIFICATIONS





# 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.

### CAPABILITIES

- The iPERL meter has an operating range of 0.11 gpm (0.025 m<sup>3</sup>/hr) to 55 gpm (12.5 m<sup>3</sup>/hr)—it even starts to register flow as low as 0.03 gpm (0.007 m<sup>3</sup>/hr).
- Sizes include: 5/8" (DN 15 mm), 3/4" (DN 20 mm) and 1" (DN 25 mm)
- iPERL can be installed horizontally, vertically or diagonally.

### BENEFITS

- Maximize investment with iPERL's magnetic technology, which delivers a 20-year accuracy warranty, with no repairs
- Get smart water alarms to 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 enhanced accuracy at both low and high flows. Over a 20-year lifespan, your iPERL will measure just as accurately as the day it was installed.

### Solid State Magnetic 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.

### Alarms

Quick resolution of field issues is made possible with configurable 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.

### 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. Embedded in the flow tube are coated silver electrodes. iPERL utilizes these to measure the fluid velocity through the flow tube – enabling less power consumption and predictable meter performance. The iPERL meter has a 20-year accuracy warranty and a 20-year battery life guarantee.





## Electronic Register

The 9-digit hermetically-sealed electronic register with LCD display was designed to eliminate dirt, fog and moisture contamination in pit settings. The large, easy-to-read display includes AMR digits, direction of flow, units of measure and smart water alarms. The AMR digits and units of measure are fully programmable. The register also provides integrated customer data logging.

## AMI / AMR Compatibility

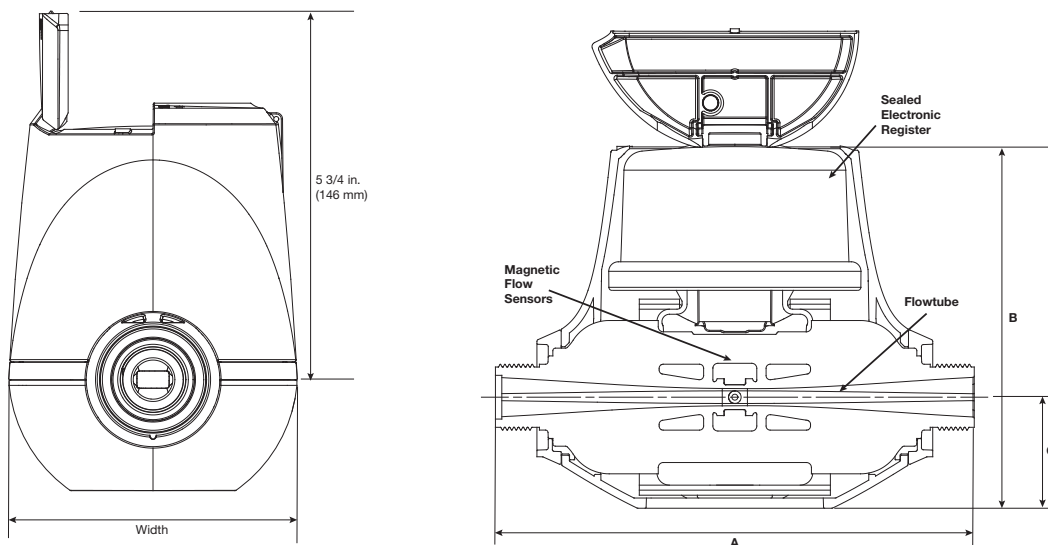
Sensus iPERL meters are compatible with common AMR/AMI systems, including the Sensus FlexNet® communication network.

## Conformance to Standards

The Sensus iPERL meter meets the requirements of NSF 61, Annex F/G and 372 and exceeds the most recent revision of AWWA Standard C-715.

## Tamper Resistant

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.



## 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" (155 mm)	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" (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" 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. (1.5 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. (1.6 kg)



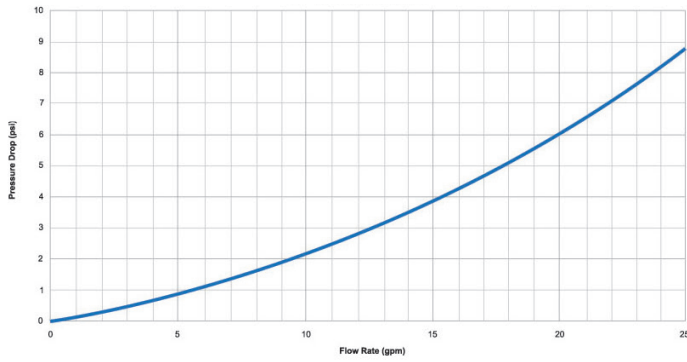
## Specifications

Service	Measurement of potable and reclaim water. 0-100% humidity. Fully submersible. IP68 rated.
Temperature	Water operating temperature range of 33 °F (0.55 °C) to 80 °F (26.7 °C) . Ambient air operating temperature -22 °F (-30 °C) to -140 °F (60 °C). Storage air temperature -30 °F (-34.4 °C) to 158F (70 °C).
Starting Flow	5/8" (DN 15 mm) size: 0.03 gpm (0.007 m <sup>3</sup> /h) 3/4" (DN 20 mm) size: 0.03 gpm (0.007 m <sup>3</sup> /h) 1" (DN 25 mm) size: 0.11 gpm (0.025 m <sup>3</sup> /h)
Low Flow Range (±3%)	5/8" (DN 15 mm) size: >0.11 gpm (0.025 m <sup>3</sup> /hr) to <0.18 gpm (0.041 m <sup>3</sup> /hr) 3/4" (DN 20 mm) size: >0.11 gpm (0.025 m <sup>3</sup> /hr) to <0.18 gpm (0.041 m <sup>3</sup> /hr) 1" (DN 25 mm) size: >0.3 gpm (0.068 m <sup>3</sup> /hr) to <0.4 gpm (0.09 m <sup>3</sup> /hr)
Normal Water Operating Flow Range (±1.5%)	5/8" (DN 15 mm) size: 0.18 to 25 gpm (0.04 to 5.7 m <sup>3</sup> /hr) 3/4" (DN 20 mm) size: 0.18 to 35 gpm (0.04 to 8.0 m <sup>3</sup> /hr) 1" (DN 25 mm) size: 0.4 to 55 gpm (0.09 to 12.5 m <sup>3</sup> /hr)
Maximum Operating Pressure	5/8" 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, AMR/AMI compatible.
Materials	External housing - Thermal plastic; Flowtube - Polyphenylene sulfide alloy; Electrode - Silver/silver chloride; Register cover - Tempered glass

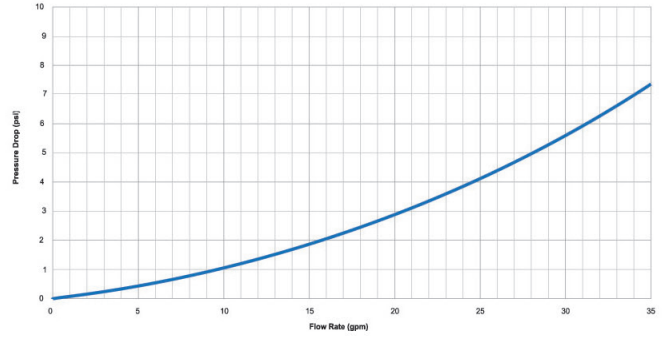


## Headloss Curves

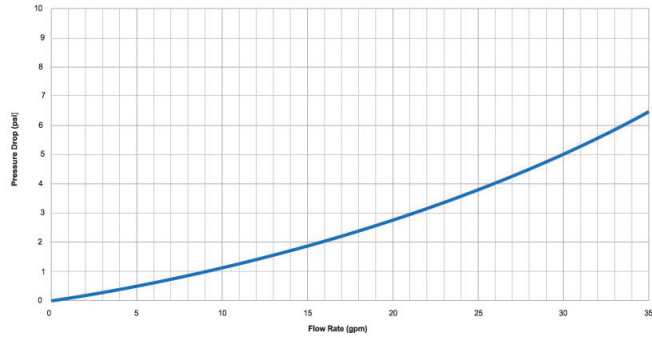
5/8" Headloss Curve



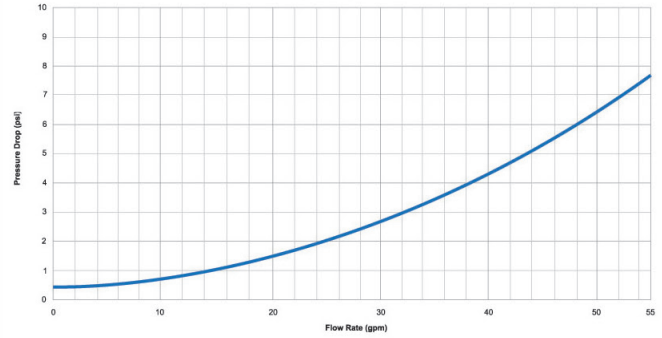
3/4" Headloss Curve



5/8" x 3/4" Headloss Curve



1" Headloss Curve



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# OMNI™ Compound (C<sup>2</sup>) Water Meter

1-1/2", 2", 3", 4", 6", 8" and 10" OMNI C<sup>2</sup> Meter

The OMNI Compound (C<sup>2</sup>) Water Meter operation is based on advanced Floating Ball Technology (FBT).

## DESCRIPTION:

- Floating Ball Technology (FBT)

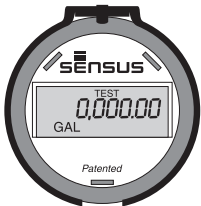
## ELECTRONIC REGISTER DISPLAY DIAGRAM



Totalization Mode



AMR/AMI Mode



Resettable Test Mode



Rate of Flow Mode

## Conformance to Standards

The OMNI C<sup>2</sup> meter meets and far exceeds the most recent revision of AWWA Standard C701 and C702 class II. Additionally, the meter does not require a valve to meet these standards. Each meter is performance tested to ensure compliance. All OMNI meters are NSF/ANSI Standard 61, Annex F and G approved latest standards.

## Performance

The patented measurement principles of the OMNI C<sup>2</sup> meter ensure greater accuracy, expanded accuracy range and longer service life than any other comparable class meter. The OMNI C<sup>2</sup> meter has no restrictions on sustained flow rates within its continuous range. The floating ball measurement technology allows installation in any orientation and flows up to maximum rated capacity without undue wear or accuracy degradation.

## Construction

The OMNI C<sup>2</sup> meter consists of two basic assemblies; the maincase and the measuring chamber. The measuring chamber assembly includes the "floating ball" impeller with a coated titanium shaft, hybrid axial bearings, integral flow straightener and an all electronic programmable register with protective bonnet. The maincase is made from industry proven Ductile Iron with an approved NSF epoxy coating. Maincase features are; easily removable measuring chamber, unique chamber seal to the maincase using a high pressure o-ring, testing port and an AWWA compliant strainer.



## OMNI Electronic Register

The OMNI C<sup>2</sup> electronic register is hermetically sealed with an electronic pickup containing no mechanical gearing. The large character LCD displays AMR, totalization, rate of flow and a resettable test totalizer. OMNI register features include AMR resolution units that are fully programmable, fully programmable pulse output frequency, integral customer data logging capability and integral resettable accuracy testing feature compatible with UniPro and Sensus flow verification software. The large, easy-to-read LCD also displays both forward and reverse flow directions. The OMNI C<sup>2</sup> electronic register has a 10-year battery life guarantee.

## Magnetic Drive

Meter registration is achieved by utilizing a fully magnetic pickup system. This is accomplished by the magnetic actions of the embedded rotor magnets and the ultra sensitive register pickup probe. The only moving component in water is the “floating ball” impeller.

## Measuring Element

The hydro-dynamically balanced impeller floats between the bearings. The Floating Ball Technology (FBT) allows the measuring element to operate virtually without friction or wear, thus creating the extended upper and lower flow ranges capable on only the OMNI C<sup>2</sup> meter.

## Strainer

The OMNI C<sup>2</sup> with the AWWA compliant “V” shaped strainer uses a stainless steel screen along with Floating Ball Technology (FBT). This creates a design that greatly improves accuracy, even in difficult settings. A removable strainer cover permits easy access to the screen for routine maintenance.

## Maintenance

The OMNI C<sup>2</sup> meter is designed for easy maintenance. Should any maintenance be required, the measuring chamber and/or strainer cover can be removed independently. Replacement parts or complete measuring chambers are available for repairs. OMNI C<sup>2</sup> replacement measuring chambers may also be utilized to upgrade some third-party meters to achieve increased accuracy and extended service life.

## AMR/AMI Systems

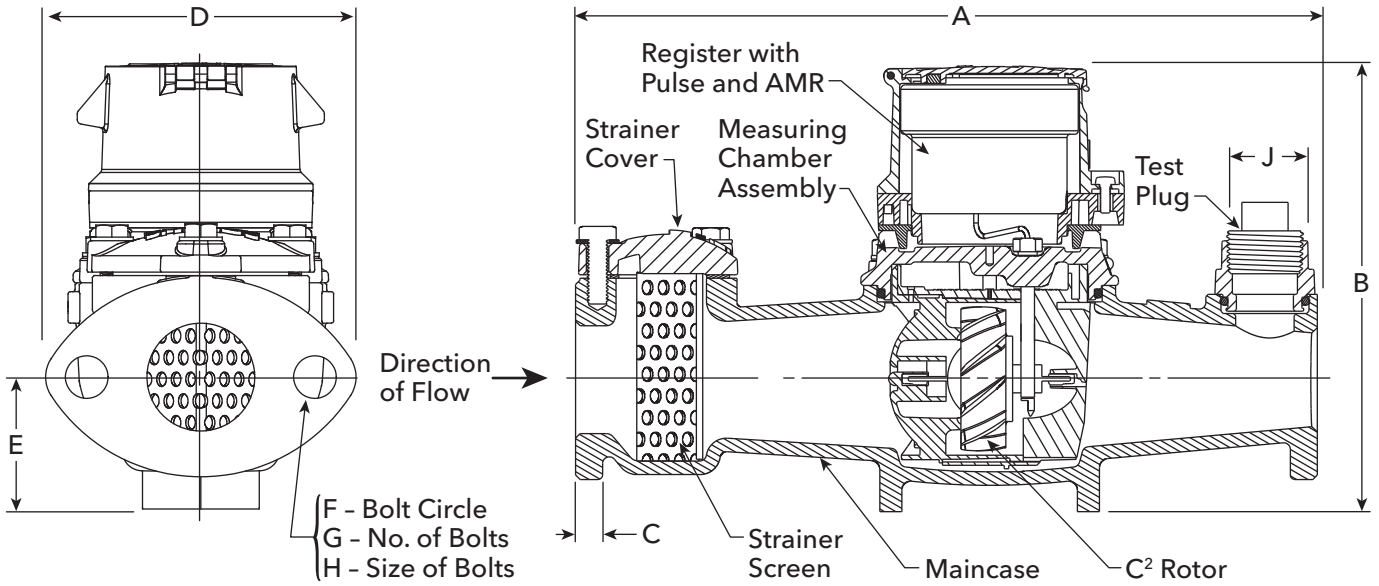
Meters and Electronic Registers are compatible with current Sensus AMR/AMI systems and other AMI communication systems that use the Sensus UI1203 protocol.

## Guarantee

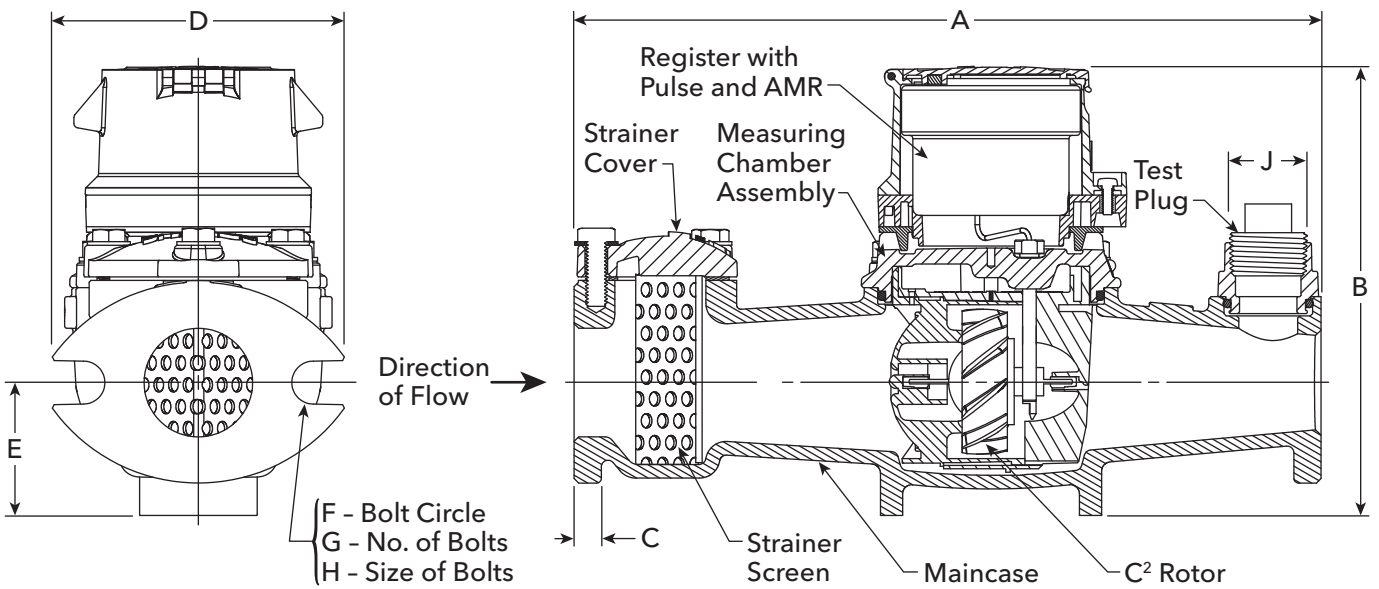
Sensus OMNI C<sup>2</sup> Meters are backed by “The Sensus Guarantee.” Ask your Sensus representative for details or see Bulletin G-500.



OMNI C<sup>2</sup>: 1-1/2"

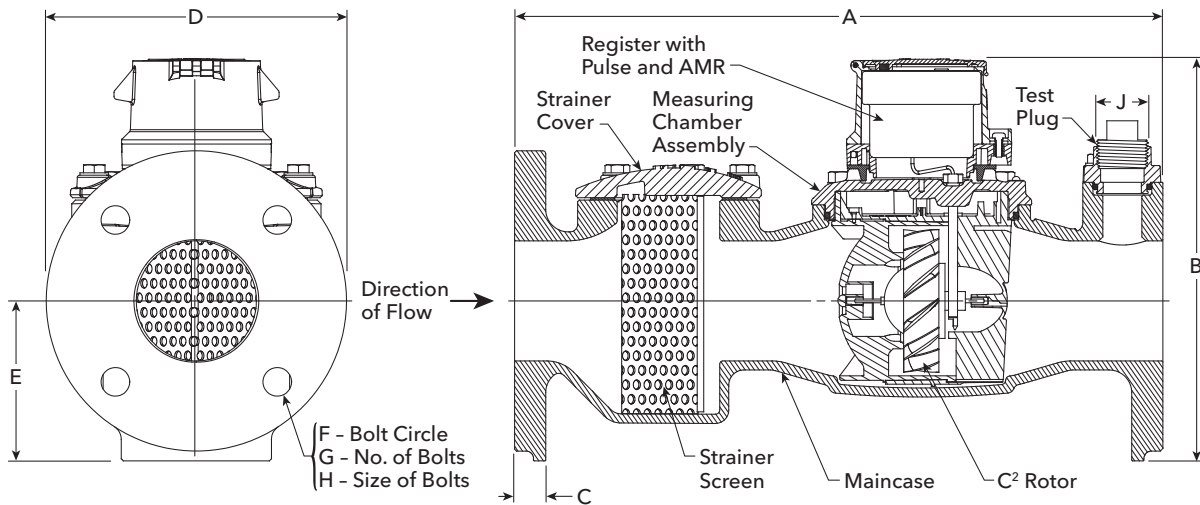


OMNI C<sup>2</sup>: 2"

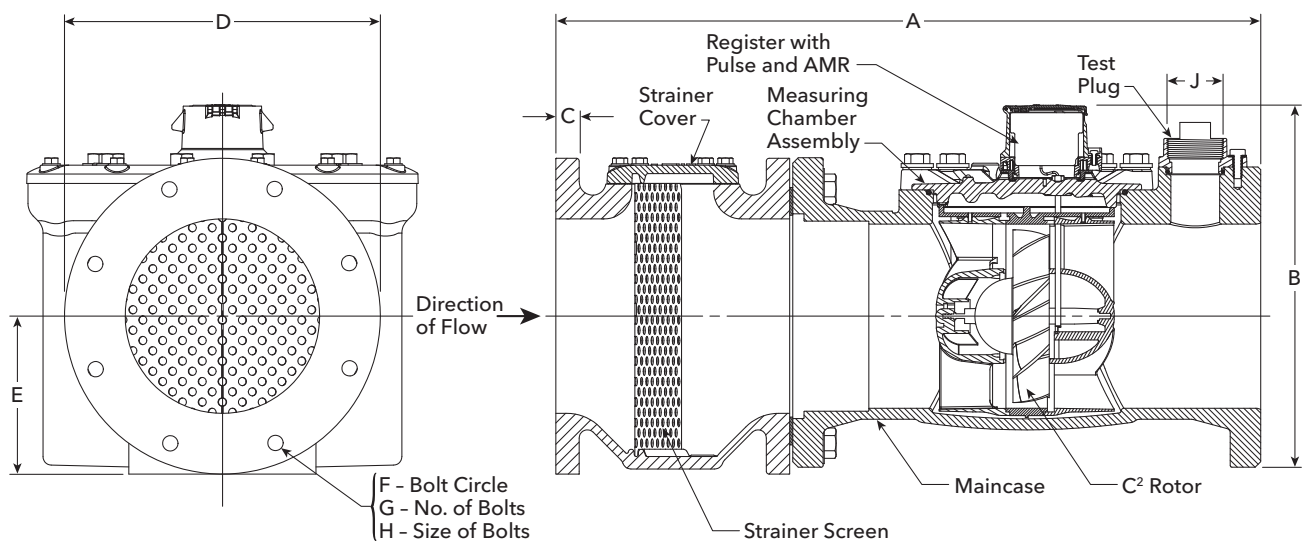




OMNI C<sup>2</sup>: 3" - 6"



OMNI C<sup>2</sup>: 8" - 10"





Dimensions and Net Weights

Meter and Pipe Size	Normal Operating Range		Connections	A	B	C	D	E	F	G	H	J	Net Weight	Shipping Weight
1-1/2" DN 40mm	.5 gpm .11 m <sup>3</sup> /hr	200 gpm 45 m <sup>3</sup> /hr	Flanged	13" 330mm	7-7/8" 200mm	15/16" 24mm	5-7/16" 138mm	2-5/16" 59mm	4" 102mm	2	5/8" 16mm	1" 25mm	18.8 lbs. 8.53 kg.	22.5 lbs. 10.20 kg.
2" DN 50mm	.5 gpm .11 m <sup>3</sup> /hr	200 gpm 45 m <sup>3</sup> /hr	Flanged	15-1/4" 387mm	7-7/8" 200mm	1" 25mm	5-3/4" 146mm	2-5/16" 59mm	4-1/2" 114mm	2	3/4" 19mm	1" 25mm	25.4 lbs. 11.5 kg.	32.5 lbs. 14.74 kg.
3" DN 80mm	1 gpm .23 m <sup>3</sup> /hr	500 gpm 114 m <sup>3</sup> /hr	Flanged	17" 432mm	8-3/4" 225mm	3/4" 19mm	7-7/8" 200mm	4-1/8" 105mm	6" 152mm	4	5/8" 16mm	1" 25mm	45 lbs. 20.41 kg.	48.0 lbs. 21.8 kg.
4" DN 100mm	1.5 gpm .34 m <sup>3</sup> /hr	1000 gpm 227 m <sup>3</sup> /hr	Flanged	20" 508mm	11-3/16" 284mm	15/16" 24mm	9-1/8" 232mm	4-3/4" 121mm	7-1/2" 191mm	8	5/8" 16mm	1-1/2" 38mm	64.9 lbs. 29.44 kg.	72.8 lbs. 33.02 kg.
6" DN 150mm	3 gpm .68 m <sup>3</sup> /hr	2000 gpm 454 m <sup>3</sup> /hr	Flanged	24" 610mm	13-1/4" 337mm	15/16" 24mm	11" 279mm	5-3/4" 146mm	9-1/2" 241mm	8	3/4" 19mm	1-1/2" 38mm	130 lbs. 59.0 kg.	155 lbs. 70.3 kg.
8" DN 200mm	4 gpm .91 m <sup>3</sup> /hr	2700 gpm 614 m <sup>3</sup> /hr	Flanged	30-1/8" 765mm	15" 381mm	11/16" 17mm	13-1/2" 343mm	6-3/4" 172mm	11-3/4" 298mm	8	3/4" 19mm	2" 51mm	471 lbs. 214 kg.	521 lbs. 236 kg.
10" DN 250mm	5 gpm 1.1 m <sup>3</sup> /hr	4000 gpm 908 m <sup>3</sup> /hr	Flanged	41-1/8" 1045mm	19" 483mm	11/16" 17mm	16" 406mm	8-1/2" 216mm	14-1/4" 362mm	12	7/8" 22mm	2" 51mm	685 lbs. 311 kg.	745 lbs. 338 kg.

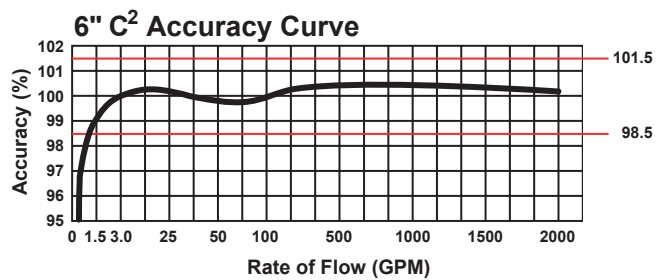
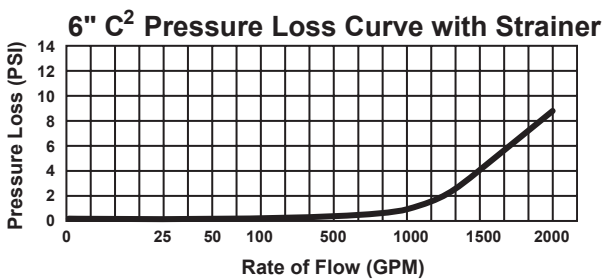
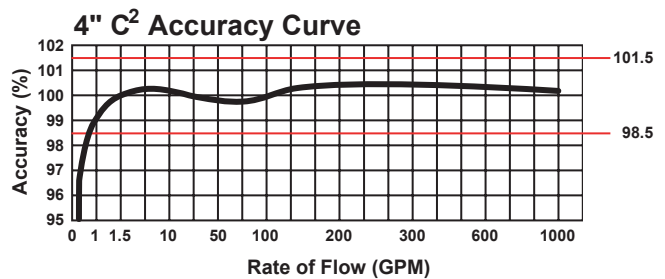
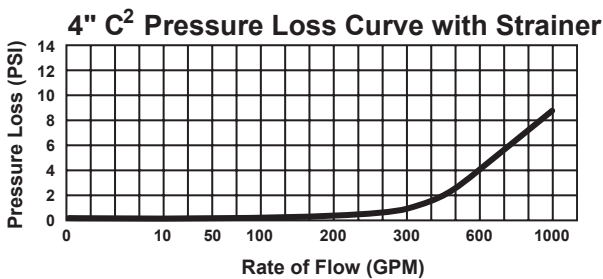
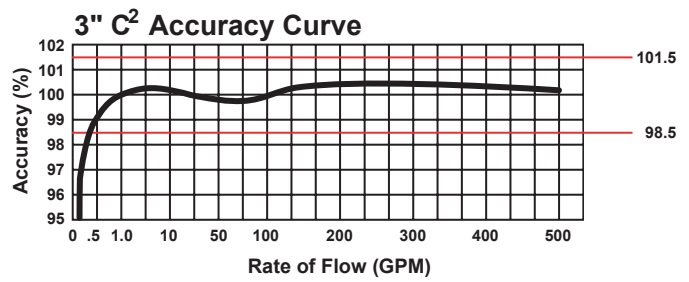
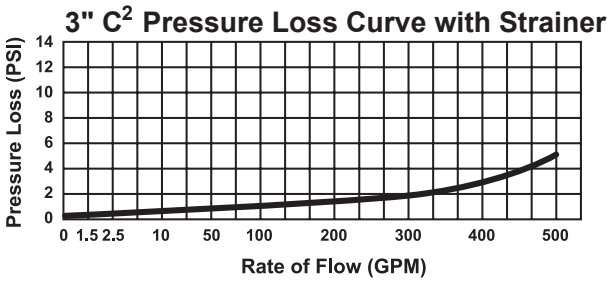
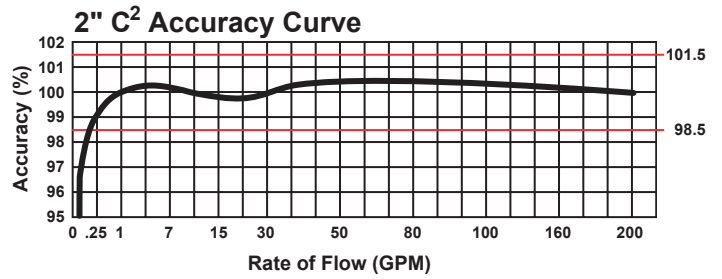
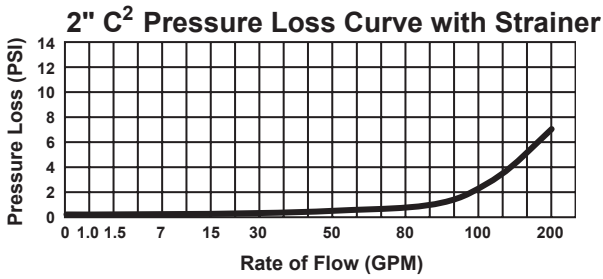
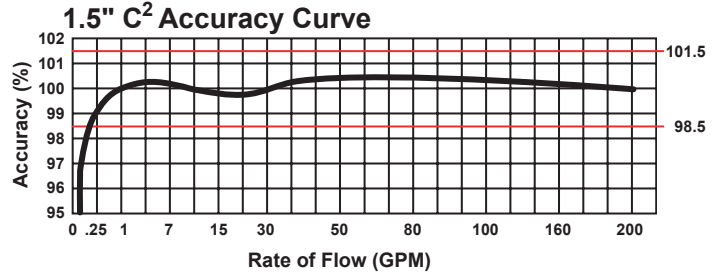
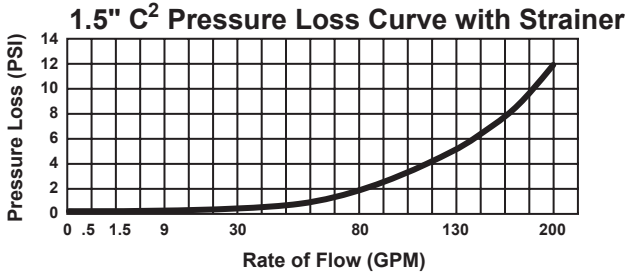
Specifications

Service	Measurement of potable and reclaim water. Storage temperature: -22F (-30C) to 155F (68.3C) Operating temperatures: Air: -22F (-30C) to 150F (65.6C) Water: 33F (0.6C) to 80F (26.7C)		Pressure Loss	1-1/2": 6.9 psi @ 160 GPM (0.48 bar @ 36 m <sup>3</sup> /hr) 2": 4.3 psi @ 160 GPM (0.30 bar @ 36 m <sup>3</sup> /hr) 3": 3.2 psi @ 400 GPM (0.22 bar @ 91 m <sup>3</sup> /hr) 4": 6.4 psi @ 800 GPM (0.44 bar @ 182 m <sup>3</sup> /hr) 6": 5.5 psi @ 1600 GPM (0.38 bar @ 363 m <sup>3</sup> /hr) 8": 4 psi @ 2700 GPM (0.28 bar @ 614 m <sup>3</sup> /hr) 10": 4.5 psi @ 4000 GPM (0.31 bar @ 908 m <sup>3</sup> /hr)	
Operating Range (100% ± 1.5%)	1-1/2": 0.5 - 200 GPM (0.11 - 45 m <sup>3</sup> /hr) 2": 0.5 - 200 GPM (0.11 - 45 m <sup>3</sup> /hr) 3": 1.0 - 500 GPM (0.23 - 114 m <sup>3</sup> /hr) 4": 1.5 - 1000 GPM (0.34 - 227 m <sup>3</sup> /hr) 6": 3 - 2000 GPM (0.68 - 454 m <sup>3</sup> /hr) 8": 4 - 2700 GPM (0.91 - 614 m <sup>3</sup> /hr) 10": 5 - 4000 GPM (1.1 - 908 m <sup>3</sup> /hr)		Maximum Operating Pressure	200 PSI (13.8 bar)	
Low flow (95% - 101.5%)	1-1/2": 0.25 GPM (.06 m <sup>3</sup> /hr) 2": 0.25 GPM (.06 m <sup>3</sup> /hr) 3": 0.5 GPM (0.11 m <sup>3</sup> /hr) 4": 0.75 GPM (0.17 m <sup>3</sup> /hr) 6": 1.5 GPM (0.34 m <sup>3</sup> /hr) 8": 2.5 GPM (0.57 m <sup>3</sup> /hr) 10": 3.5 GPM (0.8 m <sup>3</sup> /hr)		Flange Connections	U.S. ANSI B16.1 / AWWA Class 125	
Maximum Continuous Operation	1-1/2": 160 GPM (36 m <sup>3</sup> /hr) 2": 160 GPM (36 m <sup>3</sup> /hr) 3": 400 GPM (91 m <sup>3</sup> /hr) 4": 800 GPM (182 m <sup>3</sup> /hr) 6": 1600 GPM (363 m <sup>3</sup> /hr) 8": 2700 GPM (614 m <sup>3</sup> /hr) 10": 4000 GPM (908 m <sup>3</sup> /hr)		Test Ports	NPT	
Maximum Intermittent Operation	1-1/2": 200 GPM (45 m <sup>3</sup> /hr) 2": 200 GPM (45 m <sup>3</sup> /hr) 3": 500 GPM (114 m <sup>3</sup> /hr) 4": 1000 GPM (227 m <sup>3</sup> /hr) 6": 2000 GPM (454 m <sup>3</sup> /hr) 8": 3400 GPM (773 m <sup>3</sup> /hr) 10": 5000 GPM (1136 m <sup>3</sup> /hr)		Register	Fully electronic sealed register with programmable registration (Gal. /Cu.Ft. / Cu. Mtr. / Imp. Gal. / Acre Ft.) Programmable AMR/AMI reading and pulse outputs Guaranteed 10-year battery life	
			NSF Approved Materials	Maincase: Coated Ductile Iron Measuring Chamber: Thermoplastic Rotor "Floating Ball": Thermoplastic Radial Bearings: Hybrid Thermoplastic Thrust Bearings: Sapphire/Ceramic Jewel  Magnets: Ceramic Strainer Screen: Stainless Steel Strainer Cover: Coated Ductile Iron Test Plug: Stainless Steel	



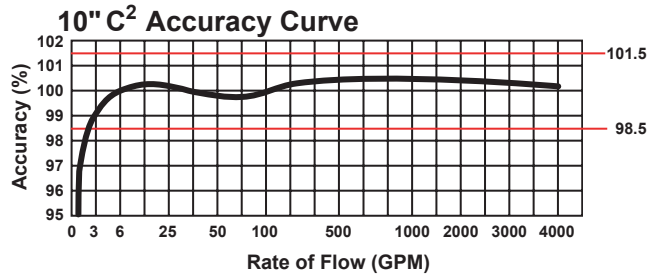
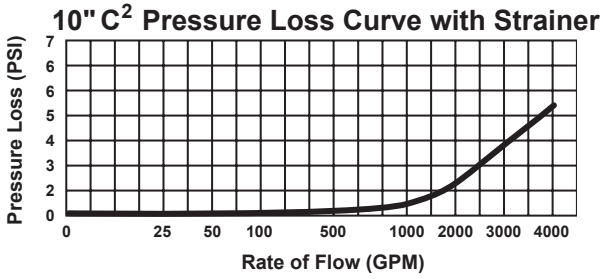
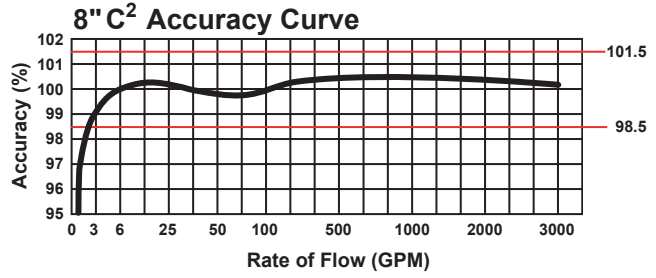
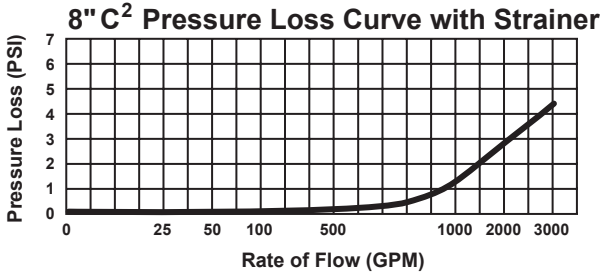


Head Loss Curves





Head Loss Curves





# SmartPoint 510M

## Non-Pit Set Module

The SmartPoint® 510M Non-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 510M Module is designed for non-submersible/non-pit installations.

### 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, reliable connection at minimal cost
- Minimizes new infrastructure investment
- Enables effective leak detection

### TouchCoupler Design

The SmartPoint 510M Module utilizes TouchCoupler, the patented Sensus inductive coupling communication platform, to interface with the encoded meter. With TouchCoupler, the SmartPoint 510M Module can connect to the meter using existing two-wire AMR installations instead of requiring utilities to access the home to install a new three-wire system. 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 510M Module receives input from the meter register and remotely sends data to a walk-by/drive-by or fixed-base collection device. The SmartPoint 510M 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 510M 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 510M 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)<sup>TM</sup> 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.



# SmartPoint 510M

## Non-Pit Set Module

### Powerful Transmission, Flexible Platform

The SmartPoint® 510M Non-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 510M Module is installed, its migratable, two-way system platform can be updated without requiring personnel to visit each meter and/or inconveniencing customers.

### Additional SmartPoint 510M Module Features

The SmartPoint 510M 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 510M Module 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 510M Module 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	Wall mounted (non-pit/non-submersible) installation interfacing the utility meter to the Sensus FlexNet system.
Physical characteristics	Width: 5 9/16" x Height: 5 1/2" x Depth: 3"
Weight	1.13 lbs/18.08 oz
Color	Tan
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	The 510M is designed for side-of-home applications where it is not subject to submergence.
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.



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## ally® Smart Water Meter

### Electromagnetic Flow Measurement with Remote Management Valve

The Sensus ally® water meter features an integrated 3-state valve, temperature and pressure sensors and alarms. ally has no moving parts and is based on our innovative electromagnetic flow measurement technology.

#### Industry Leading Performance

The patented measurement technology of the ally meter provides continuous and enhanced accuracy ranges at both low and high flows and perpetual accuracy over the life of the product. Accuracy is not effected by various flow conditions, disturbances, or particulates in the water system. The ally meter has a 15-year life cycle, along with a 15-year accuracy warranty.

#### FEATURES

- 5/8", 5/8" x 3/4", and 3/4" sizes available in potable and reclaim versions
- Starts registering flow as low as 0.03 gpm (0.007 m<sup>3</sup>/hr)
- Can be installed horizontally, vertically or diagonally
- Compatible with current Sensus AMI systems

#### BENEFITS

- Control three states of water flow remotely (on, off, reduced)
- Detect leaks to save money and conserve water
- Monitor pressure conditions and temperature conditions
- Smart alarms including empty pipe, high flow, reverse flow, low and high pressure and temperature, customer leak and tamper

#### Construction

The ally is an integrated unit that incorporates an electronic register, 3-state valve, temperature sensor, pressure sensor, and a measuring device encased in an external housing. The measuring device is comprised of a composite alloy flowtube with externally-threaded spud ends.

#### Electronic Register

The high resolution 9-digit electronic register was designed to eliminate dirt and moisture contamination in pit settings. The tempered glass register cover displays readings with the AMI digits highlighted. Direction of flow, rate of flow and units of measure are also easily readable on the register display. The ally register features programmable AMI resolution and unit of measure, and integral customer data logging of up to 120 days. The display includes battery life, empty pipe, forward/reverse flow, flow rate, leak and tamper, valve, pressure, and temperature indicators. Additionally, the register displays temperature and pressure values, valve state, and active and recent alarms.

#### Shut-Off Valve

The shut-off valve has 3 states—open, closed, and reduced flow. Reduced flow mode allows 1-2 GPM on average for life sustaining applications (based on 65 psig). The stainless steel ball valve is self cleaning and remains functional due to automatic seat exercising. The ally meter also contains a proprietary actuator to operate the valve.

#### Tamperproof

The integrated construction of the ally 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 ally meter. The meter communication alarm indicates a possible cut cable.

# ally® Smart Water Meter

## Electromagnetic Flow Measurement with 3-State Valve

### Smart Alarms

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

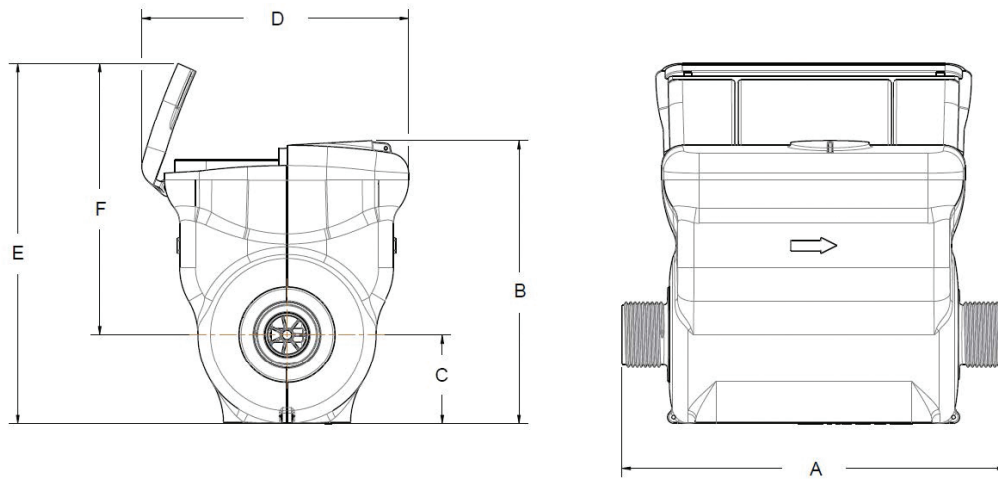
- Empty Pipe  
 Detects the absence of water in the flow tube and sends an alert. Allows you to identify main breaks downstream and water shortages for quicker resolution to ensure water availability. This alarm can also indicate the water meter has been removed from service, or notify you of potential 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.
- High Flow  
 Detect broken pipes and reduce property damage through an alert triggered by the detection of excessive flow rates.
- Pressure  
 Get alerted when water pressure exceeds or falls below the pressure threshold to prevent potential disruptions of service.
- Temperature  
 Get alerted when water temperature exceeds or falls below the temperature threshold so you can take action to better protect your meter and water network assets.

### SPECIFICATIONS

Service	Measurement of potable and reclaim water. 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 m <sup>3</sup> /h)	5/8" x 3/4" (DN 15x20 mm) size: 0.03 gpm (0.007 m <sup>3</sup> /h)	3/4" (DN 20 mm) size: 0.03 gpm (0.007 m <sup>3</sup> /h)
Low flow range (±3%)	5/8" (DN 15 mm) size: >0.10 gpm (0.025 m <sup>3</sup> /hr) to <0.18 gpm (0.041 m <sup>3</sup> /hr)	5/8" x 3/4" (DN 15x20 mm) size: >0.10 gpm (0.025 m <sup>3</sup> /hr) to <0.18 gpm (0.041 m <sup>3</sup> /hr)	3/4" (DN 20 mm) size: >0.10 gpm (0.025 m <sup>3</sup> /hr) to <0.18 gpm (0.041 m <sup>3</sup> /hr)
Normal operating flow range (±1.5%)	5/8" (DN 15 mm) size: 0.18 to 25 gpm (0.04 to 5.7 m <sup>3</sup> /hr)	5/8" x 3/4" (DN 15x20 mm) size: 0.18 to 35 gpm (0.04 to 5.7 m <sup>3</sup> /hr)	3/4" (DN 20 mm) size: 0.18 to 35 gpm (0.04 to 8.0 m <sup>3</sup> /hr)
Sensor Accuracy	Pressure Sensor: ± 1.25% full scale for water temp 35-100 °F (0-200psi) Temperature Sensor: ± 2.00% full scale for water temp 35-100 °F (0-200psi)		
Maximum operating pressure	200 psi (13.8 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 m <sup>3</sup> capacity.		
Register Resolution	.01 gallons/imperial gallons, .001 cubic foot, or .0001 m <sup>3</sup>		
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	

# ally® Smart Water Meter

## Electromagnetic Flow Measurement with 3-State Valve



### DIMENSIONS AND NET WEIGHTS

Size	A	B	C	D	E	F	Spud Ends	NPSM Thread Size	Width	Net Weight
5/8" (DN 15 mm)	7-1/2" (190 mm)	5-1/2" (140 mm)	1-3/4" (44 mm)	5-1/2" (140 mm)	8-3/4" (222 mm)	7" (178 mm)	5/8" (15 mm)	3/4" (20 mm)	4-1/2" (114 mm)	3.3 lb. (1.5 kg)
5/8" x 3/4" (DN 15 mm x 20 mm)	7-1/2" (190 mm)	5-1/2" (140 mm)	1-3/4" (44 mm)	5-1/2" (140 mm)	8-3/4" (222 mm)	7" (178 mm)	3/4" (20 mm)	1" (25 mm)	4-1/2" (114 mm)	3.3 lb. (1.5 kg)
3/4" Short (DN 20 mm)	7-1/2" (190 mm)	5-1/2" (140 mm)	1-3/4" (44 mm)	5-1/2" (140 mm)	8-3/4" (222 mm)	7" (178 mm)	3/4" (20 mm)	1" (25 mm)	4-1/2" (114 mm)	3.3 lb. (1.5 kg)
3/4" (DN 20 mm)	9" (229 mm)	5-1/2" (140 mm)	1-3/4" (44 mm)	5-1/2" (140 mm)	8-3/4" (222 mm)	7" (178 mm)	3/4" (20 mm)	1" (25 mm)	4-1/2" (114 mm)	3.4 lb. (1.54 kg)

# ally® Smart Water Meter

## Electromagnetic Flow Measurement with 3-State Valve

### Head Loss Curves

