







E-CODER) R900i™

INSIDE AND PIT VERSIONS

E-Coder R900iⁿ

Inside Version



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

E-Coder) R900*i*™ Pit Version



The E-Coder)R900*i* 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)R900*i* 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)R900*i* Inside Version

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

The E-Coder)R900i Pit Version

The pit version features a non-oil-filled rollsealed 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.

- 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

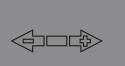
Enhanced cost savings and ease of installation KEY BENEFITS No external wires

- · 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



LIGHT SENSOR

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).



FLOW INDICATOR

Shows the direction of flow through the meter:

Water in use. Water not in use. Water is running slowly.

FLASHING (-) (+) Reverse flow. Forward flow.



LEAK INDICATOR

Displays a possible leak:

No leak indicated.

Intermittent leak indicates that water has

been used for at least 50 of the 96

15-minute intervals during a 24-hour period.

Indicates water use for all 96 15-minute

intervals during a 24-hour period.

RATE

RATE OF FLOW

ON CONTINUOUSLY

Average flow rate is displayed every six seconds on LCD display.



LCD DISPLAY

Nine-digit LCD displays the meter reading in billing units of measure: U.S. gallons, cubic feet, Imperial gallons, or

- E-Coder® Basic Reading/Customary 6-digit remote reading
- Customary sweep hand digits
- E-Coder PLUS Reading (8-digit remote reading)
- Testing units used for diagnostics
- Extended reading units
- Customary billing units

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· Handhelds - Walk-by RF

of current Neptune meters

Data Collection Systems

Electrical Specifications:

HLC capacitor Transmitter Specifications:

• MIU Power: Lithium battery with

• Transmit period: Every 14 seconds

• Channel frequency: 910 to 920 MHz

• Output Power: Meets FCC Part 15.247

• Operating temperature: -22°F to 149°F

• Storage temperature: -40°F to 158°F

Operating humidity: 0 to 95%

• Inside Set: Plastic Polycarbonate

• Pit Set: Roll-sealed copper shell

• Transmitter channels: 50

• FCC Verification: Part 15.247 Environmental Conditions: MIU and E-Coder

spread spectrum

(-30°C to 65°C)

(-40°C to 70°C)

(non-condensing)

• Inside Set: Plastic

· Inside Set: Fixed antenna

Pit Set: Standard whip type

• 18" Coax

• 6' Coax

• 20' Coax

Optional through the lid

• Pit Set: Glass

Register housing:

Materials

Antennas

Sizes

OPTIONS

TECHNICAL SPECIFICATIONS

MRX920[™]/MTX950[™] - Mobile RF

Available for all sizes and makes

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

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