

Technical Article

How To Boost Water System Efficiency With Smart Output Technology

By McCrometer

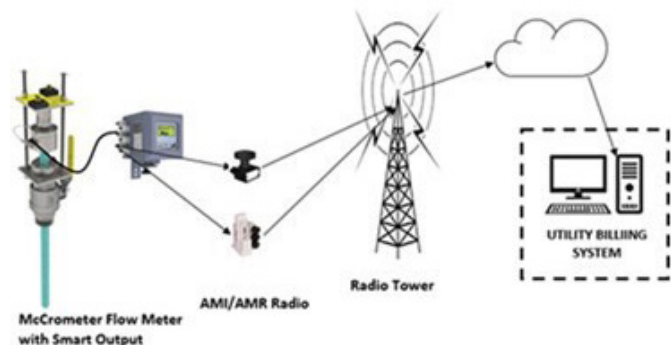
Water utilities are installing automated meter reading (AMR) and advanced metering infrastructure (AMI) systems more frequently. These systems often help utilities improve customer relations and provide valuable real-time data to improve operations. The ability for various meters to communicate with AMR and AMI technology has become more important as these systems become commonplace.

McCrometer is a global leader in providing flow measurement solutions for water and wastewater facilities. Water Online spoke with McCrometer to discover how its Smart Output technology can seamlessly integrate with AMR and AMI systems to increase efficiency.

What are automated meter reading (AMR) and advanced metering infrastructure (AMI) networks?

AMR systems collect data like flow rate, totalizer readings, and other parameters from water meters and transmit the data to a central database. AMR systems typically are all one-way communication systems. They include drive-by and walk-by systems, phone-based dial-up systems, handheld reading entry devices, and touch-based systems. These systems tend to be collection only, without means for broadcasting command or control messages.

AMI, as the name suggests, is an integrated system that enables two-way communication between the utility and customers. A network of smart meters, communication protocols, and data management systems allows for data transfer more frequently.



AMI provides daily and frequent monitoring/analysis of flow measurement. Some AMI systems include additional parameters like pressure and temperature.

Are all meters compatible with AMR and AMI networks?

Flow meter manufacturers need to offer protocols that can communicate with AMR and AMI networks. Not all flow meter manufacturers offer AMI and AMR capability. McCrometer Inc. offers electromagnetic flow meters compatible with various AMR and AMI networks.

Many water/wastewater systems use electromagnetic “mag” meters at their facilities and in the distribution system. Are there mag meters available that can communicate with AMR and AMI networks?

Yes, electromagnetic meters are largely used in municipal and water distribution networks. McCrometer offers Smart Output with Ultra Mag electromagnetic meters (these are full-bore

electromagnetic meters) and full profile insertion (FPI) type electromagnetic meters that enable these flow meters to communicate with AMI/AMR networks.

How do Smart Output mag meters work?

McCrometer's Smart Output offers a gateway for our Ultra Mag or FPI flow meters to communicate with Sensus, Itron, and other manufacturer-driven AMI networks. In other words, McCrometer flow meters can communicate with radios that transmit flow data to their AMR and AMI networks. Smart Output gives water utility managers the flexibility they need to network the flow meters across their distribution systems with the AMI solution of their choice.

What type of power source is necessary for a Smart Output mag meter to communicate?

Smart Output mag meters can be AC or DC powered, battery powered, or even solar powered.

How do Smart Output mag meters transmit data?

Smart Output allows McCrometer Mag Meters to connect to AMI/AMR Endpoint readers. There's no need for technicians to gather flow data manually with McCrometer's Smart Output mag meters.

Can a Smart Output mag meter be installed on any size pipe?

Smart Output mag meters can be enabled in flow meter sizes from 2 to 132 inches.

Are there options for situations where a hot tap installation would be necessary?

Smart Output is available with FPI mag flow meters. These meters allow for easy, hot tap installation. The meter can be installed without interrupting service, de-watering lines, cutting pipe, welding flanges, or inconveniencing customers. Use of FPI meters can greatly reduce overall cost due to installation ease and flexibility.

Can an existing mag meter be upgraded to a Smart Output meter?

Smart Output is a modular option that can be added to any McCrometer mag flow meters (Ultra Mag or FPI) with converters that have firmware version 3.0 or higher. This provides advanced plug and play into larger AMR and AMI systems.

How can Smart Output mag meters streamline utility operations, reduce costs, or improve sustainability?

A distribution system consists of pressure zones. Booster stations and elevated storage tanks are used to keep the pressure stable throughout the delivery system for potable water. In pressurized systems, leaks can occur and are caused by a number of reasons. Examples include construction projects, deteriorating infrastructure, illegal taps, and ground settling.

Smart Output mag meters allow utilities to transmit real-time flow data to their AMI networks. These meters can be installed on District Metered Areas (DMAs) within the distribution system. These AMI networks utilize the DMA flow data and help utilities uncover non-revenue water loss, leaks, and other inaccuracies in their system, allowing the utility to increase revenue and lower operational costs. Smart Output reduces costs, calls, travel, and labor, while it increases efficiency, ensuring your data is accurate.

Many utilities are old and find it difficult and expensive to install full-bore mag meters in their distribution networks. This is where Smart Output-enabled FPI mag meters come into play, allowing easy installation of flow meters in cost-effective way with 0.5 percent accuracy.