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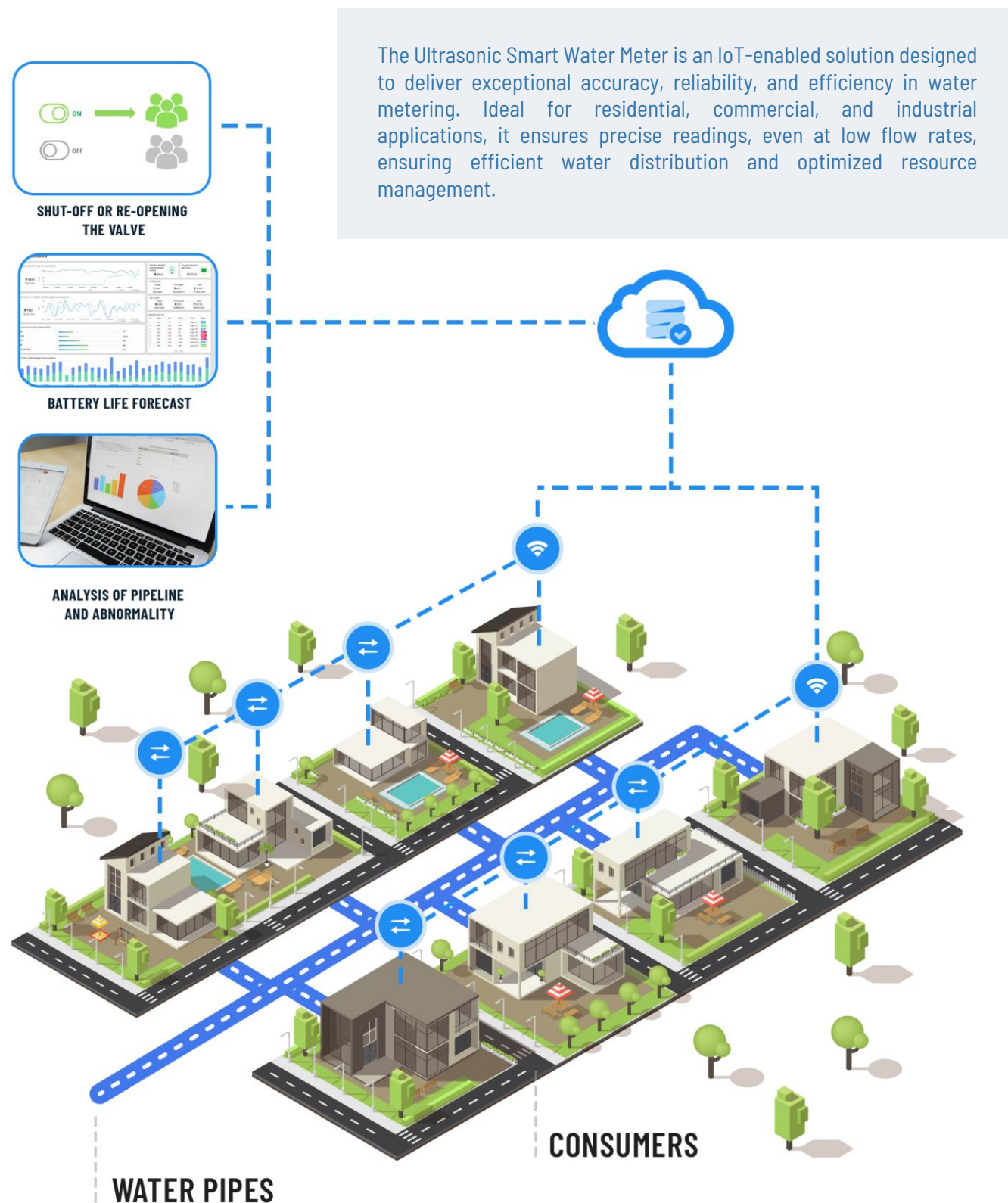
SWM Family Brochure

SMART WATER METERS



ULTRASONIC SMART WATER METER

Precision, Connectivity, and Sustainability for Smart Water Management



Smart, Compact & Versatile Design



Lightweight & Space-Saving

Ideal for riser pipes, downpipes, or overhead installations.



Drinking Water Compliant

Constructed from high-quality, certified materials that meet the strictest safety regulations.



Strong Anti-Interference & Low Power Consumption

Ensures uninterrupted performance in challenging conditions.

Key Features & Benefits



Highly Accurate & Reliable

Ultrasonic technology eliminates mechanical wear, ensuring long-term stability and precision in water measurement.



Advanced Connectivity & Remote Monitoring

Supports multiple communication protocols for real-time data collection, leak detection, and remote management, enhancing operational efficiency.



Minimal Maintenance & Extended Service Life

With no moving parts, the meter experiences zero mechanical wear, leading to low operational costs and an extended lifespan of over 15 years.



Optimized Water Distribution & Consumption Insights

Delivers accurate billing, intelligent water allocation, and enhanced efficiency for modern smart water networks.

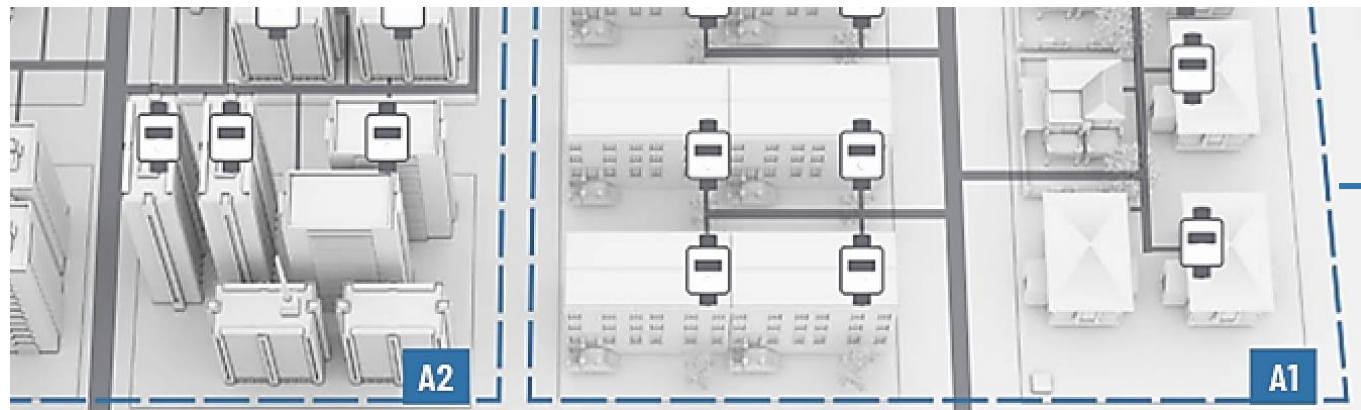


Highly Secured Data & Fraud Resistance

Features tamper-proof and fraud-resistant mechanisms with manipulation detection and encrypted data transmission, ensuring secure, accurate, and reliable water metering.

ADVANCED SMART WATER METERING – BUILT FOR A SMARTER, SUSTAINABLE FUTURE

Our Ultrasonic Smart Water Meters are engineered to transform traditional water metering into an intelligent, connected, and sustainable solution—ideal for residential, commercial, and urban utility networks.



Future-Ready Connectivity

Seamlessly integrating NB-IoT, LoRaWAN, and Wireless M-Bus (wM-Bus), these meters deliver reliable, energy-efficient, and scalable communication across any infrastructure.



ensures deep signal penetration in underground or indoor environments, offering licensed-band, low-power connectivity with over 15 years of battery life—perfect for dense urban deployments.



enables long-range, low energy communication with minimal infrastructure—ideal for wide-area city and rural coverage.



(Wireless M-Bus) supports short range, low-energy wireless communication optimized for building-level and retrofit applications, using a proven European standard.

REMOTE UPGRADE (FOTA):

Supports firmware updates over the air, keeping the system up to date without manual intervention.

These multi-protocol options allow utilities to deploy customized smart metering networks that are flexible, secure, and cost-effective.

Intelligent Data & Monitoring Capabilities

Beyond accurate metering, these devices continuously monitor and log critical operational data:



Real-time alerts for temperature changes, flow stagnation, and reverse flow, enabling fast intervention and preventive maintenance.



A built-in logbook stores up to 40 historical events, while the flow histogram provides visual consumption analysis—helping utilities detect inefficiencies, leaks, or tampering.



Stagnation detection supports hygiene monitoring by issuing alerts when no flow is recorded over preset durations.

— Low-Power Architecture & Battery Intelligence

Optimized for long-term deployment, the meter's low-energy design ensures over 6 years of battery life. An advanced battery management system monitors consumption and forecasts remaining power to maintain uninterrupted service.

— Firmware Over-The-Air (FOTA) Updates

Using the NB-IoT interface, firmware can be updated remotely—enabling compliance with evolving standards, adding new features, and resolving issues without replacing hardware.

— Engineered for Durability

Built with over 40 years of ultrasonic metering expertise, the device has no moving parts, making it highly resistant to wear, sediment, and harsh environmental conditions. Its IP68/IP66 protection ensures waterproof and UV-resistant operation, even under extreme temperature variations..

— Committed to Sustainability

The meter's compact, recyclable design reduces material usage, packaging waste, and transportation emissions. Long service life and remote maintenance further support sustainability goals.

Smart, efficient, and built to last—delivering intelligence, precision, and sustainability in one advanced solution.

SWM103 P/B

Ultrasonic Smart Water Meter with Valve Control

SWM103 B
Brass Pipe



SWM103 P
Plastic Pipe

APPLICATIONS



Residential and commercial drinking water metering



Smart city water management systems



Remote monitoring and billing applications



Water conservation and leakage detection initiatives

Advanced, Reliable, and Intelligent Water Metering with Remote Valve Control

The **SWM103** Ultrasonic Smart Water Meter is a high-precision, intelligent metering solution designed for drinking water supply applications. Equipped with remote valve control functionality, it enables seamless automated water management, remote shut-off, and leak prevention, ensuring efficient utility operations. Built with premium materials and powered by cutting-edge ultrasonic technology, this advanced meter delivers exceptional accuracy, long-term reliability, and zero mechanical wear and tear. The integrated valve control system enhances operational efficiency, allowing utilities and consumers to manage water supply remotely, prevent unauthorized usage, and optimize resource allocation.

Communication Technologies:



KEY FEATURES & BENEFITS



Leakage & Burst Pipe Detection with Auto Shut-Off

Integrated alarms for water drips and burst pipe events, with automatic shut-off functionality to prevent water loss and enhance system safety.



Remote Valve Control & Intelligent Automation

Supports intelligent water management through remote valve control, automated shut-off, and scheduled valve cleaning—ideal for efficient utility operations and smart city infrastructure.



Advanced Accuracy & Wide Range Ratio

Achieves Class 2 accuracy with multiple range ratio options (R100, R125, R160, R250), enabling precise measurement across variable flow conditions.



Multi-Protocol Communication Interfaces

Supports a wide array of communication interfaces including MBUS, RS485, Pulse, LoRaWAN, NB-IoT, Zigbee, 4G, and Wireless M-Bus (wMBUS), ensuring seamless integration and remote monitoring flexibility.



Tamper-Resistant & Secure Data Transmission

Built-in fraud resistance and tamper detection with encrypted data transmission ensure data integrity and metering reliability.



Pre-Payment & Smart Billing Functionality

Equipped with remote pre-payment capabilities and T5557 swipe card compatibility, supporting flexible billing and customer-friendly utility management.



High-Quality Construction for Drinking Water Applications

Specially designed for drinking water metering using high-grade brass and copper for superior durability and corrosion resistance.



Temperature Adaptability (T30 / T50 / T70)

Built to perform across a range of environmental conditions, including cold and temperate climates. TAF-compliant.



Precision Ultrasonic Technology Measurement

Utilizes ultrasonic metering technology with no moving parts, ensuring long-term accuracy, reliability, and zero mechanical wear.

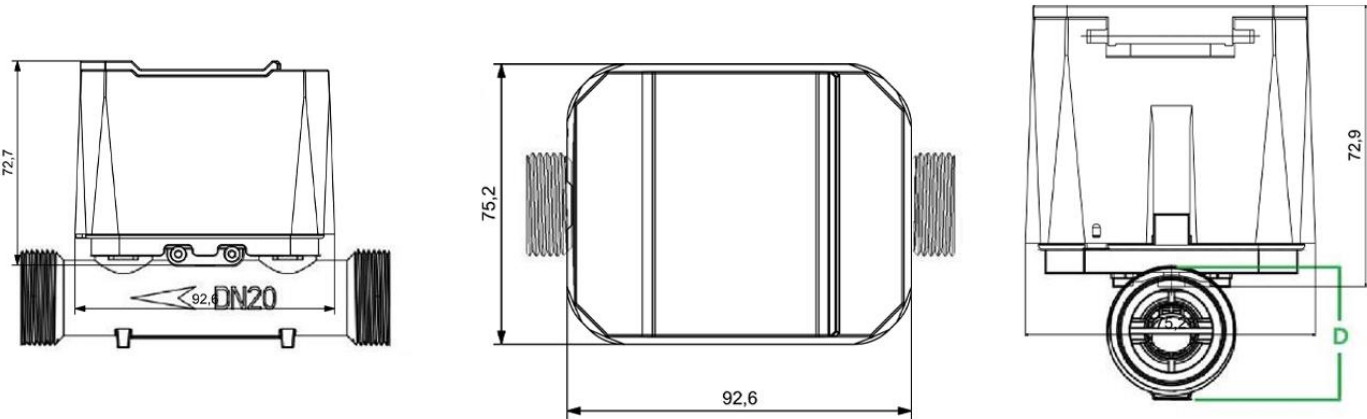


Full Compliance with International Standards

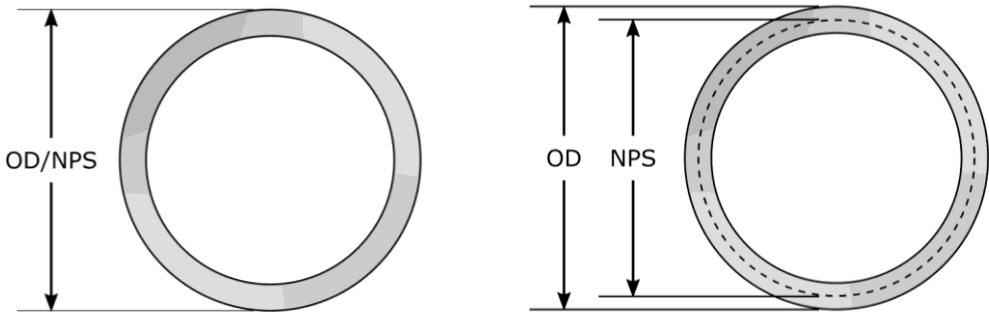
Certified in accordance with GB/T 778 and ISO 4064 standards, meeting global requirements for water meter performance and safety.



Product Dimensions



Diameter (mm)	DN15	DN20	DN25
Thread	G ³ / ₄ B	G1B	G1 ¹ / ₄ B
L(mm)	130/165	130/195	160/260
H(mm)	108.5	112.5	117.8
W(mm)	80	80	80



The **SWM103** Ultrasonic Smart Water Meter is engineered for efficiency, precision, and smart connectivity, making it an ideal choice for modern water metering solutions.

Technical Parameter

Performance	Parameter		
Diameter	DN15	DN20	DN25
Length(mm)	130-165	130-195	160-260
Q _{max} (m ³ /h)	2.5	4	6.3
Start Flow(L/h)	2	2	3
Metrological Class	Q ₃ /Q ₁ = R100, R125, R160, R200, R250, R400;		
Accuracy Class	Class 2		
Pressure Stage	MAP16	Pressure loss	< 0.063MPa
Stage Temperature	T30/T50/T70; Default T30		
Data Storage	with daily storage, daily freeze, monthly storage, monthly freeze, annual storage (Customizable data storage mode according to customer requirements)		
Transmission	Optical/M-BUS/RS485/Pulse/LoRaWan/NB- IoT/ Zigbee/4G/wMBUS		
Power	DC3.6V Lithium Battery		
Protection Class	IP68		
Environmental	Temperature: -25°C~ + 55°C		
Installation	Horizontal or Vertical		
Battery Life	Life Period ≥ 6 years		
Flow measure	Reverse flow is measurable		
Stream Field Sensitivity	U0D0		

SWM101 P/B

Ultrasonic Smart Water Meter

SWM101 B Brass Pipe



SWM101 P Plastic Pipe

APPLICATIONS



Residential and commercial drinking water metering



Smart city water management systems



Remote monitoring and billing applications



Water conservation and leakage detection initiatives

Advanced, Reliable, and Intelligent Water Metering

The **SWM101** Ultrasonic Smart Water Meter is a high-precision, intelligent metering solution designed for drinking water supply applications. Equipped with an Ultrasonic sensor for highly accurate readings, it enables leak prevention, ensuring efficient utility operations. Built with premium materials and powered by cutting-edge ultrasonic technology, this advanced meter delivers exceptional accuracy, long-term reliability, and zero mechanical wear and tear.

Communication Technologies:



KEY FEATURES & BENEFITS



Ultrasonic Measurement Technology

Advanced ultrasonic sensing provides accurate, stable water measurement with no moving mechanical parts, helping reduce wear and maintain long-term measurement performance.



Low-Flow Detection & Wide Dynamic Range

Designed to detect very low flow rates while maintaining reliable measurement across a wide operating range, supporting improved consumption monitoring and accurate billing.



Advanced Accuracy & Wide Range Ratio

Achieves Class 2 accuracy with multiple range ratio options (R100, R125, R160, R250), enabling precise measurement across variable flow conditions.



Multi-Protocol Communication Interfaces

Supports a wide array of communication interfaces including MBUS, RS485, Pulse, LoRaWAN, NB-IoT, Zigbee, 4G, and Wireless M-Bus (wMBUS), ensuring seamless integration and remote monitoring flexibility.



Tamper-Resistant & Secure Data Transmission

Built-in fraud resistance and tamper detection with encrypted data transmission ensure data integrity and metering reliability.



Pre-Payment & Smart Billing Functionality

Equipped with remote pre-payment capabilities and T5557 swipe card compatibility, supporting flexible billing and customer-friendly utility management.



High-Quality Construction for Drinking Water Applications

Specially designed for drinking water metering using high-grade brass and copper for superior durability and corrosion resistance.



Temperature Adaptability (T30 / T50 / T70)

Built to perform across a range of environmental conditions, including cold and temperate climates. TAF-compliant.



Reverse Flow Measurement & Monitoring

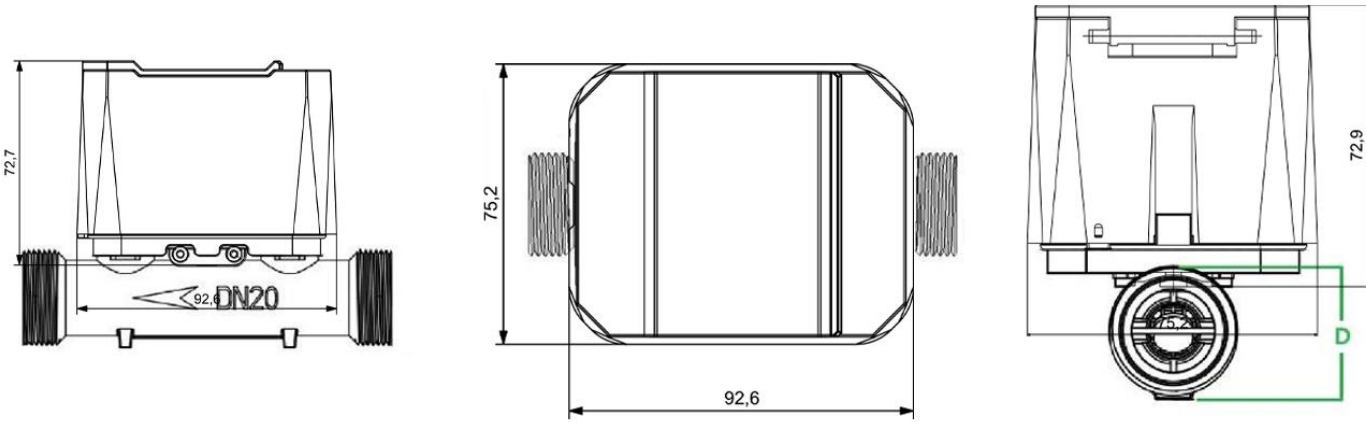
Supports bidirectional flow measurement, enabling the meter to detect and measure reverse water flow for improved network monitoring, anomaly detection, and system control.



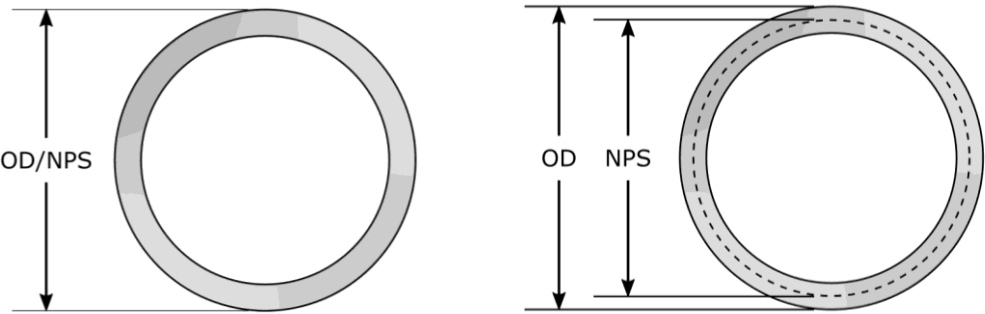
Full Compliance with International Standards

Certified in accordance with GB/T 778 and ISO 4064 standards, meeting global requirements for water meter performance and safety.

Product Dimensions



Diameter (mm)	DN15	DN20	DN25
Thread	G $\frac{3}{4}$ B	G1B	G1 $\frac{1}{4}$ B
L(mm)	110/165	130/195	160/225
H(mm)	94	98.7	105.3
W(mm)	69	69	69



The **SWM101** Ultrasonic Smart Water Meter is engineered for efficiency, precision, and smart connectivity, making it an ideal choice for modern water metering solutions.



Technical Parameter

Performance	Parameter		
Diameter	DN15	DN20	DN25
Length(mm)	110/165	130-195	160/225
Q _{max} (m ³ /h)	2.5	4	6.3
Start Flow(L/h)	2	2	2
Metrological Class	Q ₃ /Q ₁ = R100, R125, R160, R200, R250, R400;		
Accuracy Class	Class 2		
Pressure Stage	MAP16	Pressure loss	< 0.063MPa
Stage Temperature	T30/T50/T70; Default T30		
Data Storage	with daily storage, daily freeze, monthly storage, monthly freeze, annual storage (Customizable data storage mode according to customer requirements)		
Transmission	Optical/M-BUS/RS485/Pulse/LoRaWan/NB- IoT/ Zigbee/4G/wMBUS		
Power	DC3.6V Lithium Battery		
Protection Class	IP68		
Environmental	Temperature: -25°C~ + 55°C		
Installation	Horizontal or Vertical		
Battery Life	Life Period ≥ 6 years		
Flow measure	Reverse flow is measurable		
Stream Field Sensitivity	U000		

SWM301 P/B

Ultrasonic Smart Heat Meter



Advanced, Reliable, and Intelligent Water Heat Metering

The SWM301 Ultrasonic Heat Meter is a high-precision, intelligent metering solution designed for heating metering applications. Equipped with diverse communication interfaces—including wMBUS, RS485, Pulse, 4G, LoRaWAN, Zigbee, and NB-IoT—it enables seamless automated data management, remote monitoring, and optimized thermal energy control. Built with durable copper piping and powered by cutting-edge ultrasonic technology, this advanced meter delivers Class 2 accuracy, long-term stability, and zero mechanical wear and tear. Fully compliant with EN1434 and GB/T 32224 standards and featuring a convenient replaceable battery design, it allows utilities and building managers to maximize operational efficiency, streamline maintenance, and accurately track energy consumption.

Communication Technologies:



PRODUCT FEATURES



Pipe material: copper



Range ratio: R50/R100



Replaceable battery design



Temperature range: (4~95)°C



Accuracy level: Class 2

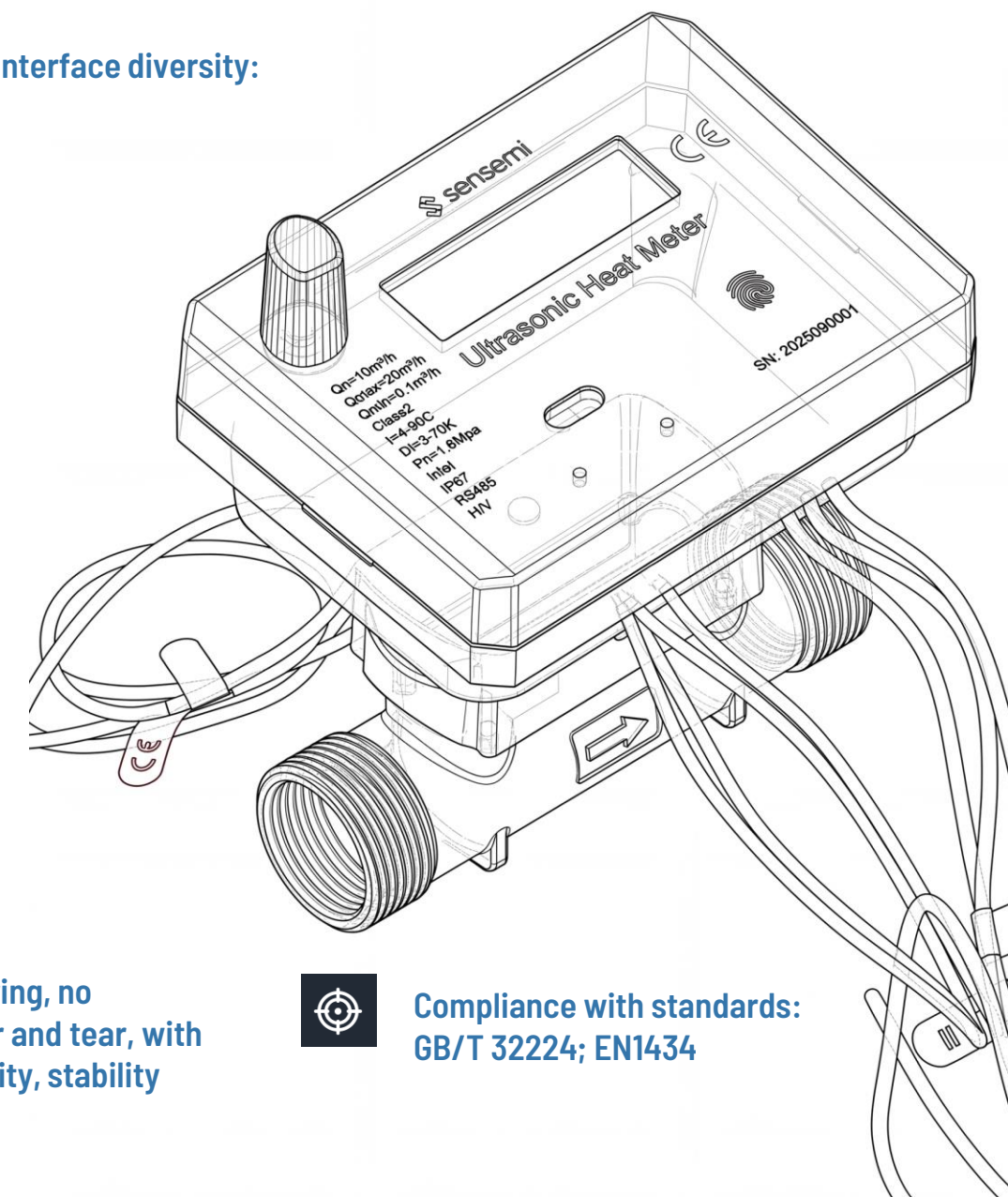


Difference range: (2~90)K



Communication interface diversity:

wMBUS
RS485
Pulse
4G
LoRawan
Zigbee
NB-IoT



Ultrasonic metering, no
mechanical wear and tear, with
excellent reliability, stability



Compliance with standards:
GB/T 32224; EN1434

APPLICATIONS



Residential and commercial hot water metering



Smart city water management systems



Remote monitoring and billing applications



Water conservation and leakage detection initiatives

FLOW RATE PARAMETERS

Diameter	Min. Flow $Q_{\min}$ (m ³ /h)	Nominal Flow Q_p (m ³ /h)	Max. Flow $Q_{\max}$ (m ³ /h)	Length (mm)
DN15	0.012 0.015 0.03	0.6 1.5 1.5	1.2 3 3	110
DN20	0.025 0.05	2.5 2.5	5 5	130
DN25	0.035 0.07	3.5 3.5	7 7	160
DN32	0.12	6	12	180
DN40	0.2	10	20	200

EXTERNAL DIMENSIONS

Nominal Diameter	DN15	DN20	DN25	DN32	DN40
Thread	G ³ / ₄ B	G1B	G1 ¹ / ₄ B	G1 ¹ / ₂ B	G2B
L (mm)	110	130	160	180	200
W (mm)	85	85	85	85	85
H (mm)	95	95.5	99	109	113

TECHNICAL PARAMETER

Performance	Parameter
Accuracy	Class 2
Connection type	DN15-DN40 is thread connection
Pressure loss	≤ 0.02MPa
Max. working pressure	1.6MPa
Temperature sensor	1.5m standard two-wire PT1000 paired temperature sensor (Wire length adjustable)
Data Storage	24 months history data
Transmission	Optical/M-BUS/RS485/Pulse/LoRaWan/NB- IoT/ Zigbee/4G/wMBUS
Power	Built-in Lithium Battery
Protection Class	IP65/IP67
Environmental	Class A
Temperature range	(4~95)°C
Temperature difference range	(2~90)K
Installation Method	Water inlet or return (default water inlet)
Installation	Horizontal or Vertical
Battery life	Life Period ≥ 6 years
Display	8-bit LCD display
Anti-magnetic interference	Exposure to magnetic fields with an intensity of up to 100 kA/m does not affect the metering or remote-transmission performance of the heat meter

SWM303 P/B

Ultrasonic Smart Heat Meter With Valve Control



Various valve adjustment modes are available:

1. Set instantaneous flow regulation
2. Set instantaneous power regulation
3. Set return water temperature regulation
4. Set the average temperature of the inlet and return water regulation
5. Adjustment of the valve opening according to the acquired room temperature
6. System strength set open degree, forced open/close valve

Communication Technologies:



PRODUCT FEATURES



Products are applied to heating metering, multi-mode heating balance regulation and control, remote control.



Pipe material: copper



Range ratio: R50/100/125/160



Replaceable battery design



Temperature range: (4~95)°C



Accuracy level: Class 2



Difference range: (2~90)K



Compliance with standards:
EN1434

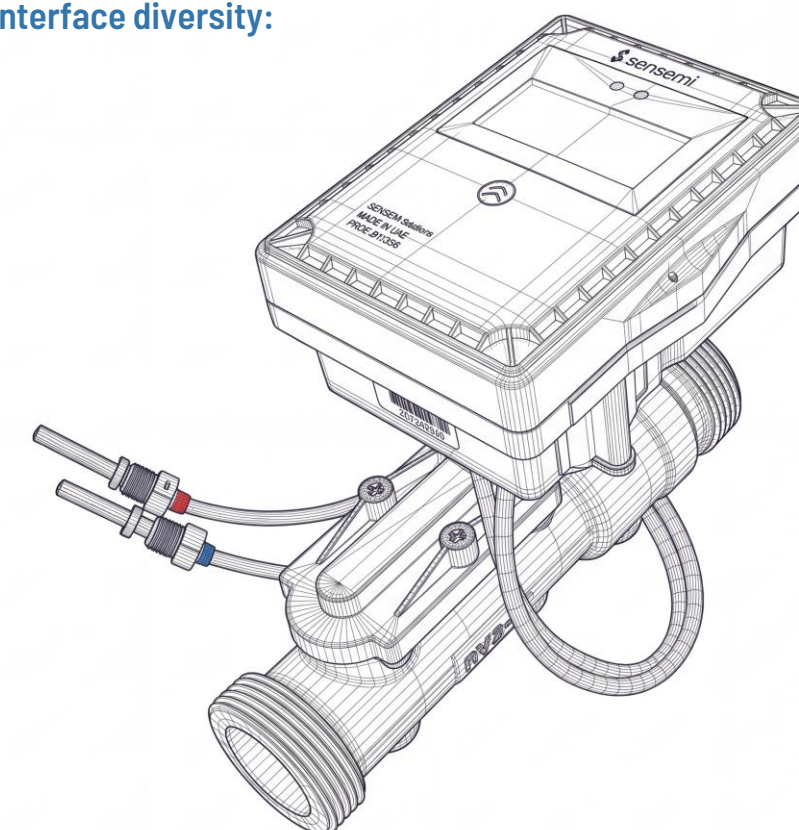


Consistent with conventional
heat meters and directly
replaceable.



Communication interface diversity:

wMBUS
RS485
Pulse
4G
LoRawan
Zigbee
NB-IoT



APPLICATIONS



Residential and commercial hot/cold water metering



Smart city water management systems



Remote monitoring and billing applications



Water conservation and leakage detection initiatives

FLOW RATE PARAMETERS

Diameter	Min. Flow qmin (m ³ /h)	Nominal Flow qp (m ³ /h)	Max. Flow qmax (m ³ /h)	Length (mm)
DN15	0.015	1.5	3	130
DN20	0.05	2.5	5	130
DN25	0.07	3.5	7	160
DN32	0.12	6	12	180
DN40	0.2	10	20	200

EXTERNAL DIMENSIONS

Nominal Diameter	DN15	DN20	DN25	DN32	DN40
Thread	G¾B	G1B	G1¼B	G1½B	G2B
L (mm)	130	130	160	180	200
W (mm)	88	88	88	88	88
H (mm)	125	129	136	139	149

TECHNICAL PARAMETER

Performance	Parameter
Accuracy	Class 2
Connection type	Threaded connection
Pressure loss	≤ 0.02MPa
Max. working pressure	1.6MPa
Temperature sensor	1.5m standard two-wire PT1000 paired temperature sensor (Wire length can be reserved)
Data Storage	Continuous storage of the previous 24 month of history
Communication	Optical/MBUS/RS-485/LoRaWAN/NB-IoT/Zigbee/wMBUS
Power supply	3.6V Lithium battery/External DC24V
Protection grade	IP65/IP67
Environmental	Class A
Temperature range	(4~95)°C
Temperature difference range	(2~90)K
Installation Method	Water inlet or water return (default water inlet, water return installation should be specified when ordering)
Installation position	Horizontal or Vertical
Battery life	Life Period ≥ 6 years
Display	8-bit LCD liquid crystal display
Anti-magnetic interference	Exposure to magnetic fields with an intensity of up to 100 kA/m does not affect the metering or remote-transmission performance of the heat meter

SENSEMI HEAD END SYSTEM

Intelligent, Scalable, and Efficient Utility Management



Head-End System (HES)

Unified, scalable meter communication and management for smart gas, electricity, and water infrastructure.



Multi-Utility Meter Management

Manage gas, electricity, and water meters through a single centralized platform. Register devices, monitor connectivity, view meter status, and organize large-scale deployments from one unified interface.



Real-Time Monitoring & Control

Gain continuous visibility into meter communications, readings, network activity, system health, events, and alarms. Remote command capabilities allow authorized operators to interact with connected meters directly through the HES.



Modular Application Architecture

Deploy dedicated applications for different operational needs, including meter management, analytics, integrations, commands, alarms, logging, and system administration—all within a unified HES environment.

