



Building AMR Efficiencies Through 40 Years of ARB® Innovation

With their ability to address access problems and ensure accurate meter readings, absolute encoders form the foundation for automatic meter reading (AMR) systems. Quite a difference from over 40 years ago, when Neptune Technology Group first introduced the water industry to absolute encoders with ARB® (Automatic Reading and Billing).

Initially, the primary focus of AMR technology was to address meter reading operational inefficiencies and some customer service issues (elimination of estimated reads, access problems, etc.). To meet these needs, Neptune developed ARB® Utility Management Systems™. The basic components include ProRead™ absolute encoders, R900® radio frequency meter interface units (RF MIUs), data collection devices (handhelds, mobile, and targeted fixed network), and meter reading management software.

Today, utilities are faced with additional challenges — AMR installations (rising costs, etc.), water loss/non-revenue water management (leak notification, inaccurate or stopped meters, theft of service, etc.), consumer awareness (water quality, water supply/demand), aging infrastructure (meter maintenance, capital investments, sustainability, etc.) and security initiatives (reverse flow events, etc.).

To address these pressing customer needs, Neptune introduced the E-Coder®, a revolutionary solid state absolute encoder, in 2003. When connected to Neptune's R900 RF MIU, it provides value-added data, including "true" point-of-use leak detection, tamper detection, and reverse flow detection every time a meter reading is transmitted.

In 2006, Neptune's engineers took the industry another step forward with the introduction of the E-Coder)R900/™, integrating the E-Coder and R900 into a single enclosure. By eliminating the wiring between the register and the MIU, costly installation time and maintenance are drastically reduced, and overall product reliability is improved.

BENEFITS PROVIDED

Leak Notification

Now utilities can identify residential and commercial water leaks in 15-minute intervals remotely with mobile RF technology. By capturing this data, utilities can proactively notify customers through their customer billing statements of water leaks — before they lead to exorbitant water bills.

Meter Maintenance

The E-Coder also provides meter diagnostic and tamper detection information — such as the backflow impact of a water main break — allowing utilities to generate reports to support proactive water meter maintenance and water loss management initiatives.

Theft of Service

Both the E-Coder and E-Coder)R900/ identify "no flow" or possible tamper problems when the meter is read, rather than relying on billing to identify unusual consumption. The ARB Utility Management System generates reports so the utility can proactively identify possible stopped meters or theft of service.

Consumer Awareness

Today, most customers know of water supply/demand issues. So they appreciate that the E-Coder and E-Coder)R900/ can identify leaks. In initial product testing the E-Coder identified 30 out of 100 homes with continuous leaks. These homeowners received their water bills with special notification of a potential leak in their home. In subsequent reading cycles the number of continuous leaks detected declined to 20 and 11, respectively. The homeowners, obviously empowered by the information, had repaired the leaks.

Security

For the last three or four years utilities have rated security of the water supply as a critical issue. Both the E-Coder and E-Coder)R900/ can assist with these homeland security issues by detecting a reverse flow event that might occur if a contaminant were pumped into the water system.

Utilities today are looking for products that address both customer service and operational issues. Gone are the days of time-consuming, error-prone manual reads. AMR systems can provide a more efficient way to read meters, as well as optimize system operation and lower cost of ownership. By reducing meter reading time, utilities can allocate more manpower to other areas, such as meter maintenance and customer service.

The types of innovative, proactive and value-added features available with the E-Coder and the E-Coder)R900/ offer utilities the unique opportunity to maximize the return on their investment — by improving operating efficiency, customer service, water loss and drought management, as well as addressing some homeland security related concerns. 📶



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