



# E-CODER ) R900i™

INSIDE AND PIT VERSIONS



**E-Coder ) R900i™**  
Inside Version



Solving tomorrow's problems with today's technology, the E-Coder)R900i combines the field-proven R900® with our solid state absolute E-Coder®.

**E-Coder ) R900i™**  
Pit Version



The E-Coder)R900i combines the field-proven R900® radio frequency meter interface unit (MIU) with our solid state absolute E-Coder® into one integrated package to offer utilities the advantages of the cost savings associated with the ease and speed of installation. The E-Coder)R900i does not have any external wires to be installed or require any special programming for operation. The E-Coder)R900i operates within the 902-928 unlicensed RF band width.

The R900 MIU portion of the integrated unit collects meter-usage data and transmits the data for collection by the meter reader. Data transmitted by the R900 MIU is received by the Neptune walk-by, mobile, or targeted fixed-network data collection systems and stored for downloading at the utility office. The R900 MIU is a one-way communication device that transmits data every 14 seconds using frequency-hopping, spread-spectrum technology to ensure data security and improved meter reading accuracy and reliability. The E-Coder portion of the integrated unit features a custom integrated circuit design that digitally encodes the rotation of the measuring chamber, providing "absolute" registration with no internal battery requirement.

The E-Coder)R900i provides high resolution, 8-digit remote profiling and meter reading data along with value-added features, such as leak, tamper and reverse flow detection, plus hourly data logging consumption. Utilities have enjoyed E-Coder PLUS data, such as leak, tamper and reverse flow detection. Now those utilities that use the E-Coder)R900i will see even more added

value through specific consumption data for a specific time period for a specific account. Consumption is recorded as it happens, every hour on the hour, helping to identify existing or potential problems. Graphic charts can be generated to show a possible leak when usage doesn't approach or reach zero. When a leak flag is triggered, the utility can identify when the event actually occurs; the same goes for negative consumption that implies a backflow event.

Using Neptune's E-Coder)R900i with data logging, the utility can send a reader to retrieve up to 96 days of historical data directly from the meter, and then download the information directly into Equinox™ host software. The daily or hourly consumption can then be run as a graph – justifying the amount charged on the bill. Neptune's data logging is simple, with the system designed to minimize download time as well as programmer visits.

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.

The E-Coder)R900i PLUS features are communicated through the E-Coder protocol, allowing host software platforms to interpret the data and pass the information directly to the billing packages, CIS screens, and operations and maintenance reports. The value-added data received through Neptune's E-Coder)R900i enhances customer service and improves operational efficiencies.

**The E-Coder)R900i/Inside Version**

The inside version features a non-oil-filled plastic enclosure with an integrated antenna. This unit also features a field-replaceable battery.

**The E-Coder)R900i/Pit Version**

The pit version features a non-oil-filled roll-sealed copper shell and glass lens housing for superior protection in a flooded pit environment. The standard unit is designed with a whip antenna for installation under a pit lid and can be easily upgraded to a through-the-lid antenna if desired. The unit also features a field replaceable battery.

**KEY FEATURES**

- Ease of installation – no external wiring
- Integral antenna
- "Absolute" 9-digit meter reading on display
- 8-digit remote meter reading and usage profiling
- Logs 96 days of hourly consumption
- No FCC license required
- No MIU programming required
- Encoder metrology requires no battery
- Long-life lithium battery with HLC capacitor
- Available in both pit and inside versions
- Fully submersible pit version
- Leak, tamper and reverse flow detection
- LCD leak indicators
- Directional flow indicator
- Rate of flow on LCD display

**KEY BENEFITS**

- Enhanced cost savings and ease of installation
  - No external wires
  - Reduces labor cost
  - Reduces potential wire vandalism
- Enhanced "customer care"
  - Leak history/diagnostics
  - Proactive leak notification
  - Provides hourly consumption data
  - Improves meter reading accuracy
  - Eliminates estimated reads
- Increased operational efficiencies
  - Reduces costs
  - Minimizes reading time
  - Improves meter reading safety
  - Work order reduction for high water bill inquiries
  - Prioritization of meter maintenance
- Drought management
  - Reduction of water loss through proactive notification of water leaks
  - Ability to enforce odd/even day water restrictions
- Tamper management
  - Identification and prioritization of potential tamper situations

PARTS

- Replaceable Battery 1
- Antenna 2
- Light Sensor 3
- Flow Indicators 4
- Date of Manufacture 5
- LCD Display 6
- T-10 Meter 7

**E-Coder** R900i™



ICONS AND DISPLAYS

	<p><b>LIGHT SENSOR</b> Recessed under the small hole near the center of the faceplate of the E-Coder)R900i, supplies the power for the LCD panel (light activated).</p>
	<p><b>FLOW INDICATOR</b> Shows the direction of flow through the meter: ON Water in use. OFF Water not in use. FLASHING Water is running slowly. (-) Reverse flow. (+) Forward flow.</p>
	<p><b>LEAK INDICATOR</b> Displays a possible leak: OFF No leak indicated. FLASHING Intermittent leak indicates that water has been used for at least 50 of the 96 15-minute intervals during a 24-hour period. ON CONTINUOUSLY Indicates water use for all 96 15-minute intervals during a 24-hour period.</p>
<b>RATE</b>	<p><b>RATE OF FLOW</b> Average flow rate is displayed every six seconds on LCD display.</p>
	<p><b>LCD DISPLAY</b> Nine-digit LCD displays the meter reading in billing units of measure: U.S. gallons, cubic feet, Imperial gallons, or cubic metres.</p> <ul style="list-style-type: none"> <li>1 E-Coder® Basic Reading/Customary 6-digit remote reading</li> <li>2 Customary sweep hand digits</li> <li>3 E-Coder PLUS Reading (8-digit remote reading)</li> <li>4 Testing units used for diagnostics</li> <li>5 Extended reading units</li> <li>6 Customary billing units</li> </ul>

TECHNICAL SPECIFICATIONS

- Electrical Specifications:
  - MIU Power: Lithium battery with HLC capacitor
- Transmitter Specifications:
  - Transmit period: Every 14 seconds
  - Transmitter channels: 50
  - Channel frequency: 910 to 920 MHz spread spectrum
  - Output Power: Meets FCC Part 15.247
  - FCC Verification: Part 15.247
- Environmental Conditions:
  - MIU and E-Coder
  - Operating temperature: -22°F to 149°F (-30°C to 65°C)
  - Storage temperature: -40°F to 158°F (-40°C to 70°C)
  - Operating humidity: 0 to 95% (non-condensing)

Materials

Register housing:

- Inside Set: Plastic Polycarbonate
- Pit Set: Roll-sealed copper shell

Lens:

- Inside Set: Plastic
- Pit Set: Glass

Antennas

- Inside Set: Fixed antenna
- Pit Set: Standard whip type
  - Optional through the lid
  - 18" Coax
  - 6' Coax
  - 20' Coax

OPTIONS

- Sizes
  - Available for all sizes and makes of current Neptune meters
- Data Collection Systems
  - Handhelds - Walk-by RF
  - MRX920™/MTX950™ - Mobile RF
  - EZ Net™ (R900® GPRS Gateway) - Fixed-network RF for targeted C&I applications
- Units of Measure: U.S. Gallons, Cubic Feet, Imperial Gallons, Cubic Metres

WARRANTY

- Register: 20 years (10/10)
- R900 MIU: 20 years (10/10)
- R900 Battery: 20 years (10/10)

Neptune engages in ongoing research and development to improve and enhance its products. Therefore, Neptune reserves the right to change product or system specifications without notice.

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