

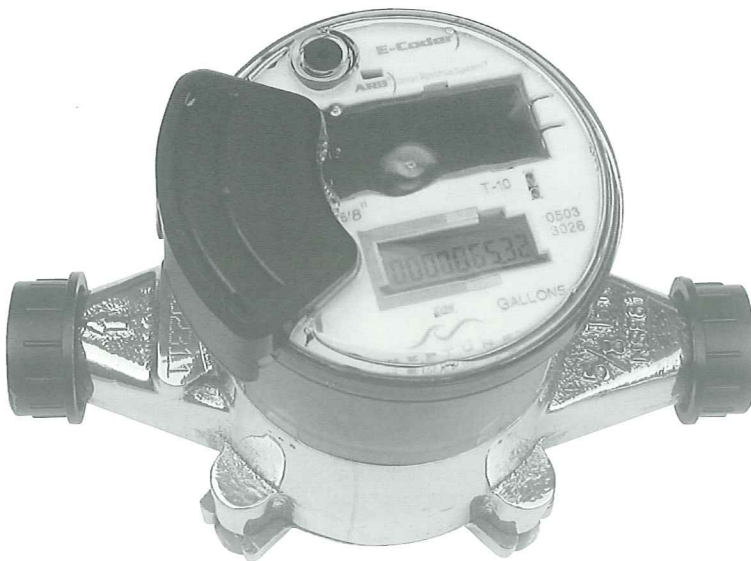


NEPTUNE®
Neptune Technology Group Inc.

E-Coder™

ARB® Water Revenue System™

E-Coder™ Electronic Absolute Encoder



The E-Coder is Neptune's next generation high-resolution electronic absolute encoder register. The E-Coder 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 functions in two modes: E-Coder BASIC and E-Coder PLUS. The E-Coder BASIC mode functionality is the same as ProRead featuring programmability up to a 10-digit ID number, 3 user characters, and 3-6 digit meter reading. In addition to the meter reading, E-Coder provides a visual read out on rate of flow every 6 seconds when the LCD display is activated. When connected to Neptune's R900* radio MIU, the E-Coder automatically operates in E-Coder PLUS mode, providing a high resolution, 8-digit remote meter reading, and value-added features including leak detection, tamper detection, and backflow indication.

True point-of-use leak detection is provided by monitoring a 24-hour period in fifteen-minute intervals. Tamper detection is provided by reverse flow indication and the number of days of zero flow over the previous 35 days.

The E-Coder PLUS features are communicated through the E-Coder protocol allowing host software platforms to interpret the data and pass the information directly to billing packages, CIS screens, and operation and maintenance reports. The E-Coder PLUS features enhance customer service and improve operational efficiencies for water utilities.

Warranty

Neptune provides a 10-year limited warranty with respect to its E-Coder electronic absolute encoder register for performance, materials, and workmanship.

Key Features

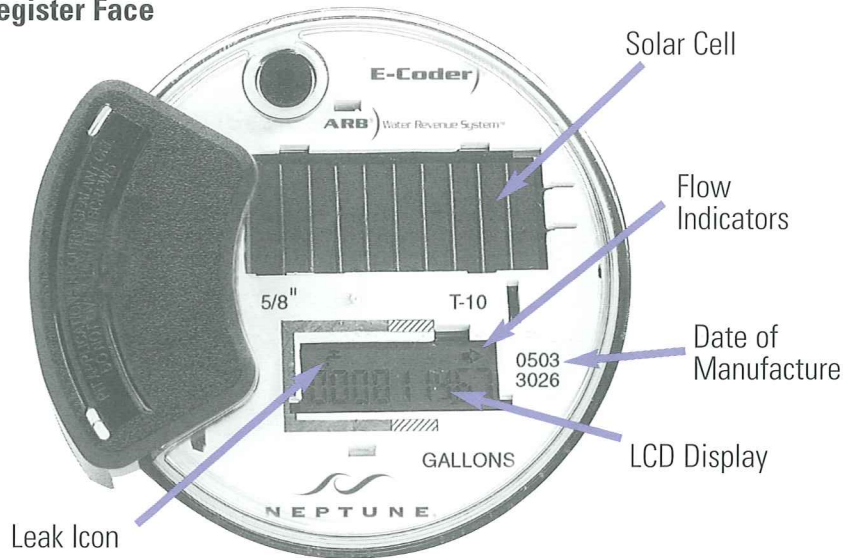
- "Absolute" 9-digit meter reading on display
- Up to 8-digit remote meter reading*
- Batteryless functionality
- True point-of-use leak detection*
- Tamper detection*
- Backflow detection*
- LCD leak indicators
- Directional flow indicator
- Rate of flow on LCD display

Key Benefits

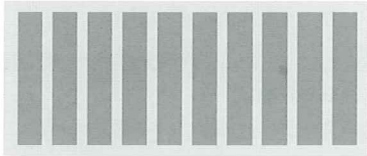
- Enhanced "customer care"
 - Leak history/diagnostics
 - Proactive leak notification
- Increased operational efficiencies
 - Work order reduction for high water bill inquiries
 - Prioritization of meter maintenance
- Drought management
 - Reduction of water loss through proactive notification of water leaks
- Tamper management
 - Identification & prioritization of potential tamper situations

* When connected to second generation R900.

E-Coder Register Face



E-Coder Icons and Displays



RATE

Solar Cell, located at the top of the E-Coder, supplies the power for the LCD panel (light activated).

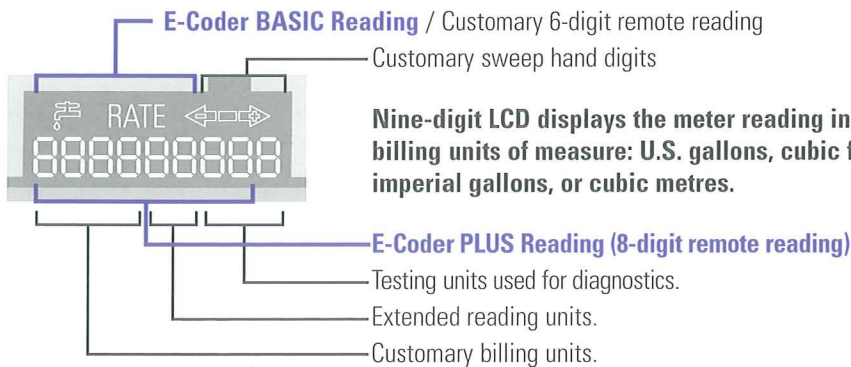
Flow indicators show the direction of flow through the meter:

- 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.
- Continuous** Continuous leak indicates water use for all 96 15-minute intervals during a 24-hour period.

Rate of Flow Average flow rate is displayed every 6 seconds on LCD display.



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

Specifications

- Materials
 - E-Coder register housing: Polycarbonate
 - Connecting wire: 3-lead #22 AWG
- Distance
 - A single register may be located with up to 500 feet (152m) of wire from receptacle or MIU.
 - Two networked registers can be located with up to 300 feet (91m) of wire from receptacle or MIU.

Options

- Sizes
 - Available for all sizes and makes of current Neptune meters.
- Electronic Accessory Equipment
 - R900 Wall & Pit Radio MIUs
- Data Collection Systems
 - DAP Handhelds - Walk-by RF
 - EZDrivePLUS - Mobile RF
 - EZNet - Fixed-network RF for targeted C&I applications
- Units of Measure: U.S. Gallons, Cubic Feet, Imperial Gallons, Cubic Metres

Registration and Register Capacity

- 9-digit local registration
- 8-digit remote registration
- 4-8 digits can be communicated for billing.



www.neptunetg.com

Neptune Technology Group Inc.
1600 Alabama Highway 229
Tallassee, AL 36078, USA
Tel: (800) 645-1892
Fax: (334) 283-7299

Neptune Technology Group (Canada) Ltd.
7275 West Credit Avenue
Mississauga, Ontario
L5N 5M9
Canada
Tel: (905) 858-4211
Fax: (905) 858-0428

Neptune Technology Group Inc.
Ejército Nacional No. 418
Piso 12, Desp. 1201-1202
Col. Chapultepec Morales
Delegación Miguel Hidalgo
11570 México, Distrito Federal
Tel: (525) 55203 5294 / (525) 55203 5708
Fax: (525) 55203 6503

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