

Neptune ARB®: Giving Utilities the Freedom to Work the Way They Want

Utilities have a job to do. And it's Neptune's job to help, replacing obstacles with options – which is why we developed the original automated reading and billing system, ARB®. • Today's ARB® Utility Management Systems™ incorporate new technologies to meet changing needs, while maintaining compatibility among generations of Neptune Systems.

Introduction

In 1964 Neptune began with a vision to automate the revenue cycle for utilities – accurately measure and collect consumption data to generate a bill without the need for a site visit. The introduction of the industry's first Automatic Meter Reading (AMR) system, Neptune's original Automatic Reading and Billing (ARB®) Utility Management System™ was developed to solve problems that all utilities shared – to efficiently and accurately read inaccessible meters and bill their customers. The paradigm-changing benefits of automation achieved through an ARB Utility Management System – reduction of human errors resulting in accurate reading and billing, elimination of delays, lockouts, callbacks, and estimated bills leading to enhanced customer relations and improved cash flow – result in the overall improvement in the efficiency of the utility's operations to more effectively serve the public.

Neptune's ARB Utility Management Systems technology has evolved over the years and the industry has laid a solid foundation for future growth. Early adopters of AMR have helped lead the way and have proven that ARB Utility Management Systems deliver on their promises.

The market for AMR is very strong. Enter AMI. What is it? There seems to be confusion in the marketplace as to what it means. In which utilities is it applicable – electric, water, or gas? Where did it come from? Where is it going? There is no confusion with ARB.

AMR AND AMI by Their Proper Name: ARB®

Neptune knows that utilities have a job to do. And that it's our job to help them do it. That means replacing obstacles with options. As a company, we strive to be proactive problem solvers – which is why we developed the original automated reading and billing system, ARB.

Today's ARB Utility Management Systems build on the original principles while incorporating the latest technology to meet the changing needs of the industry. At the same time, Neptune strives to maintain compatibility between various generations of ARB Utility Management Systems, allowing customers to migrate from one generation of technology to the next. ARB Utility Management Systems are designed to meet the customer needs of today with a constant vision to the future – automation, revenue management, integration of billing and information management systems, resource management, conservation, non-revenue water, demand response, customer service, and much more. ARB Utility Management Systems bridge the past to the future – from where utilities are today to where they want to be.

Over the years, we've kept adding to that framework, building a suite of solutions into ARB Utility Management Systems. By giving utilities the freedom to choose between ARB® Mobile, ARB® FixedBase, and ARB® Hybrid, Neptune can not only provide more accurate

meter readings but also value-added benefits including leak detection, tamper detection and reverse flow detection; up-to-the-hour consumption data; and easier migratability to wireless networks.

The heart of Neptune's ARB Utility Management Systems is the new ARB N_SIGHT™ software suite. The ARB N_SIGHT software suite brings together all the AMR system components and leverages the value-added functionality of each Neptune System. Both ARB N_SIGHT Mobile and ARB N_SIGHT FixedBase software packages function as stand-alone applications to support ARB Mobile and ARB FixedBase respectively or integrate seamlessly with one another to enable ARB Hybrid. The ability of the host software to analyze data and provide utility personnel actionable insight into their departments (Customer Service, Water Revenue & Billing, Distribution, Meter Reading, Conservation, Operations, and Non-Revenue Water) – this is how AMR business cases are justified.

ARB Utility Management Systems – since 1964.

(See architecture on page 3.)

ARB® Mobile ARB® Mobile: More Efficient Reads for Utilities on the Move

For decades, the utility industry made do with manual reads. That over-the-river-and-through-the-woods approach made for tedious weeks of trudging to roadside meters, dodging traffic and

lifting heavy slabs to get to large commercial meters. Add to that, handwritten and often estimated reads (because of meter inaccessibility), and the result was less-than-reliable read rates.

ARB Mobile has changed all that. Using the industry's first solid state absolute encoder, the E-Coder®, Neptune has greatly increased the value of the data available from the meter (value-added data in the form of leak, tamper, and reverse flow detection). The addition of R900® radio frequency technology gives readers automatically transmitted data – and the freedom to literally “roll with it.” From the warmth and safety of their trucks, readers can now collect more than twenty times the number of reads in the same amount of time with typical read success rates of 99+ percent.

Because Neptune's R900 uses a spread-spectrum, frequency-hopping approach, crucial data can be transmitted with far less interference. By achieving highly accurate reads in just a fraction of the time with high read success rates, utilities can accelerate revenue cycles, with more fluid cash flow and more efficient billing.

The E-Coder®R900™, which integrates the R900 into the solid state E-Coder register, gives Neptune customers the additional benefits of lower installation cost and less opportunity for tampering.

How Does Reducing Non-Revenue Water Sound? Listen with the AMR Permalog®

When combined with monitoring systems such as AMR Permalog® leak noise loggers, R900 technology can transmit leak status data from water distribution mains and service connections to Neptune's ARB N_SIGHT Mobile software, where leak reports can prioritize leak surveys and correlation efforts.

By making the Permalog compatible with the R900, utilities can now gather leak monitoring data while reading meters using Neptune's ARB Mobile System. By proactively identifying leaks and repairing aging pipes, valves and meters, utilities can save significant amounts of water – and money.

Neptune is currently testing the Permalog with its ARB FixedBase System, scheduled for release later this year.

The Right Time for Customer Satisfaction through Data Logging

It's not unusual for a utility to field a customer complaint regarding a high water bill. But up until now, that utility didn't have the information that proved not only that the excess consumption occurred, but exactly *when* it occurred.

Using Neptune's E-Coder)R900*i* with the ARB Mobile System, the utility can retrieve up to 96 days of historical data directly from the E-Coder)R900*i*, then download the information into ARB N_SIGHT Mobile software. The daily or hourly consumption can be graphed and provided to the customer – justifying the amount charged on the bill.

Neptune's E-Coder technology offers 8-digit measurement resolution, pinpointing leaks that 6-digit encoders miss. Those utilities that use the E-Coder)R900*i* will see even more added value through the specific consumption data.

ARB® FixedBase

ARB® FixedBase: Going the Distance without Leaving the Office

ARB FixedBase frees up a lot of options for utilities. As well as lines of communication. Neptune's ARB FixedBase users can get critical, timely data from the field, as well as daily system-wide, synchronized midnight reads from all MIUs. The time-synchronized midnight reads support leak detection and conservation initiatives. By generating daily or hourly reads for every meter, ARB FixedBase eliminates off-cycle reads for high water bill complaints and/or move-ins/move-outs.

The ARB FixedBase System optimizes read success rates through a high-power, two-way licensed transmitter that avoids collisions and interference associated with unlicensed bands. The high power also helps reduce collector infrastructure, lowering total deployment costs.

A dedicated ARB FixedBase System offers auto-discovery over the network, allowing utilities to confirm communications, MIU and register function before leaving an installation site – eliminating a costly return trip.

Streamlining operational efficiencies and providing for a lower cost of ownership, an ARB FixedBase System gives more "air time" to the information utilities and their customers need.

ARB® Hybrid

ARB® Hybrid: Giving Utilities the Best of Both Worlds

Another one of ARB Utility Management Systems, Neptune's ARB Hybrid allows utilities to choose what works best. Where it works best.

The choice of ARB Mobile (R900) and ARB FixedBase components (R900® WiFi or R900® GPRS Gateways) provides the best of both worlds, allowing for network upgrades while minimizing stranded assets. Daily or hourly reads mean utilities can bill more frequently, improving cash flow.

An R900 WiFi Gateway can provide coverage wherever a municipal WiFi network is installed. The R900 GPRS Gateway is typically used in targeted applications for high revenue customers.

With ARB Hybrid, ARB N_SIGHT Mobile software can operate in parallel with Neptune's ARB N_SIGHT FixedBase software. Integrating the two software platforms allows utilities to select the most appropriate meter reading technology for the specific application. Detailed usage analysis provides management tools where they are needed.

Piggy-Backing Saves Serious Boot-Leather

As communities across the country "go wireless," utilities can use ARB Hybrid to read meters more efficiently by tapping into the same network used for police communication, emergency management, and other municipal services.

It all comes down to advanced technology in a simple box: Neptune's R900 WiFi Gateway. When installed on wireless WiFi router access points, the R900 WiFi Gateway "discovers itself" automatically, and is programmable over the WiFi network.

Powered by the same Ethernet connection through which it communicates with the WiFi access point, the R900 WiFi Gateway acts as a fixed network would, relaying readings once an hour back to the host software. Increased data traffic means decreased road traffic: With a constant stream of information coming into the office, utilities don't have to send meter readers into the field, and can deploy that manpower to other tasks.

The R900 WiFi Gateway is just one example of how Neptune continually works with customers to add value to the systems they already have in place. Instead of scrapping everything and starting over, utilities can keep working – and building for the future.

Freedom to Travel from Today to Tomorrow

For more than 116 years, water utilities have relied on meter reading innovations from Neptune to better serve their communities. We're quite proud of that history. But we look forward even more to clearing the path to even better things tomorrow.

For water and combo utilities of all sizes, Neptune constantly finds innovative ways to apply tough, reliable and field-proven automatic meter reading technology. And as the word "Systems" implies, it's all engineered to work together.

Neptune's ARB Utility Management Systems continue to evolve with the needs of utilities. With ARB Mobile, ARB FixedBase, and ARB Hybrid options, now they'll have even more freedom to work the way they want.

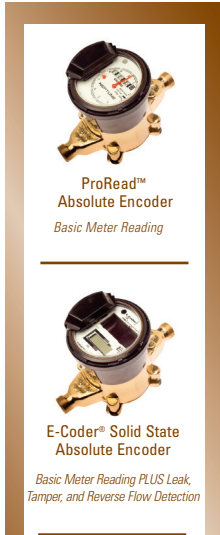
FOR MORE INFORMATION AND DEMONSTRATIONS, VISIT US AT AUTOVATION 2008 | SEPTEMBER 7-10 ATLANTA, GA | GEORGIA WORLD CONGRESS CENTER BOOTH #645

Architecture

ENCODER REGISTERS AND RF AMR ENDPOINTS



Basic Meter Reading PLUS Leak, Tamper, and Reverse Flow Detection and Data Logging



FIELD DATA COLLECTION HARDWARE



HOST MANAGEMENT SOFTWARE



BILLING/CIS SYSTEM



ARB® UTILITY MANAGEMENT SYSTEMS™



NEPTUNE
TECHNOLOGY GROUP

Take Control.