



**NEPTUNE**  
TECHNOLOGY GROUP

ARB UTILITY MANAGEMENT SYSTEMS

WATER | ELECTRIC | GAS

## E-Coder™ Quick Install Guide



**E-Coder QUICK INSTALL GUIDE**

## 1 General Instructions

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The E-Coder is an electronic absolute encoder register designed for use with Neptune's ARB<sup>®</sup> Utility Management Systems<sup>™</sup>. This register operates with Neptune's R900<sup>®</sup> and R900v2 or later MIUs. The E-Coder provides ProRead<sup>™</sup> protocol when connected to R900v1 MIUs and E-Coder PLUS advanced feature protocol when connected to R900v2 or later MIUs.

With the E-Coder register, both the homeowner and the utility can use the following features:

- A nine-digit display for visual reading
- Eight digits for billing\*
- Water flow indicators
- Intermittent leak detection icon on LCD panel \*
- Continuous leak detection icon on LCD panel \*

This guide can help you identify and read information displayed on the E-Coder register. It can also help you recognize the common causes of leaks and what to do if a leak is found. Once the leak is repaired, this guide also contains steps to determine that the leak is no longer evident.

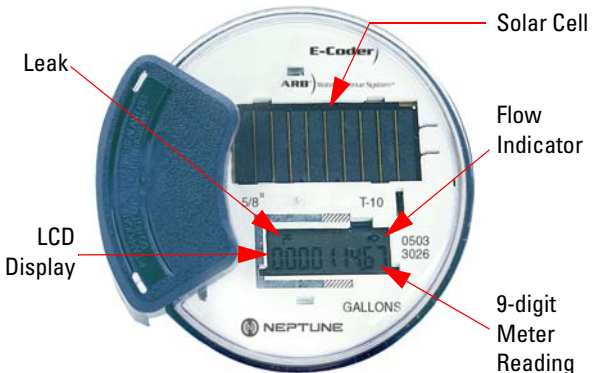
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\*Communicated via protocol to remote data collection devices (such as DAP handheld, mobile, and EZNet targeted fixed network data collection devices when connected to a R900v2 or later MIUs).

## 2 Product Description

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The face of the E-Coder, illustrated in Figure 1, allows you to read various types of information available.



**Figure 1 E-Coder Face**

### 3 Wiring the Encoder Register

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Run a three-conductor cable from the E-Coder register to the MIU. Refer to the following steps.

- 1 Connect the three-conductor wire to the encoder register's terminals per the manufacturer's instructions, using the color code in Table 1.

**Table 1 Encoder Wiring**

Register	Wire Color / Encoder Terminal		
Neptune E-Coder	Black / B	Green / G	Red / R

- 2 Thread the cable around the strain relief posts of the E-Coder.
- 3 Apply moisture protection compound to terminal screws and exposed wires.

**Note:** Neptune recommends Novaguard G661 or Dow Corning® Compound #4.

- 4 Snap the cover onto the E-Coder register.

### 4 How to Activate

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To read the E-Coder, you must first activate it.

To activate the E-Coder, complete the following steps:

- 1 Expose to sunlight or activate with a flashlight for five seconds.
- 2 Verify that the following displays appear:
  - The All-Segment test displays for two seconds.
  - The version number appears for two seconds.
  - The normal display appears and is updated every 1/2 second.
  - Every six seconds this display shows the current rate of flow.

### 5 How to Read

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It is important to become familiar with the information available from the meter. To identify this information the following icons and displays are helpful.

## Table 2 Icons and Displays



Solar Cell, located at the top of the E-Coder, supplies the power for the LCD to be activated. It is activated by light.



Flow/Leak Indicator shows the direction of flow through the meter:

ON	Water in use.
OFF	Water not in use.
Flashing	Water is running slowly/low flow indication.



Leak indicator displays a possible leak:

OFF	No leak indicated.
Flashing	Intermittent leak indicated. Water used during at least 50 of the 15-minute intervals in the last 24 hours (96 15-minute intervals in a 24-hour period).
Continuous ON	Continuous leak indicated. Water used during all 15-minute intervals in the last 24 hours.



Nine-digit LCD displays the meter reading in billing units of gallons, cubic feet, or cubic meters.

Last three digits	Testing units used for meter testing.
Fifth & Sixth reading digits	Reading units.
First four digits	Typical billing digits.

## 6 Common Causes of Leaks

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If the leak indicator is flashing or continuously on, the E-Coder is indicating that a possible leak may exist. Leaks can result from various circumstances. To better help you identify a possible leak, the following table contains some common causes of leak problems that can occur.

**Table 3 Possible Leaks**

<b>Possible Cause of Leak</b>	<b>Intermittent Leak</b>	<b>Continuous Leak</b>
Outside faucet, garden or sprinkler system leaking	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Toilet valve not sealed properly	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Toilet running		<input checked="" type="checkbox"/>
Faucet in kitchen or bathrooms leaking	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Ice-maker leaking		<input checked="" type="checkbox"/>
Soaker hose in use		<input checked="" type="checkbox"/>
Leak between the water meter and the house		<input checked="" type="checkbox"/>
Washing machine leaking	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Dishwasher leaking	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Hot water heater leaking		<input checked="" type="checkbox"/>
Watering yard for more than eight hours	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Continuous pet feeder		<input checked="" type="checkbox"/>


### Table 3 Possible Leaks

Possible Cause of Leak	Intermittent Leak	Continuous Leak
Water-cooled air conditioner or heat pump	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Filling a swimming pool		<input checked="" type="checkbox"/>
Any continuous use of water for 24 hours		<input checked="" type="checkbox"/>

## 7 How to Tell if Water is in Use

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To determine if water is in use, complete the following steps:

- 1 Check the  flow indicator, by watching for two minutes.
- 2 Determine the following conditions:
  - If the arrow is Flashing, then water is running very slowly.
  - If the arrow is continuous ON, water is running.
  - If the arrow does not flash, water is not running.

## 8 What to Do if There is a Leak

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The following checklist can be helpful if the E-Coder leak indicator shows a possible leak.



### Table 4 Checklist for Leaks


- Check all faucets for possible leaks.
- Check all toilets and toilet valves.
- Check the ice maker and water dispenser.
- Check the yard and surrounding grounds for a wet spot or indication of a pipe leaking.

## 9 If Continuous Leak is Repaired

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If a continuous leak is found and repaired, complete the following steps:



- 1 Use no water for at least 15 minutes.
- 2 Check the  leak icon.
- 3 If the leak has been correctly repaired, the  leak icon changes from Continuous ON to Flashing.

After 24 hours the  leak icon will change from flashing to the OFF position.

## 10 If Intermittent Leak is Repaired

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If an intermittent leak is found and repaired, complete the following steps:

- 1 Check the  leak icon after at least 24 hours.
- 2 If the  leak icon is OFF, then a leak is no longer indicated.

## 11 Software

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A software update is required for EZRoute or RouteMAPS to interpret the advanced feature data communicated from the Neptune E-Coder.

## 12 Contact Information

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Within the United States, Neptune Support is available Monday through Friday, 8:00 AM to 7:00 PM Eastern Standard Time, by telephone or fax.

To contact Technical Support by phone, call 1 (800) 647-4832. If all Support Technicians are helping other customers, your call is routed to the Neptune Support voice mail system. Please leave your name, the name of your company, your company's Personal Identification Number (PIN), and your telephone number. Calls are returned within business hours in the order they are received.

To contact Technical Support by fax, send a description of your problem to 1 (334) 283-7497. Please include on the fax cover sheet the best time of day for a support technician to contact you. To contact Technical Support by E-mail, send your letter to the following address: [hhsupp@neptunetg.com](mailto:hhsupp@neptunetg.com).



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