



Water Advanced Metering Infrastructure

The Smarter Water AMI Solution
For A Water-Secure Future





The Critical Need To Do Better In Water Management

With more than half the world's population living in cities today, cities face increasing challenges and need to do better in managing water resources. And the key to empowering cities to precisely manage water resources is Smart Water Advanced Metering Infrastructure (AMI).

THE CHALLENGES IN CITIES

- ▶ Aging water infrastructure
- ▶ Chronic non-revenue water
- ▶ Prone to human error
- ▶ No means for proactive problem management
- ▶ Increasing focus to improve sustainability and resilience of water resources

The Smarter Water AMI Solution Is BrightCity™ Water AMI

Water AMI solutions are not created equally. Some require meters to be replaced, others require multiple add-ons for full feature function, not forgetting perennial data integration challenges across multiple water meters in-field.

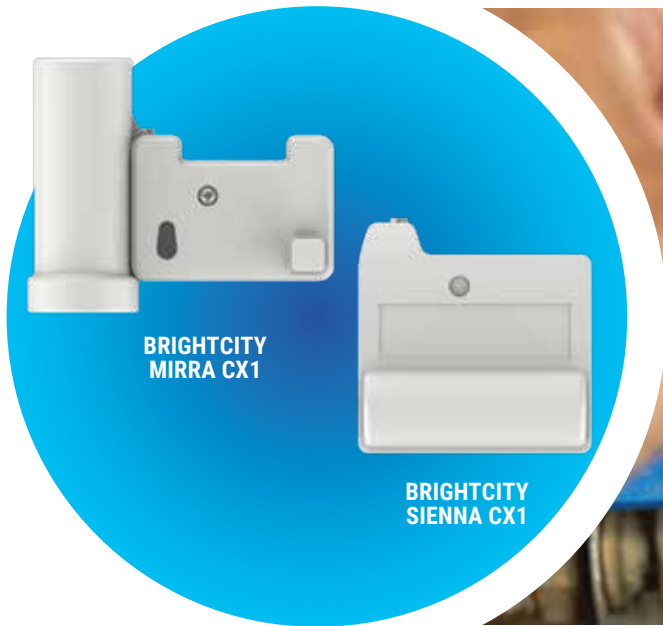
With BrightCity Water AMI solutions, cities can now swiftly implement smart water solutions in brownfield and greenfield sites with complete ease and robust reliability. No more expensive meter change-outs, no more product incompatibility, no more data silos.

BrightCity Water AMI delivers precise automated readings, reliably and securely transmitted to a unified data platform to power operational intelligence, manage meter data and deliver a seamless experience to your customers.

BRIGHTCITY WATER AMI SOLUTIONS

- ▶ Universal Meter Interface Unit (MIU) add-on to existing meters
- ▶ Easy and flexible in-field deployment
- ▶ Open standard communications protocols
- ▶ Open Meter Data Management System (MDMS) platform for unified data

Now you can precisely manage every drop with BrightCity™ Water AMI from source to tap.



Powering A Water-Secure City

BrightCity Water AMI is an end-to-end water AMI solution that enables water utilities to unlock new water efficiencies and optimise water conservation.

Comprising of smart MIU, wireless network communications and a central information system platform, BrightCity Water AMI seamlessly automates meter reading, billing, and data collection processes, empowering a sustainable long-term solution for water utilities and cities to prevent non-revenue losses, protect water resources while delivering responsive services to customers.

A Smarter, Cost-Effective Way To Switch With BrightCity Water AMI

BrightCity Water AMI provides water utilities a cost-effective alternative to avoid expensive "rip-and-replace" projects and gain the full spectrum of water benefits, from field to consumer.



ACCURATE AND PRECISE DATA COLLECTION

Near real-time and semi on-demand water usage monitoring enables accurate, timely data delivery for precise billing.



ENHANCE OPERATIONAL EFFICIENCY

Eliminates time, labour and cost required for manual reads by automating meter reading and wireless transmission of data to servers to BrightCity MDMS servers.



MINIMISE NON-REVENUE WATER LOSSES

With real-time alarms for leakage, tampering and backflow, coupled with usage data captured in high frequency, BrightCity Water AMI enables water utility companies to predict or identify potential customer-side leaks.



FIELD REPLACEABLE BATTERY DESIGN

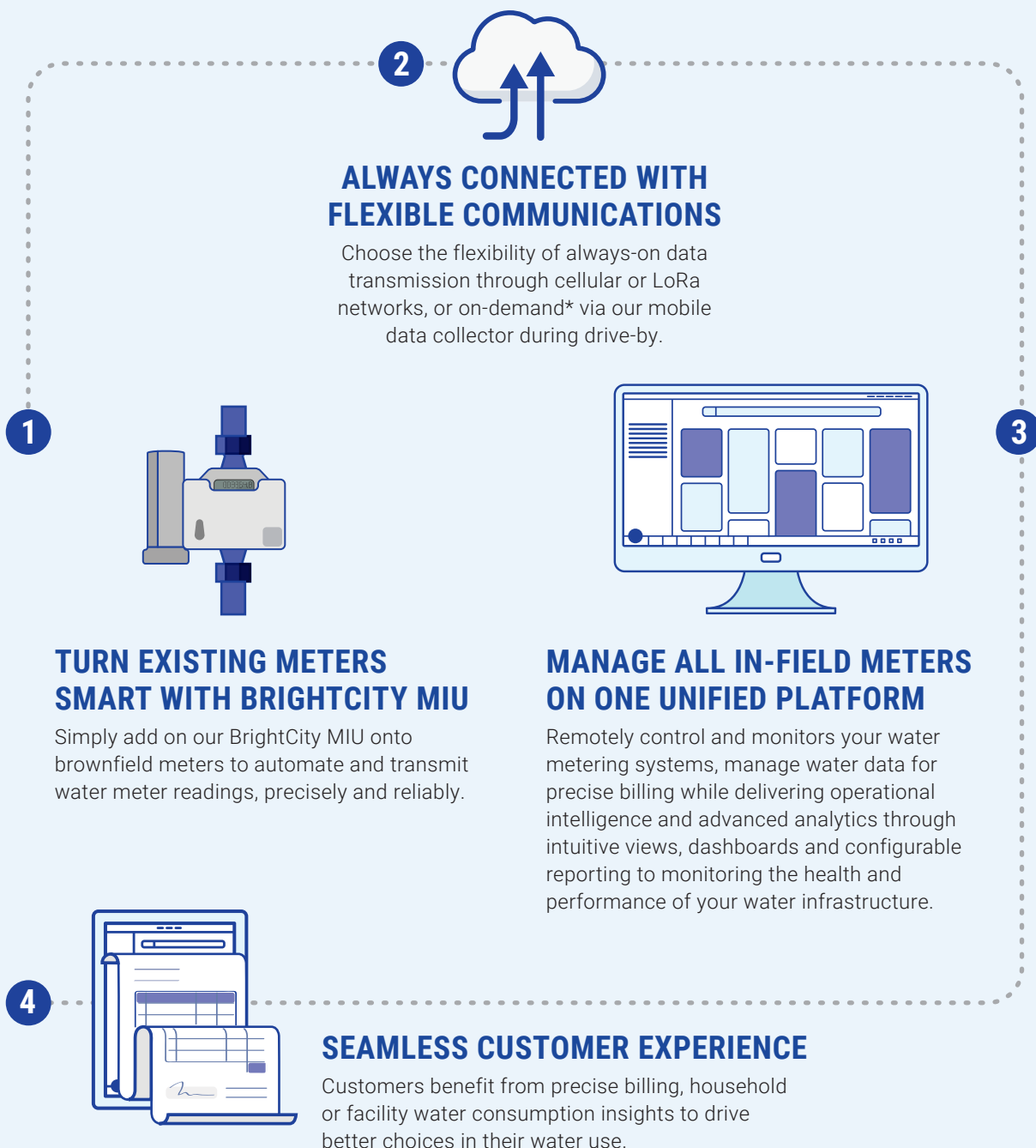
Our MIU* is designed to enable easy in-field battery replacement, ensuring the useful life of the MIU to be maximised while reducing wastage of resources.

*Select models only

Precisely Manage Every Drop, From Source To Tap

As the demand for water increases along with the growing population in cities, water utilities are looking for more efficient ways to supply and conserve water, without a complete replacement of all meters. BrightCity Water AMI empowers water utilities to do this through an end-to-end solution that works seamlessly with existing meters and operational systems to power a data-driven water network.

How BrightCity Water AMI Works



*Select models only

A Smarter End-To-End Solution For Water AMI

1



BRIGHTCITY MIU

- ▶ Plug-and-play for automated readings and secured data transmission
- ▶ Easy in-field upgrade with wide range meter-compatibility standards
- ▶ Real-time fault detection alarm

2



WIRELESS COMMUNICATIONS

- ▶ Supports NB-IoT/LoRa two-way wireless communications
- ▶ Flexible for your site requirements

3



BRIGHTCITY MDMS

- ▶ Remotely monitors and controls water metering systems and infrastructures
- ▶ Delivers near real-time data and real-time alarms
- ▶ Encrypted data management system for collecting, saving, and displaying water consumption data and insights

City-Scale Solution, Powered By World-Class Technology

Designed for easy deployment and integration, BrightCity Water AMI provides a smart, more powerful way for water utilities to tackle critical business cases in optimising operations and cost, asset management and ultimately, reduce non-revenue water losses.

The diagram illustrates the BrightCity Water AMI architecture, organized into four main layers:

- DATA MANAGEMENT AND SOFTWARE ANALYTICS:** This top layer includes the **BrightCity Platform** (represented by a laptop with charts) and the **BrightCity Customer Portal** (represented by a smartphone).
- DATA TRANSMISSION:** This layer is represented by four cloud icons, indicating the network path for data.
- DATA COLLECTORS:** This layer includes various collection methods: **Walk-by** and **Drive-by** (with icons of a person and a truck), and four gateway types: **Short Range Radio Frequency**, **NB-IoT/Cat-M Gateway**, **LoRa Gateway**, and **Others**.
- METER INTERFACE UNIT:** This bottom layer shows the physical hardware: **BrightCity Sienna MX1** (a vertical unit), **BrightCity Sienna CX1** (a small box), and **BrightCity Mirra CX1** (a larger box).

Dashed lines connect the Meter Interface Units to their respective Data Collectors, which then connect to the Data Transmission layer, and finally to the Data Management and Software Analytics layer.

5

The Complete Water Utility Solution

From greenfield spaces in new cities to brownfield cities, BrightCity has the metering solution for evolving AMI needs in both residential and commercial facility applications. Our entire range of smart MIU features in-built compatibility with different communication technologies and meters, for ease of deployment and scalability.

Pit/Wall Mount Meter Interface Unit

For automated fixed area remote and drive-by meter readings for underground pit.



BRIGHTCITY SIENNA MX1

Engineered For Multi-Applications



BRIGHTCITY SIENNA MX1-LKS WITH WATER LEAKAGE SENSOR

Connects and monitors two meters; alternatively connects to meter & valve.



BRIGHTCITY SIENNA MX1-QLS

For use in large commercial/ industrial meters.



BRIGHTCITY SIENNA MX1-PRS WITH WATER PRESSURE SENSOR

Monitors water pressure at key junctures in the water network with real-time alarms for water pressure thresholds.



Float

BRIGHTCITY SIENNA MX1-LVS WITH WATER LEVEL SENSOR

Connects to two separate sensors for enhanced multi-functionality.



Ultrasonic

Float: Monitors sewage or storm water for overflow alarms.

Ultrasonic: Monitors and records sewage and storm water level trends for data-driven decisions and immediate alarms.

Clip-On Meter Interface Unit

For automated remote meter readings for in-line water meters.



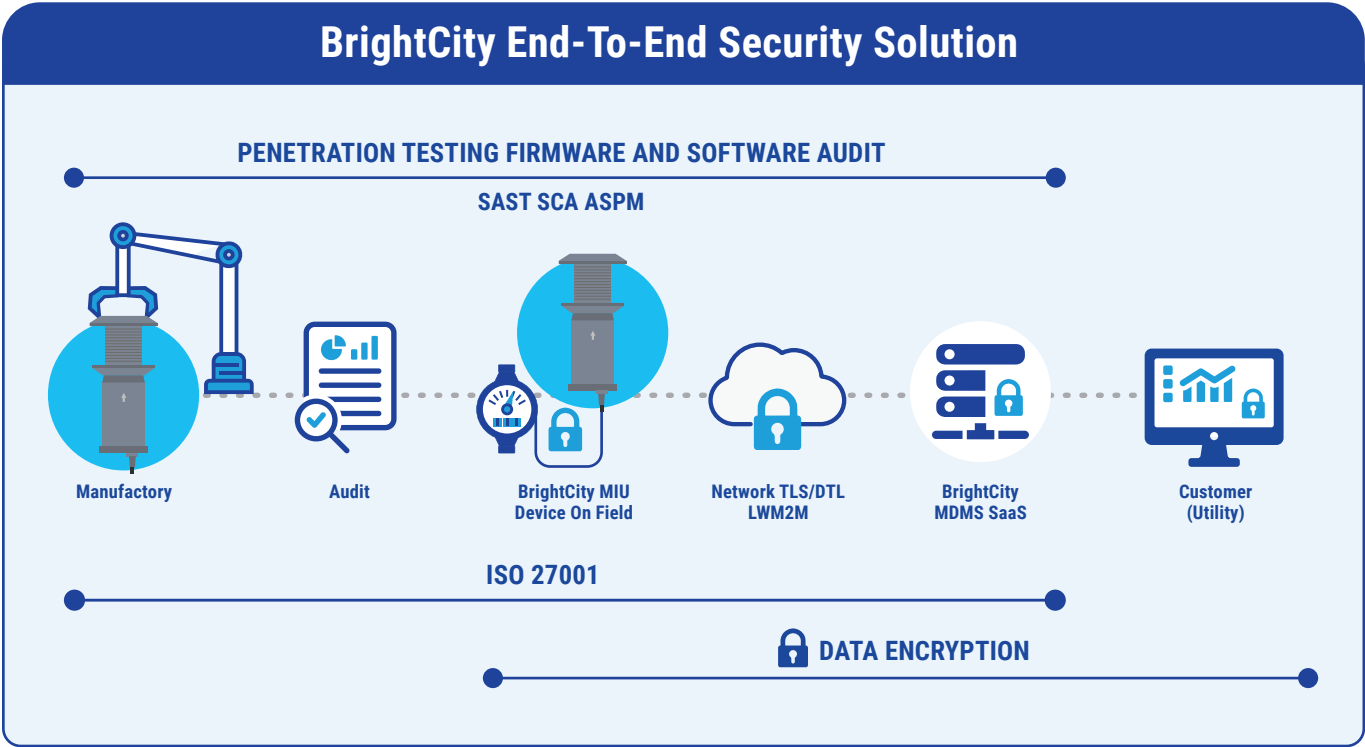
BRIGHTCITY SIENNA CX1



BRIGHTCITY MIRRA CX1

Unwavering Security: From Development To Customer

Security is paramount. And that is why BrightCity solution uses a comprehensive, multi-layered security approach throughout its AMI/AMR system life cycle, to safeguard your data and infrastructure.



SECURITY STARTS WITH DESIGN

BrightCity's unwavering commitment to security begins with the design of each device.

Secure development practices ensure that potential vulnerabilities are identified and addressed before deployment.

Additionally, rigorous audits verify the integrity and security of firmware loaded onto our devices during secure manufacturing.

END-TO-END ENCRYPTION

Data security is a top priority.

BrightCity enforces end-to-end encryption, protecting your data at rest and in transit.

This means that meter readings are encrypted from the moment they are captured by the meter to their arrival at the central server and are then stored encrypted.

NETWORK AND PROTOCOL SECURITY

BrightCity leverages secure cellular networks (NB-IoT or Cat-M) for data transmission.

These networks offer robust security features like mutual authentication and encryption.

Furthermore, the LwM2M protocol, specifically designed for secure communication between resource-constrained devices, ensures only authorised devices can access the network.

More Than 17 Million Wireless Nodes Connected Globally For Smart City Applications

Every day our proven, real-world wireless sensors and network solutions empower water utilities and municipalities of all sizes to achieve greater operational control over their systems.



Your Trusted Partner For City-Scale Smart Water Solutions

BrightCity Water AMI is a complete end-to-end smart water AMI solution that enables water utilities to unlock new water efficiencies, enhance operational intelligence and monitoring of their water infrastructure and optimise water conservation. With 30 years of expertise in wireless communications technology and innovation, and over 17 million wireless nodes deployed globally, our BrightCity Water AMI solution empowers utilities and cities in their journey towards a water-secure future.

ST Engineering is a global technology, defence and engineering group with a diverse portfolio of businesses across the aerospace, smart city, defence and public security segments. The Group harnesses technology and innovation to solve real-world problems, enabling a more secure and sustainable world. Headquartered in Singapore, it has operations spanning Asia, Europe, the Middle East and the U.S., serving customers in more than 100 countries.

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