# Sagemcom

SICONIA®
Water



# Siconia® Water Meter UM

A Smart Solution with Edge and Cloud Synergy to Reduce Non-Revenue Water

**SICONIA®** technology provides an advanced range of **ultrasonic smart water meters** designed for **residential and industrial** applications. These meters achieve exceptional measurement accuracy, with **error rates near 0%**. By eliminating mechanical moving parts, the meters offer increased **durability and metrological stability** over time, making them ideal for long-term deployment.

As part of its commitment to innovation, **SICONIA®** introduces the **first smart meter equipped with integrated accelerometer, pressure, and acoustic sensors.** These advanced features enable real-time monitoring of water supply service performance, allowing utilities to proactively manage their distribution networks and predict maintenance needs.

## Leveraging Integrated edge computing to Support Water Utilities in Network Management

Non-Revenue Water (NRW) represents a significant challenge for utilities. It contributes to the overexploitation of water resources and unnecessary energy consumption, while economically causing revenue losses, limiting investment capacity, and increasing costs for consumers, especially in vulnerable communities. Effective NRW management is vital for ensuring sustainable water resource use and maintaining affordable, reliable services.
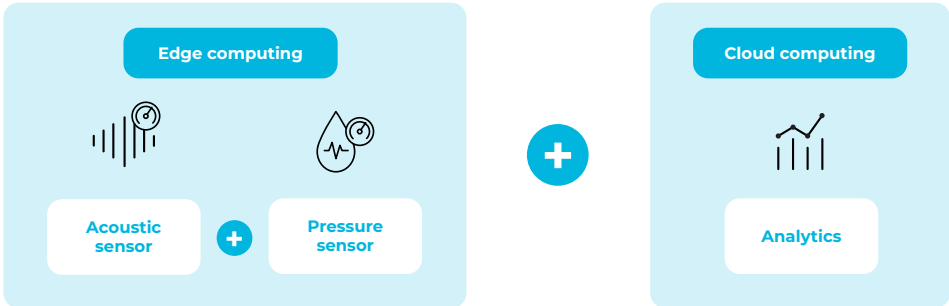


The primary goal of all utilities is to reduce, detect, and accurately locate these types of losses to ensure efficient water management and sustainability. These objectives are achieved by integrating analytical solutions into innovative meters with pressure and acoustic (vibration) sensors, using a patented solution from Sotto®.

## EDGE COMPUTING – Multi sensor solution

| Feature | Acoustic (Vibration) Sensor | Pressure Sensor |
|---|---|---|
| **Functionality** | Detects leaks through sound vibrations in the pipeline. | Monitors real-time pressure variations in the network. |
| **Technology** | Patented solution from Sotto® for optimal detection. | High-resolution sensing with ±0.2 bar accuracy. |
| **Use Cases** | Identifying leaks across diverse pipe materials and flow rates. | Managing pressure zones, optimizing network performance. |
| **Alarm Triggers** | Alerts when leak-related sounds are detected. | Alarms for underpressure (<1 bar) or overpressure (>10 bars). |
| **Frequency Range** | Focused on low frequencies for precise leak detection. | Measures pressure every 5 or 15 minutes. |
| **Data Integration** | Provides acoustic data for advanced leak analytics. | Offers detailed pressure data for network optimization. |
| **Environmental Benefits** | Minimizes water loss by detecting small leaks early*. | Reduces energy usage by optimizing pressure management. |

*The acoustic sensor is specifically designed to capture low-frequency sounds generated by leaks and has been extensively tested in pilots across various pipe materials (metal, PVC and HDPE), proving its effectiveness.

# Cloud Computing - SICONIA® Data Analytics

**SICONIA® Data Analytics platform** is a cloud agnostic, open data hub that leverages smart meters, IoT devices and other data sources to enable efficient daily operations for utilities.

**Evolving analytics:** Business Intelligence and Machine learning are used to analyse trends to predict potential issues, such as leaks or pressure anomalies. The platform is offered embedding on the shelf analytics with the flexibility to deploy new ones seamlessly.

**Actionable Insights:** User friendly and customizable dashboards with intelligent alerts for fast and informed decision-making.

**Proactive Network Management:** Monitoring and historical data analysis support predictive maintenance and resource conservation.

**Scalable by design:** Leveraging scalable architecture with cloud technologies, it allows to store and process large amounts of data.

**Seamless integration:** Supporting multiple standard interfaces and formats, with the flexibility to easily incorporate new ones. This ensures smooth system-to-system connectivity and future-proof compatibility.

With SICONIA® Data Analytics, utilities can efficiently manage their infrastructure while reducing operational costs and improving service reliability.

# Enhanced Leak and Pressure Management for Sustainable Networks

Sagemcom's approach to addressing Non-Revenue Water (NRW) is centered on an integrated multi-sensor solution, seamlessly combined with SICONIA® Data Analytics. This provides utilities with consistent, long-term data on water pressure and acoustics (vibration), enabling precise and informed decision-making.

## Key Benefits

### 1. Reducing Non-Revenue Water (NRW)

SICONIA® meters integrate acoustic sensors to continuously monitor water distribution networks, detecting leaks early and preventing unnecessary water loss. This approach helps utilities minimize NRW, conserve resources, and reduce operational costs.

### 2. Advanced Leak Detection

· Continuous Monitoring: The integrated acoustic sensor operates 24/7, capturing data at optimal intervals to identify leaks in pipes made of various materials (e.g., concrete, metal, polyurethane).
· Localized Alarms: Leak alarms are triggered when anomalies are detected, enabling rapid and precise interventions.
· Optimized Signal Analysis: Acoustic signals are processed to filter out non-leak vibrations, improving detection accuracy.

### 3. Proactive Pressure Management

· Real-Time Pressure Monitoring: Sensors provide detailed pressure data, helping utilities manage flow, optimize operations, and reduce pipe stress.
· Extended Network Lifespan: By minimizing mechanical wear, pressure optimization extends infrastructure longevity and reduces maintenance costs.
· Environmental Benefits: Lowering pressure decreases energy consumption and associated $CO_2$ emissions.

### 4. Enhanced Data Analytics

· Edge Computing: Data from pressure and acoustic sensors are analyzed locally for immediate insights.
· Cloud Integration: Long-term analytics are performed using SICONIA® Data Analytics, offering actionable dashboards and customized alerts for better decision-making.

# SMA Connector for external antenna

**Optional External Antenna Support:**

All meters can be retrofitted with an SMA connector for various antenna types such as:
· Small atennas,
· Directional antennas,
· Amplified signal antennas, and through-hole "puck-style" antennas for meter pit lids.

*\* This datasheet is generic and does not describe exhaustively all specifications of the meter pit lids.*
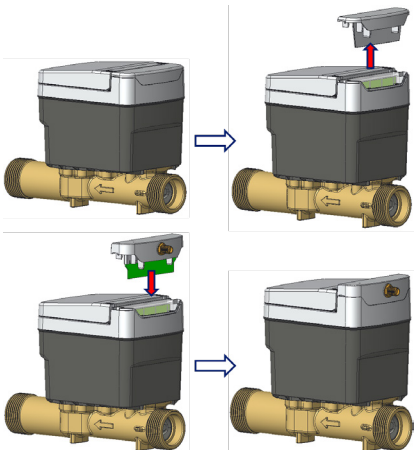
# Technical features

## METROLOGY
· Nominal diameter : 5/8"x3/4", ¾'' Short & Long, 1''
· Nominal flow rate : 25 gpm, 32 gpm, 55 gpm
· Minimum flow rate : 0,1 gpm, 0,4 gpm
· Max operating pressure: 175 PSI (12 bar)
· Measuring frequency: 2 to 8 Hz
· Mounting in any position (H, V, H/V)
· Sensitive class: U0/D0
· Class of T°: T50
· Pipe material : Brass DZR lead-free, Bronze, Composite

## TECHNICAL CERTIFICATIONS
· FCC certification (ongoing)
· UL certification (ongoing)

## DRINKING WATER CERTIFICATIONS
· NSF/ANSI 61 & 372 (ongoing)

## DESCRIPTION OF PRESSURE SENSOR
· Pressure range: 0 - 20 bars
· Accuracy: +/- 0,1 bar
· Material: Ceramic Alumina $Al_2O_3$
· Compensated temperaute: YES
· Burst pressure: 60 bars

## COMMUNICATION

LTE-Ⓜ  ⓑ Bluetooth™  ⊕ NB-IoT  M-Bus wireless 868tMhz

LoRaWAN™  Wired Encoder Output (UI1203)

· Data logger (36 months capacity)
· Data security (AES128 encryption)

## ADVANCED EDGE COMPUTING SERVICES
· Tamper detection logs and alarms
· Water quality management - backflow detection
· Associated to Scionia Software Suite Data
  Analytics Module

## USAGE
· Ultrasonic meter for residential use

## ENERGY
· Lithium Thionyl Cloride battery
· More than 10 years lifetime*

## ENVIRONMENT
· Protection class IP68
· Operating Humidity: 0 to 99%
· Operating temperature 0 - 70°C

*Depends on radio configuration, associated data model and environmental conditions

# Dimensions

| | Siconia® UM20 | | |
|---|---|---|---|
| | Siconia 5/8"x3/4" | Siconia ¾'' Short & Long | Siconia 1'' |
| A (Box width) | 3" | 3" | 3" |
| B (Height)) | 0.70" | 0.70" | 0.82" |
| C (Pipe length) | 7 1/2" (191mm) | Short : 7 1/2" (191mm) Long : 9" (229mm) | 10 3⁄4" (190mm) |
| D (Total length) | 5.3" | 5.3" | 5.48" |
| E (Box length) | 4.19" | 4.19" | 4.19" |
| Thread | NPSM 1" | NPSM 1" | NPSM 1 1/4" |
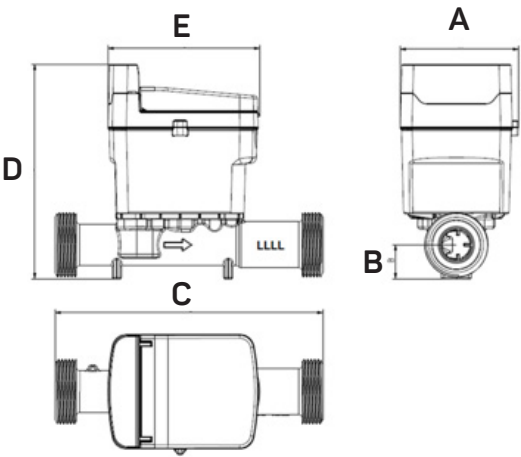


# LCD Interface

The complete range of Siconia® Water WM meters offers an LCD display. With its nine digits (9), it is well above the requirements of the MID specification.
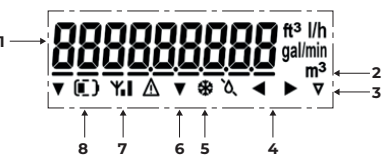


| | |
|---|---|
| 1 | The measured volumes are indicated in gal, $m^3$ and $ft^3$ and flows in gal/mn and l/h. |
| 2 | Animated icons showing when there is an active flow through the meter |
| 3 | MID certified information |
| 4 | The counter is in a backflow situation |
| 5 | The water line is not filled with water |
| 6 | One or more events/alarms are currently active |
| 7 | RF status information |
| 8 | Battery level information |

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