



# R900<sup>®</sup>G Endpoint

## Describe Neptune's experience in the AMR market.

Neptune Technology Group Inc. is a technology company serving more than 4,000 water utilities across North America. We make data actionable using effective software and measurement systems that are interconnected by a smart network, with expertise and experience specifically focused on the business of water. The company's story is rooted in loyalty to our customers and in sound stewardship.

## How does Neptune's reading system work?

Neptune's ARB Utility Management Systems provide utilities with a high level of flexibility, allowing different data collection methods to be mixed and matched to form a hybrid solution. The handheld, tablet and mobile receivers are capable of reading Itron gas and electric ERT<sup>®</sup>s, R300s and R300HPs, and Hunt AirPoint<sup>™</sup> models in addition to Neptune's suite of R900 MIUs for water, gas and electric applications. With this capability, utilities can easily transition from an older ERT-based system to a more efficient high-power R900-based system. Depending on the utility's needs, Neptune<sup>®</sup> 360<sup>™</sup> software may be used to manage the meter reading function and provide the interface to the utility's billing and customer information systems.

## How can Neptune's reading system read existing Itron ERTs?

When Itron acquired Schlumberger's electricity metering business, after an extensive review of the market, the Federal Trade Commission ruled that Itron was in violation of Section 7 of the Clayton Act, which protects the public from anti-competitive acts. In order to protect the consumer, the FTC ruled in its Decision and Order that Itron needed to make sure the market continued to have choices between competing meter reading systems compatible with electric ERTs and R300s.

As a result, Neptune was granted the right to read both one-way (or "bubble-up") and 1½ way (or "wake-up") type electric ERTs and R300s using mobile meter reading technology. Neptune's rights are perpetual and are not revocable by Itron. Neptune is allowed to make and sell mobile reading systems to read electric ERTs and can sell these devices directly or through a third party.

## SYSTEM QUESTIONS

### How does the R900<sup>®</sup>G work?

The R900G is a high-power, one-way, frequency-hopping, spread-spectrum device that operates in the 902-928 MHz band. The R900G transmits its reading and other data every 14 seconds (on average). When a handheld receiver or vehicle-based receiver is within range, it will capture the data.

### How does the radio performance compare to a standard R900 wall MIU?

The performance of the R900G is equal to the performance of a water R900 wall MIU when both devices are installed in similar positions.

### What is the value of enhanced range?

As a high output power device, the R900G provides a higher read success rate, while reducing meter reading time by as much as 40% over lower-power designs. Both of these benefits provide a utility with the most economic and efficient RF solution.



### How does the system link into an existing billing/CIS system?

The R900G has a unique 10-digit ID number that serves as the MIU identifier in the CIS system. This 10-digit ID is also used by either the mobile or handheld meter reading device to collect the meter usage information.

### Are there any changes required to meter reading software in order to read the R900G endpoint?

Yes. To read the R900G endpoint, MX900™ v3.1 or newer software is required, in a drive-by solution, to recognize the reading as R900G data, and to process the data properly. To report R900G tamper indications, an upgrade to Neptune's Equinox v2.1 (or higher) software is required.

### How is the R900G endpoint designated/identified in combo Water, Gas & Electric ARB Utility Management Systems?

The R900G endpoint is identified in the meter reading software by a "G." The current water endpoint is identified in the meter reading software by a "W."

## PRODUCT QUESTIONS

### With which gas meter models is the R900G endpoint compatible?

The R900G endpoint can be retrofitted to all current residential and top-mount commercial meter models of the three major gas meter manufacturers (Elster®/American®Meter, Equimeter®/Rockwell®/Sensus® and Actaris®/Sprague®).

### Does a single module fit all three meter manufacturers' products?

No. There are three different residential endpoints for the three manufacturers. The indices for these meters have unique footprints, and therefore require different versions of R900G. There is a separate R900G module that is compatible with top-mount commercial meters.

### Does the R900G endpoint contain a field-replacable battery ?

Yes. The battery is a separate, fully potted assembly that is accessible by removing the R900G endpoint module from the gas meter housing by removing the four mounting screws. The wires can then be cut, and the new battery pack assembly can be connected using 3M Scotchlock connectors.

### How is the R900G endpoint module activated?

The R900 endpoint module is shipped in a "sleep" mode and requires an infrared (IR) programming of the module during field retrofits. Once the parameters have been programmed, the unit will "wake up" and begin transmitting.

### Is the R900G endpoint field programmable?

Yes. The R900G meets the requirement of the gas utility industry for the ability to synchronize the RF reading with the visual reading on the meter index. This allows the R900G to be field retrofitted to existing gas meters (while in service), without changing the customer's reading.

### What parameters are programmable?

The R900G endpoint is field programmable with the existing meter index reading, number of index digits, drive dial input factor and pressure compensation factor.

### What type of device is used to perform the field programming of the R900G endpoint?

Field programming is performed using the Trimble Nomad, loaded with the R900G programming software and an IR programming cable.

### What does “intrinsically safe” mean?

Equipment that is deemed to be intrinsically safe includes any equipment or wiring that is incapable of releasing sufficient electrical or thermal energy under normal or abnormal conditions to cause the ignition of a specific hazardous atmospheric substance (such as natural gas).

### Is the R900G endpoint intrinsically safe?

The R900G endpoint has been tested and approved and is listed by Factory Mutual (FM), Underwriters Laboratories (UL) and the Canadian Standards Association (CSA).

## SUPPORT QUESTIONS

### How is the R900G supported?

Neptune has a dedicated support group with responsibility for implementing reading systems and supporting our customers. This includes on-site training, reading system software and hardware maintenance, and customer telephone support.

### What is the warranty on the R900G?

Neptune’s standard warranty on the R900G endpoint and battery is 20 years. The first 10 years are “full replacement.” The second 10 years are prorated for a discount off the then-current list price.



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