PRODUCT SHEET

ARB® UTILITY MANAGEMENT SYSTEMS™

OR EQUAL

NEPTUNE TECHNOLOGY GROUP

E-CODER®)R900*i*™

INSIDE AND PIT VERSIONS

The E-Coder®)R900*i*™ combines the field-proven R900® radio frequency meter interface unit (MIU) with our E-Coder® solid state absolute encoder into one integrated package to offer utilities the advantages associated with 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)R900*i* operates within the 902-928 unlicensed RF band.

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 R900 MIU portion of the integrated unit collects meter-usage data and transmits the data for collection by the meter reader. 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. Data transmitted by the R900 MIU is received by the Neptune walk-by, mobile, or R900 Gateway fixed network data collection systems and stored for downloading at the utility office.

The E-Coder)R900*i* provides high resolution, 8-digit remote meter reading and data logging along with value-added features such as leak, tamper, and reverse flow detection. The data logging functionality provides hourly consumption data. Leak flags help identify when the event actually occurs; the same goes for negative consumption that implies a backflow event.

Ninety-six days of historical data can be retrieved directly from the meter and then downloaded directly into N_SIGHT™ R900® 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 designed to minimize download time as well as the number of service technician visits.

The E-Coder)R900*i* PLUS features are also 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)R900*i* enhances customer service and improves operational efficiencies.

KEY FEATURES

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

KEY BENEFITS

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

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

	LIGHT SENSOR Recessed under the small hole near the center of the faceplate of the E-Coder)R900*i*, supplies the power for the LCD panel (light activated) as well as the activation of the data logging extraction.
	FLOW INDICATOR 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.
	LEAK INDICATOR 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.
RATE	**RATE OF FLOW** Average flow rate is displayed every six seconds on LCD display.
RF LOG	**DATA LOGGING** displayed on LCD during extraction of data logging consumption data. *"DL" on dial face denotes data logging
1 2 RATE 888888888 3 6 5 4	**LCD DISPLAY** Nine-digit LCD displays the meter reading in billing units of measure: U.S. gallons, cubic feet, Imperial gallons, or cubic metres. 1 E-Coder basic reading/customary 6-digit remote reading 2 Customary sweep hand digits 3 E-CoderPLUS reading (8-digit remote reading) 4 Testing units used for diagnostics 5 Extended reading units 6 Customary billing units

TECHNICAL SPECIFICATIONS

- Electrical Specifications:
  - MIU Power: Lithium battery with 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: -22ºF to 149ºF (-30ºC to 65ºC)
  - Storage temperature: -40ºF to 158ºF (-40ºC to 70ºC)
  - Operating humidity:
    Inside Set – 0 to 95%, condensing
    Pit Set – 100% submersible
- 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

- Compatibility
  - Available for all sizes and makes of current Neptune meters
  - Handhelds – Walk-by RF
  - MRX920™ – Mobile RF
  - R900® Gateways
- 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)

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