



Metron is Teaching Old Meters New Tricks: Retrofit Solutions

For budget-minded utilities, register retrofits deliver the power of AMI at reduced cost.

Every utility can benefit from efficient, modern water infrastructure, and replacing traditional mechanical meters with modern AMI smart meters is a valuable step toward that goal. With cellular AMI technology, utilities can eliminate expensive manual meter reads, quickly identify and repair leaks across their networks, and provide customers with more accurate and timely usage data and billing.

However, amidst climbing inflation, high water rates, and strained public-sector finances, many utilities lack the resources for system-wide metering upgrades. All too often, utilities struggle with existing mechanical meters, while directing limited CapEx resources to pipeline replacements, new plant equipment, and other urgent maintenance.

Fortunately, there's an alternative. Using Metron's retrofit solutions, it's now possible to capture the full benefits of cellular AMI metering without the expense of purchasing and installing new meters. Metron's [Prism registers](#) can be easily fitted to existing third-party meters, streaming data over cellular networks to deliver AMI functionality with no need to replace existing meter hardware, or to install or upgrade expensive radio-frequency transmission systems.

Bringing AMI within reach

Compared to energy providers, water utilities have been relatively slow to implement AMI technologies, primarily because they've struggled to secure the required capital. While 75% of electric utilities are investor-owned, only [about 16% of water providers](#) are privately run; the rest are under public ownership, making it hard to raise money for major upgrades.

In addition, available capital is often earmarked for upgrades to aging core infrastructure. American and Canadian utilities plan to spend [almost a quarter of a trillion dollars](#) replacing pipelines and plant equipment over the next decade, which doesn't leave much room in the budget for smart-water upgrades. In fact, metering technologies ranked [dead last](#) in a recent survey of utilities' planned capital allocations.

To bring the advantages of smart water within reach for all providers, the industry needs to make the installation and operation of advanced metering far more cost-effective.

For a [typical large-utility AMI conversion project](#), about 45% of total budget is spent on end-point metering devices, 20% goes to cover network infrastructure, 15% covers installation, and 20% goes to project management and IT upgrades.

Metron is committed to lowering those costs: with cellular smart meters, for instance, there's no requirement for expensive radio-frequency network infrastructure to transmit readings back to head office. Metron's MDMS, [WaterScope®](#), provides intuitive and powerful water consumption analysis and system management tools, as well as integrating seamlessly with existing billing and management tools to reduce IT and data-management overheads.

However, purchasing and installing new smart meters does cost money. While the ROI on smart meters is typically substantial, many utilities are understandably wary of investing limited resources in metering upgrades, especially if existing mechanical meters are still operating smoothly.

That's where Metron's retrofitting solutions come in.

An important feature of most of [Metron's meters](#) is that the electronic, cellular register is a separate component. If it were possible to attach Metron's registers to third-party meters, the benefits of AMI could be gained without a wholesale meter replacement program. This approach is indeed possible. (Note, however, that very old meter bodies should be considered for replacement anyway, due to accuracy declining over time.)

Metron offers a variety of retrofit solutions that enable utilities to quickly and easily add cellular AMI functionality to existing third-party meters. This can be achieved with no need to interrupt the water supply, rip out and replace existing meter bodies, or build new transmission networks.

For budget-conscious utilities, that's transformative. By partnering with Metron, utilities can often reduce the up-front hardware and installation costs of an AMI conversion project by as much as 80% by retrofitting their existing meters, bringing advanced smart-water technologies within reach for everyone.



Cellular registers reduce reliance on expensive radio-frequency infrastructure.

Metron's Retrofit Solutions

To see why Metron's retrofit solutions are so transformative, it helps to understand the underlying technology.

- Advanced data-capture technologies. Every Metron [Prism register](#) captures meter activity down to a quarter-turn resolution, and stores data at 1-minute intervals, delivering the industry's most advanced and accurate water-usage data and analytics.
- Best-in-class cellular transmission. Using existing cellular networks, Prism registers transmit all collected data (a total of 1,440 data points per 24-hour cycle) to WaterScope on a daily schedule, via a brief cellular transmission in the middle of the night.
- Powerful analytics and alerts. Transmitted data is immediately visible in WaterScope. If there are serious problems, such as a leak that needs urgent attention, the register doesn't wait for the scheduled transmission—it immediately notifies the utility that something is amiss.

There are three [retrofit solution types](#) available from Metron:

Adapter rings

For meters which couple magnetically to top-mounted registers, Metron has a range of adapter rings that make mounting Prism registers easy. Standard brass or composite meters from most major manufacturers can be retrofitted in this way, instantly turning old mechanical hardware into smart cellular meters. Note that the existing register must be removed prior to installation of the Prism register.

3-wire meters

For meters with existing modules or registers that present a standard 3-wire output, the cellular [Prism R register](#) connects directly to capture water flow data every minute of every day. The wires can be provided bare, or terminated with a connector (typically Nicor Hydroconn®). Note that solutions exist to double up the 3-wire connection, enabling the Prism R to be attached without having to remove any existing 3-wire-connected register.



Metron's range of adapter rings allow the Prism register to be mounted on many third-party meter models.



The Prism R accepts a 3-wire input.

Prism EXT monitor

For more complex scenarios, Metron offers the [Prism EXT](#), which uses an advanced magnetic sensor to capture water-flow data directly from third-party meters. This opens up a range of use-cases, providing access to consumption data—and the full power of WaterScope—even in cases where a meter’s existing register also needs to remain in use. Note that Prism EXT installation may require a calibration step.

All three retrofit solutions are easy to deploy using Metron’s plug-and-play cellular connectivity. There’s no need to turn off the customer’s water supply or cut pipes: simply snap on (or plug in) the Prism register, and data immediately starts to flow into WaterScope. Prism registers are delivered already set up with their cellular connections.



The benefits of retrofitting

Using Metron’s Prism registers, utilities can turn existing meters into smart, cellular AMI endpoints without interrupting their customers’ water supply, spending significant sums on hardware and labor, or committing to maintaining RF transmission networks over time.

The ability to retrofit existing third-party hardware with Prism registers gives utilities a cost-effective alternative to major hardware upgrades, and new flexibility regarding how and where to use CapEx resources.

- If you’re **already using RF-based AMI**, Prism registers provide a way to solve stubborn connection problems and [connect the final 5%](#) of your end-points. If new construction blocks line-of-sight to your transmission tower, for instance, there’s no need to invest in new radio masts: install a Prism register on the existing meter for cellular connectivity.
- If you’re **looking to expand into new service areas**, Prism registers offer instant connectivity with no need to build out new network infrastructure. Because they use existing cellular networks, Metron’s retrofit solutions can also be easily implemented in remote or hard-to-access areas where drive-bys and RF-based meters aren’t a viable solution.
- And if you’re looking to **modernize your data infrastructure**, Metron’s WaterScope is the most intuitive and capable water data management platform available. Integrations with billing software and other platforms are achievable, even the ability to bring third-party water data into WaterScope for a unified view of all meters.

With Metron’s smart meters and retrofit solutions, it’s never been easier (or more cost-effective) for utilities to modernize and streamline their operations, and to capture dependable, high-quality water data from across their service area.

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