EAGLE TALON MOBILE SYSTEMS

User's Manual & Training Guide

Version 03.20.05

Eagle Monitoring Systems
Ecological Networking Systems, Ltd.

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How to install the Eagle Talon Mobile Software

The steps below are a detailed description of how to install the EAGLE Talon Mobile Software on your laptop or desktop computer. First, make sure your computer meets Ecological Networking Systems' minimum PC system requirements.

1. Insert the Eagle Talon Mobile Software CD into your computer's CD ROM drive.
2. Click the Next button if you would like for the Setup Program to install Ecological Networking Systems on your computer.
3. In the License Agreement Field, check the box marked "I agree with the above terms and conditions", then click Next.
4. In the Destination Directory, Setup will install files in the following folder: C:\Ecological Networking Systems\Eagle Talon Mobile. If you would like files in another directory, click Browse. Otherwise, click Next (recommended).
5. Ecological Networking Systems files will then be copied to your computer. If you want to abort installation, click Cancel.
6. Click Finish to successfully complete installation.
7. After successful installation, go to windows explorer. (Go to start button at bottom right corner, right click, and select Explorer).
8. Find Ecological Networking Systems on the C: Drive.
9. Right click on Ecological Networking Systems and select rename.
10. Rename Ecological Networking Systems by removing the spaces between the words. It should look like this on the C: Drive… C:\EcologicalNetworkingSystems\Eagle Talon Mobile\Import\Filename.txt. NO SPACES between EcologicalNetworkingSystems. Once rename is complete, close windows explorer.
11. Go to desktop and click on EAGLE Talon Mobile icon.
12. Enter password.
13. Click on options, set correct path in download and upload box. To set path correctly, click on browse button in download box. Click on C:EcologicalNetworkingSystems, then Eagle Talon Mobile, then Import, then click OK. Do the same in the upload box below. Note: Make sure the .txt file you want to read or program is in the path name in the options field of the EAGLE Talon Mobile program. Make sure this same .txt file is in the import folder EcologicalNetworkingSystems\Eagle Talon Mobile\Import. All .txt files must reside in the import folder.

How to load Route Files from Server to Eagle Talon Mobile

1. Make sure the .txt file you would like to load is in the import sub-directory attached to EcologicalNetworkingSystems.
2. Go to options and make sure that in the download box the .txt filename is the filename you would like to load. If not, place as .txt filename in download box, Apply, and Ok.
3. Click on Server, click Ok. Meters download total should match number of records you are attempting to download.
4. Click Close.
5. Route or routes are ready to be viewed
6. Click on the + plus sign to extend route, or routes loaded. The program will group routes by street by default.
7. To view entire routes loaded, click on tablet in summary view area. To view route by streets, click on desired street name.

How to install the Eagle Control Unit

WARNING: THIS EQUIPMENT COMPLIES WITH PART 15 OF THE FCC RULES. ANY CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE MANUFACTURER COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

1. Equipment List:

Eagle Water Conservation Unit (W40001)
An approved installation kit including:
- 3 – MUV gel caps
- 1 – Strain relief capsule
- 4 – Cable Ties

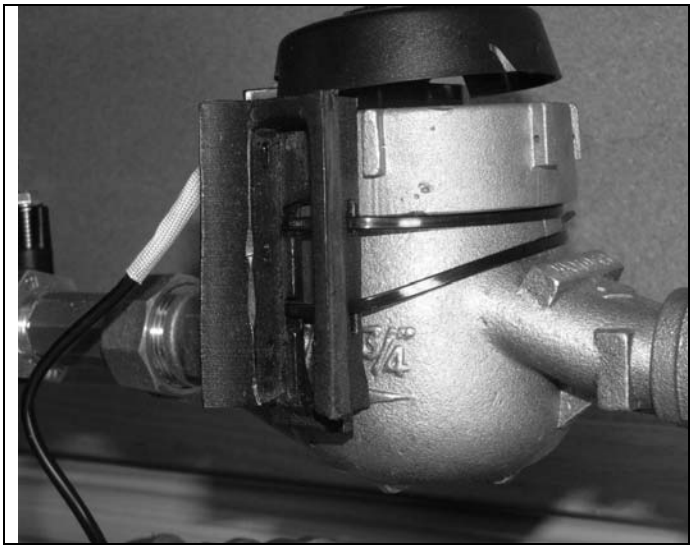
2. Tool List:

Gel Splice Crimping Tool
Wire Cutters
Coax Stripping Tool

3. Installation (Field Connect)

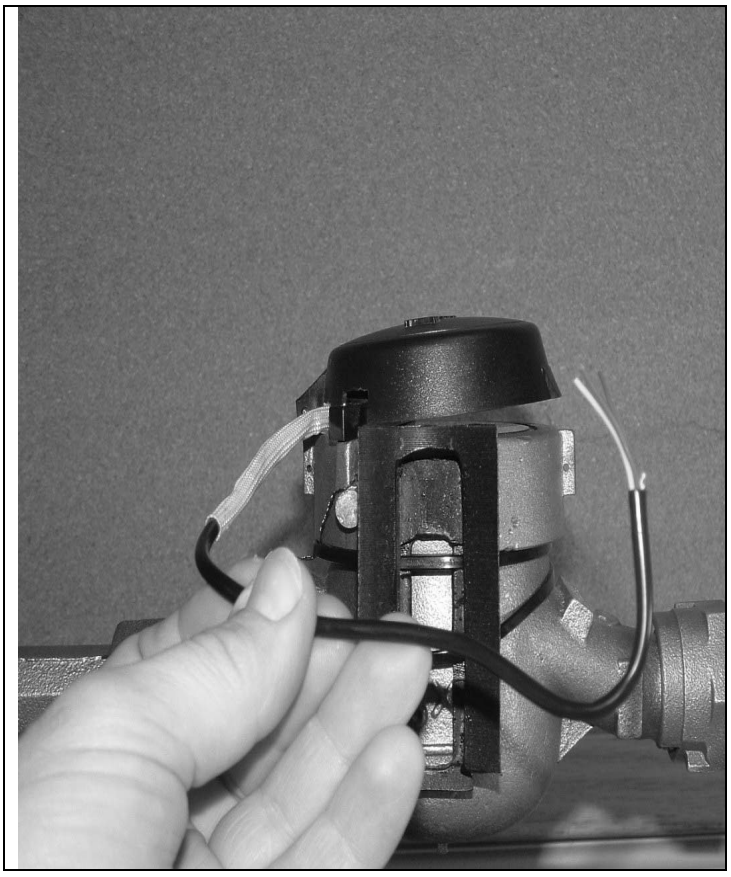
Before proceeding with this installation, take a moment to make sure you have the correct wiring configuration and diagram for the register you will be connecting to.

3.1 Using the cable ties included in your installation kit, install the ABS plastic register adapter to the register in an upright position with the contour tabs at the bottom as shown (see fig. 1).

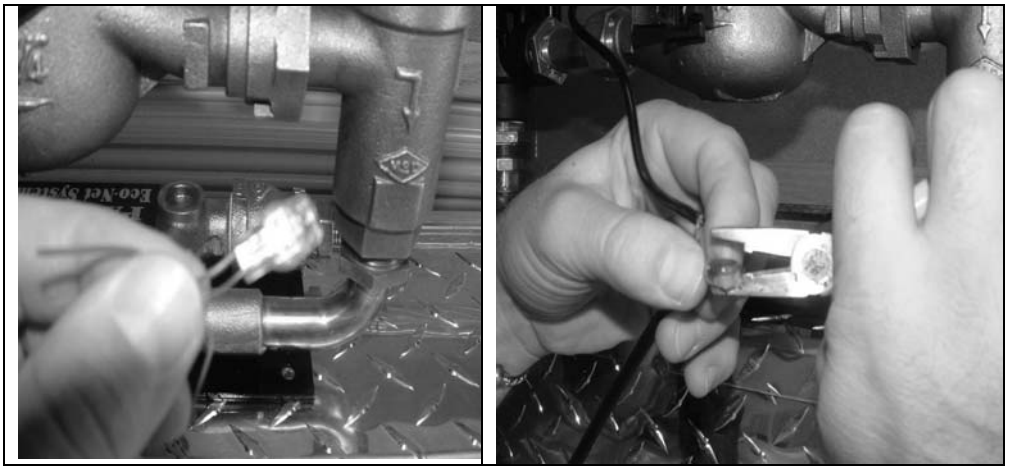


3.2 Cut the register wires at least 12” from the register, giving your self plenty of length.

3.3 Using a coax stripping tool, strip approximately one and a half inches of outer insulation sheath from the register cable being careful not to damage the inner signal wires (see fig. 2).



3.4 Connect wires according to the register specific wiring diagram included in your package using the MUV gel cap connector provided. Push the wires that are to be connected together as far as possible into the connector. CAUTION: Do not strip any insulation from the ends of the wires before you push them into the connector. Put the connector, with the wires pushed all the way in, into the jaws of the gel splice crimping tool. Crimp the connector by squeezing the handles until the top of the movable center part is flush with the top of the connector body (see fig. 3 and 4).



3.5 Tuck the wires into the cord conceal cavity of the ABS register adapter (see fig. 5). Mount the Eagle WCU to the ABS Register Adapter unit using cable ties as shown (see fig. 6).

3.6 Program and test.

How to setup/program the EAGLE Control Unit

1. Highlight the account you would like to program.
2. There are four fields in the EAGLE Setup dialog box. These fields are UID, Meter ID, Multiplier, and Visual Read. Make sure the fields are populated with the correct parameters to allow for correct programming of the EAGLE.
3. Click on the start button to save. The status indicator in the Setup EAGLE Control Unit dialog box will show Green for successful, and Red for unsuccessful.
4. Click close to read EAGLE Control Unit.

How to read the EAGLE Control Unit

The steps below are a detailed description of how to read EAGLE Control Units. Before beginning to read, make sure the route file to be read has been loaded into your EAGLE Talon Mobile Unit. Then the route selected can be read one of two ways. Routes can be read in Route Manager format, or GPS format.

Reading in Route Manager format

Route Manager is the first screen you will see by default, once the program has been loaded. It contains a Summary View area, and a Detail View area. The two areas are divided by a column. The Summary View area is to the far left, and displays the cycle and route or routes downloaded. You will be able to display the entire route to be read, or you can group them by streets. The Detail view area is to the right, and all route data, and account information can be viewed here. Once a route or street is selected, all record information will be displayed in the Detail View area. To start reading, click Start.

Reading in GPS format

GPS format requires approved GPS software, and approved hardware devices. Once the approved software and hardware devices have been installed on your computer, you will then have the capability to read in GPS format.

1. Make sure the GPS hardware tracking device is installed properly, plugged in to correct comm. port, and receiving satellite signal.
2. Click on Maps. This will display detailed street level maps for the route you are attempting to read.
3. Click Start to read in GPS format. Based on the latitude/longitude coordinates captured for each EAGLE programmed, the accounts will be shown as red icons along the route. Once the EAGLES come in range of the antenna the icons will turn yellow. Once the read posts to the account, the icons will turn green.

How to connect to the EAGLE WCU

1. Connect the wires to the EAGLE from the meter using the schematics below:

   Schematics: Write in the Wire Color Combinations Below

EAGLE			
Meter			

2. To connect wires, use 3M ultraviolet resistant gel cap connectors provided with the kit or exact replacement ultraviolet gel caps. Wires must be cut off with no bare wire showing.
3. Insert connecting wires into gel cap completely and squeeze gel cap with Klein Krimping tool. Repeat above procedure on each conductor.
4. Once connections have been made, pull lightly on each joint to assure good connection was accomplished.
5. Once all connections have been checked, they must be pushed down into the encapsulation pod to a point that they stop and won't go in anymore, then place each jacketed set in place. Then push the cap into place until it clips shut.

Troubleshooting Tips

Check the following for possible accuracy or consumption issues:

- Make sure the dials function properly and are not stuck.
- All wiring connections are secure.
- Make sure the numbers of rolling dials are set correctly.
- Confirm the number of fixed zeros.

Unable to interrogate EAGLE

1. Highlight account, right click, and select Setup EAGLE Unit (F9). Make sure UID and Meter ID are correct for account attempting to interrogate.
2. Check schematics and wiring to confirm correct installation.
3. If wire colors are correct, cut off gel caps and reinstall new gel caps.
4. Replace water meter register.

AMR Test Set

If still unable to interrogate EAGLE after using these troubleshooting tips, we suggest using one of our AMR Test Sets, provided by EcoNet Systems, to help identify the root cause of the problem.

This dual capability electronic device is designed for both *Meter* and *AMR* device functional testing. It will also solve failed-system disputes in an outdoor or lab environment. For more information on this *state-of-the-art tool*, contact EcoNet Systems.

Eagle Talon Mobile (ETM) System initial package

1. Panasonic Toughbook Model 73 with set configuration for Eagle Talon Mobile Software
2. Panasonic Ruggedized Handheld Model P1 with set configuration for Eagle Talon Mobile Software
3. ETM software for Personal Digital Assistant (PDA not included)
4. "Eagle Talon" Dual Antenna Collection System
5. "Eagle Talon" Compact Collection System
6. Eagle Talon Mobile Battery Pack
7. GPS Receiver for ETMS
8. One year warranty on hardware
9. One year maintenance agreement supplied via AMR Software Solutions
10. Training at site by AMR International

System Requirements

Below are the minimum requirements for a typical meter reading system. These requirements could change depending on the number of routes/meters and field workers. An operational survey must be performed to determine the proper minimum requirements.

Communications Server
Pentium 400Mhz CPU
Windows XP / 2003 (workstation or server)
256 Meg RAM
60 Meg HD
Ethernet 10/100 NIC or equivalent

SQL Database Server
Pentium 400Mhz CPU
Windows XP / 2003 (workstation or server)
512 Meg RAM
60 Gig HD
Ethernet 10/100 NIC or equivalent

Route Manager Work Station
Pentium 400Mhz CPU
Windows XP / 2003 (workstation or server)
256 Meg RAM
60 Meg HD
Ethernet 10/100 NIC or equivalent

Route Manager Field Station
Pentium 400Mhz CPU
Windows XP / 2003 (workstation or server)
256 Meg RAM
60 Meg HD
Serial or USB port

All Systems
VGA Display
CD Drive
Keyboard
Mouse

Eagle WCU Technical Specifications

The **Eagle** WCU Radio is intended for Pulse and Encoder water meter registers and serves as a data collection end point for the EcoNet **Eagle Monitoring System**[R]. This low power radio incorporates cell phone DS-CDMA and FHSS technologies to achieve superior range and obstacle penetration abilities. The totally encapsulated unit makes the radio water submersible while not affecting meter reading and communications operation. The **Eagle** WCU is the most durable unit of its kind in the market.

The **Eagle** WCU Radio is compatible with Badger RTR and other pulse water meter registers. The **Eagle** WCU Radio is compatible with the Invensys Encoder Register protocol. It is compatible with most touch read systems. The standard wiring allows easy to retrofit field installations.

Functional Specifications:

- Factory programmed for easy installation
- Power Source: Lithium-Ion Battery.
- Programmable Parameters for most water metering devices.
- Extraordinary speed Pulse Meter capable of 10 pulses per second.
- Dual Tamper Detection Alarm, for cut cable and zero consumption for seven days.
- Operating Temperature: -20C to +70C.
- Operating Humidity: 100% Water Submersible.
- Product Identification: Eagle Unit ID number is electronically inscribed at each unit.
- Customer may have custom inscription on each unit for security and asset protection.
- True modular design.

Regulatory & Standards:

- DS-CDMA and FHSS Cell Phone and LAN RF Protocols
- FCC Compliance Section 47, Part 15.247
- FCC ID. R53 Eagle
  This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
- THIS EQUIPMENT COMPLIES WITH PART 15 OF THE FCC RULES. ANY CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE MANUFACTURER COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

Operational Specifications:

- Transmit Frequency: Unlicensed ISM band 902MHz to 928MHz
- Receive Frequency: Unlicensed ISM band 902MHz to 928MHz
- Data Integrity: Encryption and Checksum in every message packet.
- Security: Military Encryption Coded to 128 bit.
- RF Data Protocol: DS-CDMA and FHSS Cellular Narrow Band.

Physical Specifications:

- Materials of Construction: Blue polycarbonate housing; encapsulated electronics
- Dimensions: 6.25" X 2" diameter.
- High Impact 200 Foot Drop Tested.
- Compact durable design
- Tested at 100 ft submersion for seven days

Meter Compatibility:

- Badger RTR and most other Pulse Registers.
- Invensys Encoded Protocol.

Shipping Information:

- Approximately 1lb.13oz. per Eagle WCU.
- Approximately 60 lbs. per box of 36 Eagle WCUs with cables and connectors.
- Approximate box size of 12" X 12" X 8" tall
- Weight per box- 62.5 lbs.
- Boxes per skid- 48
- Eagle WCUs per skid- 1728
- Weight per skid- 3000 lbs.

Installation Kits

- Installation kits are available from EcoNet Systems at 1-866-6ECO-NET.
- The kit includes all necessary components to meet specifications required to meet minimum OEM warranty standards.