Elster Handhelds

User Guide
Release 1.0

elster

Contents

FCC and Industry Canada compliance

Compliance statement (Part 15.19)

PI 500:
The PI500 complies with Part 90 of the FCC Rules.
The FCC IDs are G8JHHI01 and G8JHHI02.

PI 900:
The PI900 complies with Part 15 (Class B), Part 90 of the FCC Rules and with RSS-210 and RSS-119 of Industry Canada.
The FCC ID is G8JHHI03 and G8JHHI04. The Industry Canada is 4557C-HHI03 and 4557C-HHI04.

evoWalk:
The evoWalk complies with Part 15 (Class B) of the FCC Rules.
The FCC ID is S28-EVO.

General information

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.

Warning (Part 15.21)

Changes or modifications to the equipment not expressly approved by Elster could void the user's authority to operate this equipment.

User information

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-   Reorient or relocate the receiving antenna.
-   Increase the separation between the equipment and receiver.
-   Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-   Consult the dealer or an experienced radio/ TV technician for help.

A separation distance of at least 8 inches (20 cm) is to be maintained between the antenna and the human body and must not be co-located or operated in conjunction with any other transmitter or antenna.

Industry Canada statement

The Term "IC" before the certification/registration number only signifies that the Industry Canada technical specifications were met.

Disclaimer of warranties and limitation of liability

There are no understandings, agreements, representations, or warranties either expressed or implied, including warranties of merchantability or fitness for a particular purpose, other than those specifically set out by any existing contract between the parties. Any such contract states the entire obligation of the seller. The contents of this technical manual shall not become part of or modify any prior or existing agreement, commitment, or relationship.

The information, recommendations, descriptions, and safety notices in this technical manual are based on Elster experience and judgment with respect to the operation and maintenance of the described product. This information should not be considered as all–inclusive or covering all contingencies. If further information is required, Elster should be consulted.

No warranties, either expressed or implied, including warranties of fitness for a particular purpose or merchantability, or warranties arising from the course of dealing or usage of trade, are made regarding the information, recommendations, descriptions, warnings, and cautions contained herein.

In no event will Elster be held responsible to the user in contract, in tort (including negligence), strict liability, or otherwise for any special, indirect, incidental, or consequential damage or loss whatsoever, including but not limited to: damage or loss of use of equipment, cost of capital, loss of profits or revenues, or claims against the user by its customers from the use of the information, recommendations, descriptions, and safety notices contained herein.

Safety information

Installation, operation, and maintenance of this product can present potentially hazardous conditions (for example, high voltages) if safety procedures are not followed. To ensure that this product is used safely, it is important that you:

Review, understand, and observe all safety notices and recommendations within this manual.

Do not remove or copy individual pages from this manual, as this manual is intended for use in its entirety. If you were to remove or copy individual pages, cross references and safety notices may be overlooked, possibly resulting in damage to the equipment, personal injury, or even death.

Inform personnel involved in the installation, operation, and maintenance of the product about the safety notices and recommendations contained in this manual.

Within this manual, safety notices appear preceding the text or step to which they apply. Safety notices are divided into the following four classifications:

NOTICE

Notice is used to alert personnel to installation, operation, or maintenance information that is important but not hazard related.

⚠ CAUTION

Caution is used to alert personnel to the presence of a hazard that will or can cause *minor* personal injury, equipment damage, or property damage if the notice is ignored.

⚠ WARNING

Warning is used to alert personnel to the presence of a hazard that *can cause* severe personal injury, death, equipment damage, or property damage if notice is ignored.

⚠ DANGER

Danger is used to alert personnel to the presence of a hazard that *will cause* severe personal injury, death, equipment damage, or property damage if the notice is ignored.

Revisions to this document

The following table lists the revisions to this document, the date of the release, and any notes about the changes made.

Date	Brief Description
19 December 2007	Initial release of the document.

1 Introduction

This document provides comprehensive operating instructions for the use of the following Elster handheld interrogators:

- PI 500 - an RTM programmer and reader
- evoWalk - RTM reader only
- PI 900 - RTM installation tool only

About handheld devices

Handheld devices are lightweight and easy to use handheld computer for automatic meter reading (AMR), using touch screen technology to simplify the meter reading process.

The handheld device can be used to obtain meter readings in two ways:

- allowing meter readers to acquire data remotely via radio frequency (RF) signals from the handheld to the RTMs.
- allowing meter readers to observe and manually enter and store meter readings in the unit.

About This manual

This guide provides instructions for setup, installation, operation and troubleshooting of the handheld device. It is structured for use as an adjunct to Elster system training, as well as a standalone instruction guide and reference. The screen shots shown in various illustrations may vary slightly from your handheld's display.

Audience

This document is designed for utility industry meter readers and supervisory staff.

In order to establish appropriate levels of detail for the material, this document assumes the following:

- The user is experienced in reading meters of the type currently compatible with Elster RTMs and possesses all the skills necessary to conduct meter reading by conventional means.
- The user has little or no prior expertise with AMR technology.
- The user is competent in the basic use of computers and software.

New users

If you are new to Elster AMR products, or are new to AMR products in general, please take some time to go through all the sections of the user guide.

Observe how each function of the handheld device serves the ultimate goal of the unit: getting accurate readings from meters and into the billing system in the quickest and easiest way possible.

Existing users

If you are already familiar with Elster AMR products, you will still find it helpful to go through the Introduction and detail sections to understand how the features of the handheld device work together and what information is needed to perform each feature.

Automatic meter reading

The Elster system uses radio frequency (RF) signals to allow utility personnel to read meters from a distance while the reader is in motion. This technology is called automatic meter reading (AMR). This technology greatly increases the speed at which routes can be covered with a high degree of accuracy.

Basic AMR components

An automatic meter reading system requires the following basic components:

- RTM - The RTM interfaces with meter index mechanics, translates the index reading into digital signals to capture data from meter; additionally, it receives commands from and transmits meter data to an interrogator.

- Interrogator - At its simplest, the interrogator remotely reads meter data transmitted by RTMs. At more sophisticated levels, an interrogator may also program RTMs, store route data, selectively wake up RTMs, verify RTM conditions and data and set meter coordinates, among other functions.

- Antennas - Both the RTM and the interrogator use antennas to broadcast and receive RF signals. Many handheld interrogators use a single antenna for both transmitting and receiving (antenna may be internal or external).

The interrogator sends out an RF signal to the desired RTMs. Upon receiving an authorized command, the RTM transmits its stored meter data.

Overview

The handheld device is part of the Elster AMR system. The system uses mobile, two-way, RF communication technology to request and collect specific data from individual meters. The data to be collected, along with the actual collected data, is managed by Route Manager software and its interface to the utility company's information system. The Elster AMR system includes:

- RTMs that encode, process, and store individual meter data and, on command from an interrogator, transmit requested meter data. This processing and storing of meter data and two-way communication provides data acquisition flexibility usually associated with more expensive fixed-base AMR systems.

- interrogators that establish a two-way communication link with individual RTMs and

request, receive, and store specific meter data for transfer to route management software. Interrogators offer a lower infrastructure investment over a fixed-base system with operational flexibility, efficiency and cost-savings. Interrogators include handheld computers and van-based mobile interrogators:

Interrogation method	TRACE (gas and water)	evolution (water)	EnergyAxis (gas)
walk by (handhelds)	PI 500, PI 400, PI 300	evoWalk	PI 900
drive by (mobiles)	CMMI, MMI	evoDrive	N/A

- route management software that processes route files from a utility's customer information system (CIS); downloads and uploads meter routes to and from interrogators; stores meter readings for local validation, editing and analysis, and creates files to transfer meter readings to the utility's CIS.

2 About handheld devices

The handheld device provides a wide range of meter data collection functions and can serve as the main meter reading device in smaller utilities. The unit provides a combination of functionality and ruggedness that make it an attractive option for Elster AMR users.

Elster uses three handheld devices for its systems.

TRACE	evolution	EnergyAxis
PI 500	evoWalk	PI 900
PI 400		
PI 300		

PI 500 handheld

The PI 500 handheld device is the handheld interrogator for all Elster TRACE AMR products.

The PI 500 is a rugged Microflex CE5240X handheld computer from DAP Technologies modified with a TRACE Interrogator PC Card and Elster software. This reliable handheld interrogator is designed for the collection of both RF and manual reads from gas and water meters and is compatible with all TRACE RTMs. In addition, the PI 500 can operate as an installation tool by programming newly installed TRACE RTMs.

Figure 2-1. Dap 5240X handheld

Dap CE5240X handheld computer specifications

- Windows CE operating system
- .NET Framework 4.2
- 400 MHz Intel Xscale processor
- 64 MB RAM

- 3.5" QVGA TFT Color LCD resistive touch-screen

- 54-key ergonomic keypad with separate numeric keys

- Rechargeable Lithium Ion battery

- TRACE Interrogator PC card

- Elster software

- Half-duplex RF communications

- RF Transmitter - 451 MHz

- RF Receiver - 414 MHz

- FCC compliance: Part 90, FCC ID# G8JHHI01

- Operating temperature: -4 °F to +122 °F (-20 °C to + 50 °C)

- Ethernet communications through charging cradle

- The Dap 5240X is IP-67 rated (1 meter submersion). The Elster nose cone is IP-67 rated (1 meter submersion)

- IEC 68-2-32 method - 2 meter drop onto concrete test

Using an external antenna

An external antenna may be mounted on the roof of your vehicle and attached to the PI 500 for increased reading performance. In this mode of operation, a meter reader MUST stop the vehicle before using the handheld device to read an RTM.

Caution: For safely reasons, a meter reader should not drive and operate the handheld device at the same time.

Safe RF exposure using external antenna

The antenna used for the PI 500 transmitter must be installed to provide a separation distance of at least 9.5 inches (24 cm) from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

More about Dap CE5240x

For more information on the Dap handheld and its cradle, please refer to the *Dap Microflex CE5000 User's Guide* shipped with your Dap handheld.

evoWalk and PI 900 handhelds

The evoWalk handheld device is the handheld interrogator for Elster **evolution** AMR products. The evoWalk is a rugged Radix handheld computer modified with an **evolution** PC Card and Elster software. This reliable handheld interrogator collects both RF and manual reads from water meters and is compatible with **evolution** RTMs.

The PI 900 handheld device is the handheld installation tool for Elster's EnergyAxis System Gas Module. The PI 900 is a rugged Radix handheld computer with the EnergyAxis PC card installed. This handheld allows field personnel to install the EnergyAxis Gas Module onto gas meters.

Figure 2-2. Radix FW900 handheld

Radix specifications

- Windows CE operating system
- .NET Framework 4.2
- 400 MHz Intel XScale PXA255
- 128 MB RAM; 128 MB Flash
- 3.5" *89mm) 240 x 320 TFT 65K Color industrial grade touch screen
- 48-key ergonomic keypad with separate numeric keys
- User replaceable lithium-ion battery pack, 3 hour charge, up to 8 hours use
- EnergyAxis PC card
- Elster software
- RF Transmitter - 900 MHz
- RF Receiver - 900 MHz
- FCC compliance: Part 90 and Part 15. The FCC ID is G8JHHI03.
- Operating temperature: -4 °F to +140 °F (-20 °C to + 60 °C)
- USB, Ethernet, serial, IPP, multiple communications ports
- IP-67 rated (1 meter submersion)
  - Elster nose cone is IP-67 rated (1 meter submersion)
- MIL-STD-810F method - 1.5 meter drop onto concrete test

The evoWalk and PI 900 handhelds do not support using an external antenna.

Safe RF exposure using external antenna

The antenna used for the evoWalk and PI 900 transmitter must be installed to provide a separation distance of at least 8 inches (20 cm) from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

More about Radix

For more information on the Radix handheld and its cradle, please refer to the *Radix FW900 User's Guide* shipped with your handheld.

Basic operation

The handheld device is pre-loaded with Elster software which allows for either automatic or manual meter reading functions, or both. The routes are loaded into the handheld using Route Manager software. Once the interrogator establishes two-way communications with an Elster RTM, the following data can be collected from various electronic indexes in the RTM through the use of commands:

Data collected	TRACE handhelds	evoWalk
Current meter reading	Yes	Yes
Daily meter readings (35 days)[a]	Any, All, or None	All
TOU indexes[b]	Up to 4	No
Water leakage	Yes[c]	Yes
Tamper and other alarms	Yes	Yes

    a. Addressable readings often used for billing customer move in/move out.
    b. Used for billing-rate structure or to encourage conservation.
    c. With programmable thresholds.

Data collected by the handheld device is validated, audited and stored for subsequent uploading to Route Manager. Meter reading instructions are downloaded to interrogators indicating what data is required from each RTM in the route. Changes to reading instructions are made in Route Manager or in the CIS system to ensure that whatever specific information is needed gets collected. Not all data is requested from all RTMs making route read-times as low as possible.

Transmission accuracy

The accuracy of transmitted data is insured in two ways:

- the RTM only replies after detection of its unique serial number
- the RTM transmits an error-detection code with the meter data that is used by the interrogator to confirm that the data has been received without errors.

Within the handheld device are programmable Trouble Codes and a free-form text message field for specific account details.

Navigating

Simple menu commands allow access to the software functions. These commands fall into either **Route** functions or **Route Manager Communications** functions. From the **Route Selection** function a user can specify which of the loaded routes are targeted for reading operations. **Route Manager Communications** provides for downloading route information and uploading read data from the handheld device to the Route Manager software.

Once the route is loaded, readings can be done automatically over RF, over RF with verification against the manual meter reading input, or via manual reading input.

Accelerator keys are provided, along with on-demand help, to provide advanced account and route navigation. See Appendix A, "Accelerator keys for meter reading" and Appendix B, "Accelerator keys for installing RTMs" for details.

PI 500 installation tool

Recently added functionality allows users to operate the PI 500 as an installation tool for TRACE RTMs. In this mode the device performs the following actions:

- setting initial index value (to match the existing mechanical index reading)
- setting leak detection parameters (water only)
- programming of the predivider and pressure compensation factor (gas only)
- verifying or updating of the date and time setting

See Chapter 7, "Installing RTMs" for details.

> *Note: When used as an installation tool, the PI 500 must be used with the short range antenna to ensure proper communication with the RTM.*

With optional hardware, the handheld device can also capture the meter latitude and longitude values for use by Elster mobile interrogators and other mapping programs.

PI 900 installation tool

The PI 900 is an installation tool for EnergyAxis gas module RTMs. This device performs the following actions:

- setting initial index value (to match the existing mechanical index reading)
- programming of EnergyAxis gas modules
- verifying or updating of the date and time setting

See Chapter 7, "Installing RTMs" for details.

Database warning

Do not attempt to modify or edit any of the database tables or files outside of the Elster handheld / Route Manager environment without prior authorization by Elster technical support personnel. Unauthorized manipulation of these files may void your software service agreements.

3 Handheld operation

Commonly used keys

The handheld's keyboard allows the user to access software functions. Elster handhelds respond to the keystrokes independent of hardware.

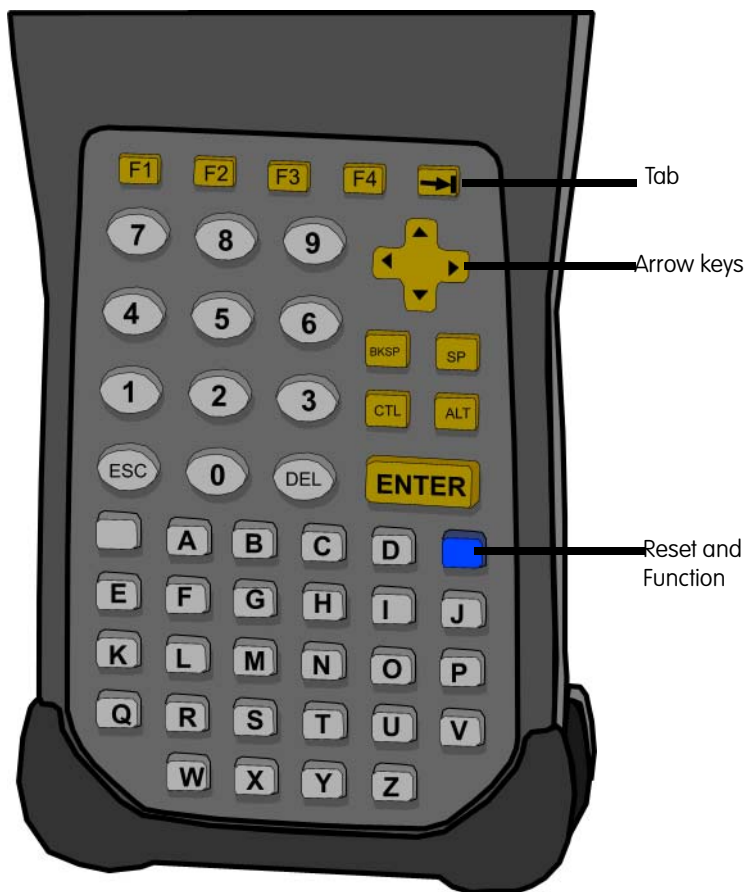*Note: All letters are assumed to be upper case. Function keys <F1> - <F4> are also used.*
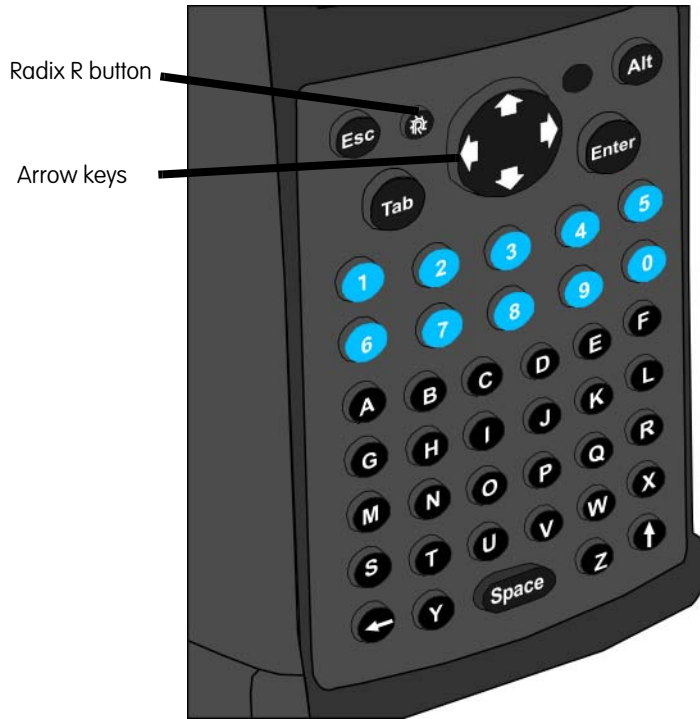

Figure 3-1. Dap CE5240x handheld keyboard

Figure 3-2. Radix handheld keyboard

<Esc>

- Cancels operation
- Exits screen

<Enter>

- In menus/list boxes, selects item
- In editable field, submits entry
- When on an unread RF account, triggers an RF read
- With Automove on and on a completed account, and moves to next account
- In **Details** list box (History and TOU) initiates single interrogation of highlighted item

Arrow keys

These keys (<Up>, <Down>, <Left>, and <Right>) are used to navigate directionally in the screen.

<Tab>

- Navigates between fields within the current screen (messages, search, etc.).

Entering responses (Yes/No)

You respond to questions using either of the following methods:

- Tap the button **Yes** or **No** with the stylus
- Press <Y> or <N> on the keyboard
- Moving to the desired button by using left/right arrow keys and pressing <Enter> when the button is highlighted

Using the stylus

Use the stylus to tap a command button or to move focus to a data entry field. If you do not
have a stylus, use the tip of your fingernail (not the soft pad of your finger).

Reading meters

Using the handheld device for meter reading is easy. The reading cycle consists of four
main stages:

1. Preparation:

   a. Prepare the handheld device to accept the route from the Route Manager
      software by touching the **F3 – Route Manager Communications** line in the main
      menu or by pressing <F3>.

   b. Once the handheld device is ready to accept a connection, Route Manager can
      connect to the handheld device and the route is transferred from Route Manager
      to the handheld device.

      See Chapter 9, "Communicating with Route Manager."

2. Initiate meter reading process:

   • Begin meter reading by touching the **F2 – Route Selection** line in the main menu
     or by pressing <F2>. The handheld device will display the Route Selection screen
     that allows you to select a route for reading.

     See Chapter 5, "Reading accounts."

3. Acquire meter readings:

   • If the meter shown on the Read screen has a RTM, then press <Enter> to begin
     the read process. The handheld device will interrogate the RTM, report the
     reading, and display the next meter in the route. If the meter is manually read,
     then enter the numeric meter reading and press <Enter> to move to the next
     account.

4. Transfer read data to Route Manager:

   • When all readings have been gathered, the handheld device is unloaded by
     pressing <Esc> to exit the route and return to the Main Menu. Then press <F3> to
     enter Route Manager Communications. After the handheld device connects to
     Route Manager, the handheld device will transfer stored readings to Route
     Manager on the PC.

     See "Uploading routes from device to Route Manager" on page 83.

Turning the device on and off

Dap

To turn the handheld on, press the <F1> key. If the handheld device is not in its charger, it
will normally turn off after three minutes of no activity.

To turn the handheld off, press the Blue key then press the <F1> key.

Radix

To turn the handheld on, press and hold the <Radix R> key until the handheld turns on.

The handheld turns off automatically after the handheld had been idle for more than two
minutes; the idle timeout is configurable (see the *FW900 User Guide* for details).

Charging the device

Dap

Place the handheld securely in its charging cradle to recharge the battery. The handheld will automatically turn on once it is placed in the cradle. The **Battery Status Light** on the bottom right corner of the handheld will light up indicating a connection has been made:

- red light indicates that the unit is charging
- yellow light indicates that charging is not possible due to various reasons
- green light indicates that the unit is fully charged

Radix

Place the handheld in its cradle to recharge the battery. The red **Battery Status Light** on the top right corner of the handheld will flash on and off while the battery is charging. Once that battery is fully charged, the status light will remain on.

Resetting the handheld device

Dap

You may occasionally need to deliberately reset the handheld. The handheld is a computer and it can be reset like a desktop computer.

You can reset the handheld device by simultaneously pressing the <F1> + <0> + <9> keys for several seconds until the handheld beeps.

After the second beep the handheld starts the reboot process.

After the reboot, the Elster PI software will automatically be loaded.

Note: The three keys need to be depressed for a few seconds to start the reset.

Radix

Note: The Radix handheld will not reload the Elster PI software if it is in its cradle when rebooting using this process.

To reset the handheld:

1. Hold down the <R> + <X> + <↑> keys down simultaneously for several seconds.
2. Release the keys when the screen goes blank.
3. Recalibrate the touch screen as directed.

   The Elster PI software will reload if the handheld is not in the cradle.

Logging in to the handheld

If security is enabled for the handheld device, then the meter reader must login before any routes can be selected. The login information consists of a **user name** and **password**. Different levels of security can be set in Route Manager for each user (refer to the *Route Manager User Guide* for details).

Holding the handheld

For meter reading

When using a handheld device to read RTMs, hold the handheld device at a distance of at least 10 feet from the RTM. It should be held between a 45° to 90° angle from the ground (figure below).
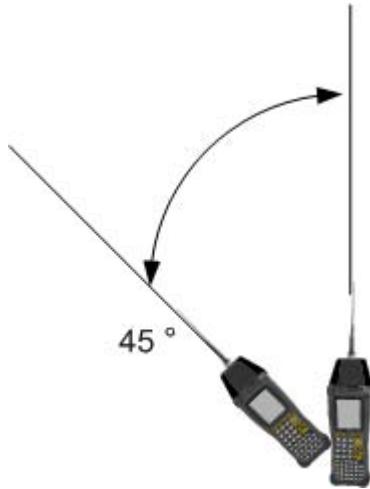

For RTM installation

When programming a RTM, the handheld device uses short range radio frequency. The handheld device should be held from 0 to 3 feet from the RTM. The angle of the handheld does not matter. See Chapter 7, "Installing RTMs" for details.

4 About Interrogator software

After successfully logging into the handheld device, you will first see the Interrogator splash screen followed by the main menu screen.
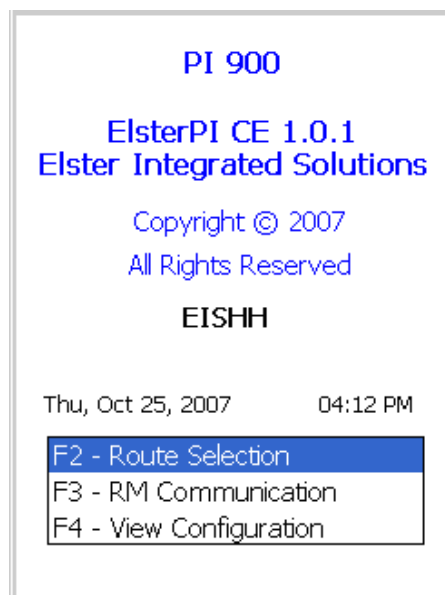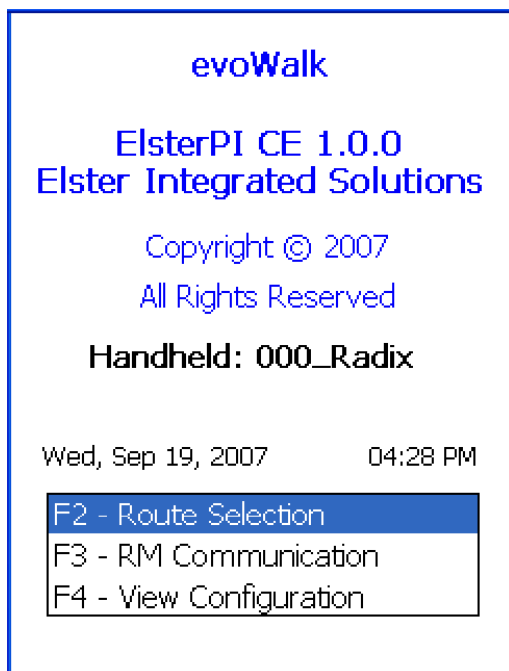
The main menu screen allows the selection of the following modes:

- Route Selection (see "Selecting a route" on page 24)
- Route Manager (RM) Communication (see "RM Communication" on page 24)
- View Configuration (see "Viewing handheld configuration" on page 25)

Selecting a route

To select a route to read:

1. Press <F2> or select **Route Selection**.

    A listing of route Names and Types loaded in the device displays.

```
┌─────────────────────────────┐
│      Routes Selection       │
│                             │
│   Type      Name            │
│  ┌────────────────────────┐ │
│  │ Read    0301740        │ │
│  └────────────────────────┘ │
│                             │
│                             │
│                             │
│                             │
│                             │
│                             │
│    Touch Route to Proceed   │
└─────────────────────────────┘
```
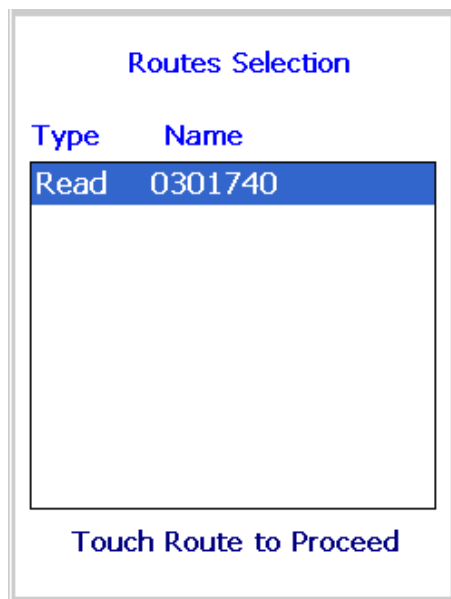
2. To select the route for reading touch the desired route on the screen.

    — Or —

    Use the <Up> and <Down> arrow keys to select the route and press <Enter>.

    The first account in the route displays.

    See Chapter 5, "Reading accounts" for details.

RM Communication

The **RM Communication** mode is used to exchange data files and other information with Route Manager. To view the RM Communications screen:

1. Press <F3>.

    — Or —

    Select **<F3> - RM Communication**.

    The specified communication port opens, the Communications screen displays and initiates polling for incoming messages from Route Manager.
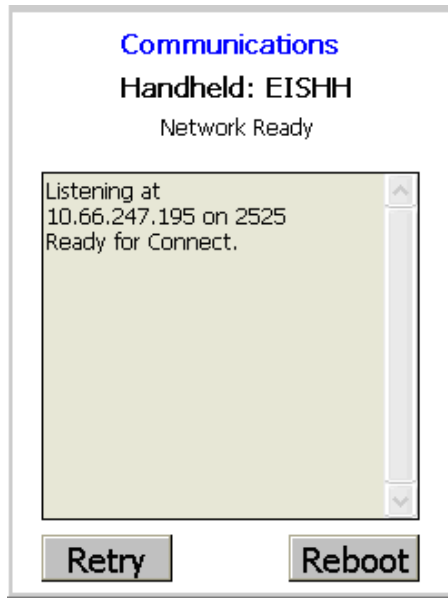
See Chapter 9, "Communicating with Route Manager" for details.

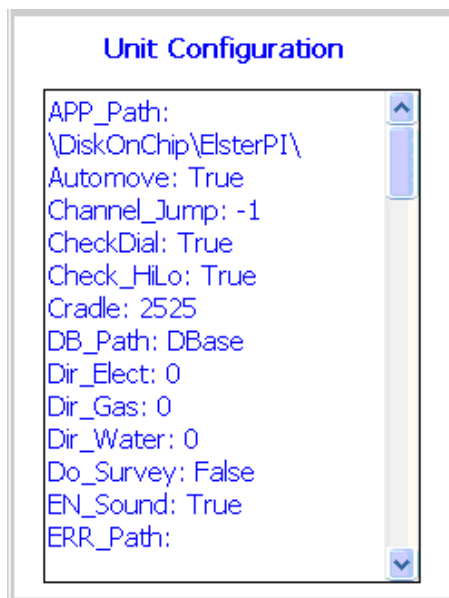## Viewing handheld configuration

To the configuration of the handheld:

1. Press <F4>.

    — Or —

    Select **<F4> - View Configuration** to view the configuration settings for the handheld device.

    The View Configuration screen displays the current configuration for the handheld.

Updating handheld configuration

Note: The configuration settings should only be modified by the handheld administrator.

1. From the View Configuration screen you can press <F4> again to access the **Update Configuration** screen.

   The figure below shows the fields available for update.

The table below details the information entered on the Configuration Update screen:

Item	Description
HH Name	Enter a maximum of 10 characters for the handheld name. *Note: The entered name must match the handheld name in Route Manager.*
Auto Move	Select: • **True** - to automatically display the next account's screen after a good read • **False** - to stay on the account screen after a read
Con Type	Set the connection type: • **1** - for Ethernet communication *Note: Contact Elster Customer Support for other types of communications options.*
Tamper Try [PI 500 only]	Enter a value of 0 to 10 to indicates how many attempts are made to clear a tamper status. *Note: A higher number will increase battery usage and reducing the amount of time before the handheld needs to be recharged. To maximize battery life, Elster recommends setting this value to 0.*
Cradle	Port number of the cradle. *Note: Do not change unless directed by Elster Customer Support.*
IP	Port number used for IP communications. *Note: Do not change unless directed by Elster Customer Support.*

Item	Description
Ftp	Port number used to FTP file transfers. *Note: Do not change unless directed by Elster Customer Support.*
Extend Battery Life [PI 500 only]	If checked, the RF communications port will be closed after each read to maximize battery life. If unchecked, the communications port remains open between reads allowing faster reads.
Capture GPS on Read [PI 500 and evoWalk]	If checked and the account GPS coordinates are 0, the meter reader will be asked if they want to capture the RTM GPS coordinates. See "Taking GPS coordinates" on page 67 for details.

To exit from the Update Configuration screen without making or saving changes, press <Esc>.

2. After making changes, press **Update** to save your changes.

   A confirmation box will appear to verify that you really want to save your changes.

3. Tap the button **Yes** or **No** with the stylus.

   — Or —

   Press <Y> or <N> on the keyboard.
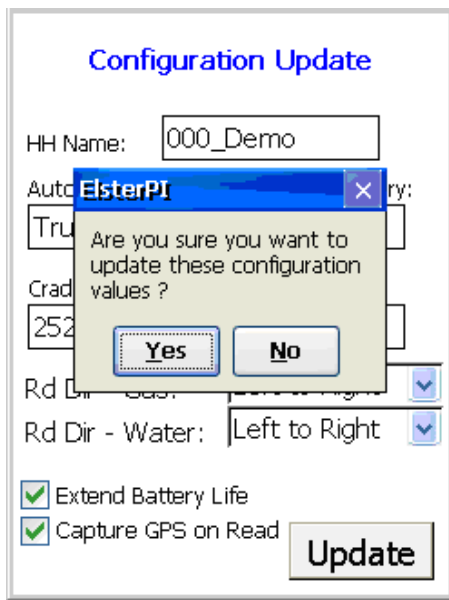
Exiting Elster Interrogator

1. While the main menu screen is open, press <Esc> to exit the software.

   A dialog displays asking you to confirm you wish to exit.
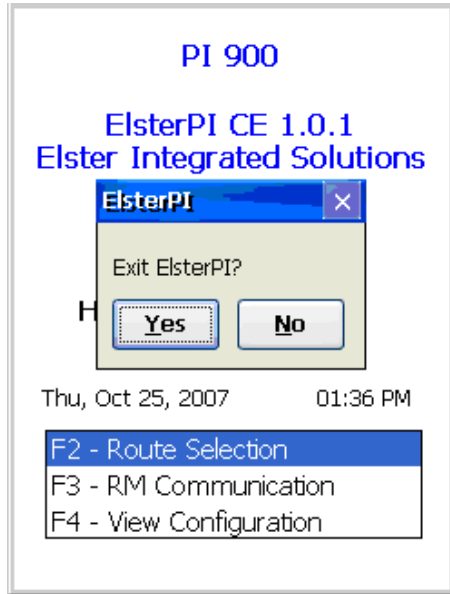
2. Use <Tab>, <Left> or <Right> arrow keys to select the response.

— Or —

Touch **Yes** or press <Y> or press <Enter> when the button is highlighted to accept the selection.

Touch **No** or press <N> or press <Enter> when the button is highlighted to cancel.

5 Reading accounts

Navigating accounts

You can use the handheld's keyboard or the touch screen using a stylus to execute functions. The handheld responds to the keystrokes independent of platform. All letters are assumed to be upper case. Function keys <F1> - <F4> are also used.

<Esc>

- Cancels an operation
- Closes the current screen

<Enter>

- In menus/list boxes selects item
- In editable field submits entry
- With Automove on, submits entry and moves to next Account
- In Details list box (History & TOU) initiates single interrogation of highlighted item
- In Read box on Data Entry Screen, initiates RF interrogation of current account

<Up> and <Down> arrow keys

These keys are used to navigate between accounts within the current Route. When either the first or last account is reached an audible warning will sound and the display will remain on the current account.

Reading an account

After selecting a route (see "Selecting a route" on page 24), you will see the first account in the route.

If there are appointments set for selected route, the message, "Do you want to view the appoints for this route?", will display on the screen (see "Viewing appointments" on page 50).

Note: The appearance of the handheld display is configurable. Refer to the **Route Manager User Guide** *for details. Your handheld display may appear different from examples shown in this manual.*

The Read screen appears as below.

Rt: Route ID   Account Sequence No.: 1

Address line 1: first 20 characters

Address line 2:remaining 20 characters

Customer Name: first 20 characters of the customer's name

Rtm: RTM Serial Number

Mn: Meter Number   LC: Location Code

IC: Instruction Code

Rd: Index Read   –>: Direction of   TC: Trouble Code
                      Data Entry

St: Account Status

D:0-35 Number of VRT details (requests)   AM-off/on AutoMove enabled
available

Msg-2 There are 2 messages in the   AC or BT: the source of power for
alarm category.   the handheld:
- AC from cradle
- BT from battery

Hi100% : shows that the battery is
charged at 100%

Index reads can be entered in either of the following ways:

- manually (see "Performing a manual index reading" on page 31)
- as part of a single or multiple parameter RF read (see "Performing a default read of an unread account" on page 30)
- as part of a multiple parameter read of Index, History, and TOU:
  - "Performing a multiple parameter RF read" on page 36
  - "Performing a single history/TOU RF read" on page 39
  - "Performing a general index RF read" on page 39

Note: History and TOU reads can be performed either singly or as part of a multiple parameter read of Index, History and TOU.

From this screen you can perform the following tasks:

- "Adding a trouble code" on page 33
- "Adding a skip code" on page 33
- "Entering messages for an account" on page 34

Performing a default read of an unread account

To trigger a single or multiple parameter RF read of the RTM:

- If the current read value is -2 and the RTM number is not blank, press <Enter>.

  The handheld will read the current meter (index), as well as any requested History or TOU VRT reads.
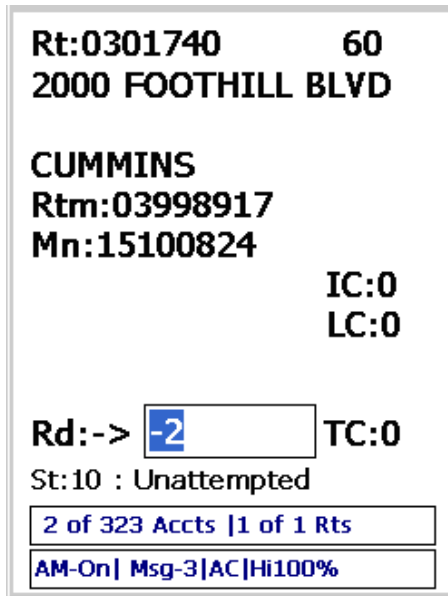
  RF interrogation starts and the status displays as *Reading RTM* and the background of the display changes color.
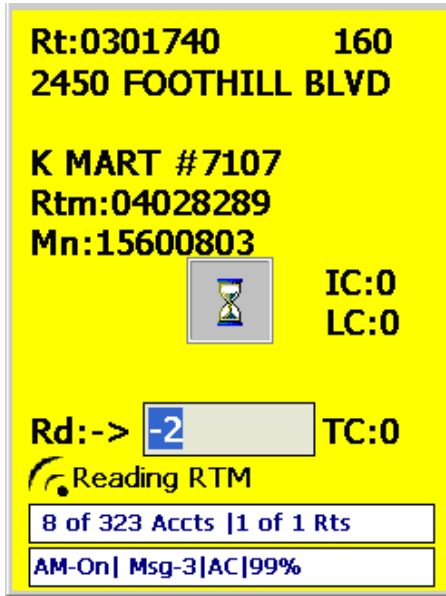
```
Rt:0301740          160
2450 FOOTHILL BLVD

K MART #7107
Rtm:04028289
Mn:15600803
                        ⌛        IC:0
                                 LC:0


Rd:-> -2          TC:0
⌒Reading RTM
8 of 323 Accts |1 of 1 Rts
AM-On| Msg-3|AC|99%
```

If **Enable sound** is enabled, a sound will notify you of the status of the reading (success or fail).

If **Automove** is enabled and the reading was successful, the display shows the next account in the route. If the account just read is the last one in the current route an audible alert will sound.

Once the interrogation is completed the account record will be updated.

```
Rt:0301740           60
2000 FOOTHILL BLVD

CUMMINS
Rtm:03998917
Mn:15100824
                        IC:0
                        LC:0


Rd:-> -2          TC:0
St:10 : Unattempted
2 of 323 Accts |1 of 1 Rts
AM-On| Msg-3|AC|Hi100%
```

Performing a manual index reading

To perform a manual index read:

1. In the **Rd:** text box, enter digits (from 0 to 9) for the meter reading.

2. Press <Enter>.

   The direction of manually reading a meter is shown by the arrow (**->** or **<-**) by the reading and is dependant on the read direction setting for the meter type.

Note: Reads may be entered from left to right or from right to left.

```
Rt:0301740          60
2000 FOOTHILL BLVD

CUMMINS
Rtm:03998917
Mn:15100824
                      IC:0
                      LC:0


Rd:-> | 123    |  TC:0
St:10 : Unattempted
2 of 323 Accts |1 of 2 Rts
AM-On| Msg-3|AC|Hi100%
```
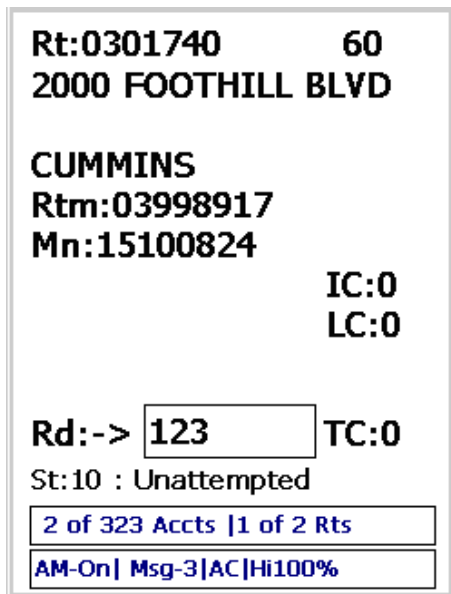
The number entered will be checked against:

- The number of dials as reported in Route Manager for the account.

  This option can be turned off/on in Route Manager.

- Upper Limit and Lower Limit for the account as reported in Route Manager.

  This option can be turned off/on in Route Manager.

- Previous read for the account as reported in Route Manager.

  A zero (0) uploaded for the value to check turns this option off.

If the entered index read fails the verification above a message displays asking if it should be recorded or cancelled.

3. Choose the option by selecting **OK** to record or press <X> to cancel.

Moving on to the next account

If the Automove option is enabled, a successful read will cause the display to automatically move to the next account in the route. When either the first or last account is reached an audible warning will sound and the display will remain on the current account.

Additional account reading options

The following accelerator keys can be used from the Read screen as part of the meter reading process.

Clearing index read

Accelerator key: <C>

Pressing <X> has no effect.

After pressing <C>, the reading is cleared and the cursor is positioned in the index read field waiting for the entry to overwrite the previous reading.

Forcing unattempted account

Accelerator key: <F>

Pressing <X> has no effect.

If the account had a manual reading, then after pressing <F>, a message dialog displays asking you if you wish to reset the account:

- Selecting **Yes** clears the reading and trouble code and sets the account status to **Unattempted**.

- Selecting **No** has no affect on the account.

Adding a trouble code

Accelerator key: <T>

Pressing <X> has no effect.

Trouble codes are used to indicate problems with obtaining readings. A trouble code should be entered with a reading. You can enter up to two trouble codes for a reading.

1. While in the Read screen, press <T> to move the cursor to the Trouble Code field.

2. Enter a one or two digit trouble code.

3. To review the list of available trouble codes, press <T> again to display the Trouble Codes List screen.
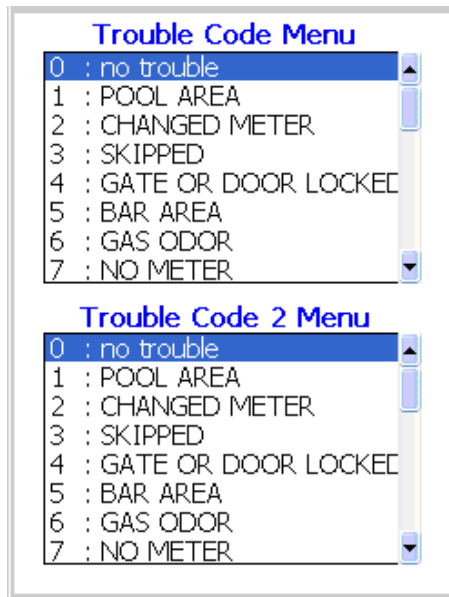
4. Use the <Up> and <Down> arrow keys to select the desired trouble code from the list.

5. If needed, enter a second trouble code by tapping to select the desired trouble code from the Trouble Code 2 Menu.

6. Press <Enter> to update the account with the selected trouble code.

    — Or —

    Press <Esc> to close the window without entering a trouble code.

Note: The stylus can be used to select the desired Trouble Code from the list. This action updates the account with the selected Trouble Code and closes the window.

Adding a skip code

Accelerator key: <S>

Pressing <X> has no effect.

Skip codes are used to indicate a reason why an account could not be read. A skip code should be entered when a reading cannot be obtained.

1. While in the Read screen, press <S> to display the Skip Code list.
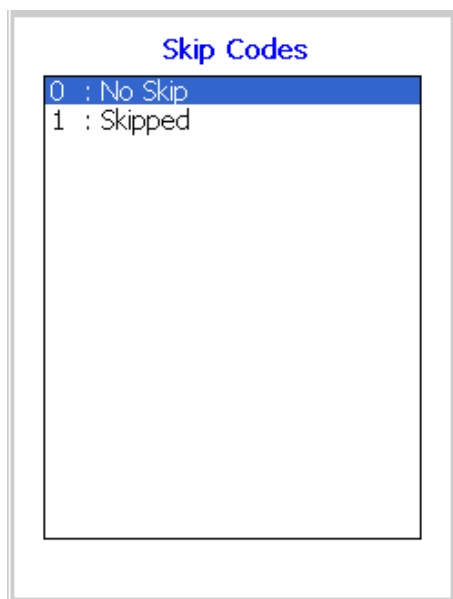
2. Use the <Up> and <Down> arrow keys to select the desired skip code from the list.
3. Press <Enter> to update the account with the selected skip code.

— Or —

Press <Esc> to close the window without entering a skip code.

Note: The stylus can be used to select the desired Skip Code from the list. This action updates the account with the selected Skip Code and closes the window.

Entering messages for an account

Accelerator key: <M>

Pressing <X> has no effect.

Note: Messages can be allowed or disallowed for editing in the Device configuration in Route Manager.

Route Manager can be configured to sound an alarm if the message contains an alarm. If sound is disabled a message box will pop up with the warning. See the *Route Manager User Guide* for details.

To view or enter a message regarding an account:

1. While in the Account screen, press <M> to open the Messages screen.
2. Press <Tab> or select a message field with the stylus to move the cursor to the message for editing.
3. Enter text in either of the following:
   - a 19-character message (MSG)
   - up to three 20-character user messages (1, 2, and 3)

     These messages can be sent from Route Manager. If **M** appears in the lower Information bar of the data entry display, the account contains one or more messages. If **!!** follows the message then one of the messages contains an alarm.
   - a Trouble Message

     This is an 80-character message used to specify trouble conditions when no utility

trouble code applies.

```
┌─────────────────────────────────┐
│ MSG  ┌──────────────────────┐    │
│      └──────────────────────┘    │
│  1   ┌──────────────────────┐    │
│      │ 11                   │    │
│  2   ├──────────────────────┤    │
│      │ 1                    │    │
│  3   ├──────────────────────┤    │
│      │ 1                    │    │
│      └──────────────────────┘    │
│  Trouble Message                 │
│  ┌────────────────────────┬─┐    │
│  │                        │^│    │
│  │                        │ │    │
│  │                        │ │    │
│  │                        │ │    │
│  │                        │v│    │
│  └────────────────────────┴─┘    │
│                                  │
└─────────────────────────────────┘
```
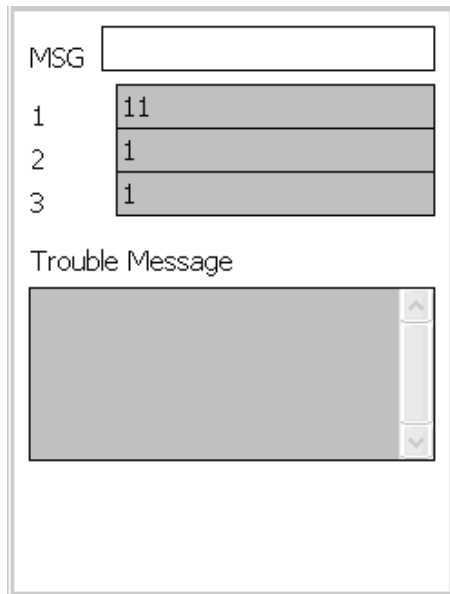
4. Press <Esc> to close the Message screen.

    A message dialog displays asking if you want to save changes to messages.

5. Press **Yes** or <Y> to save the changes and close the screen.

    — Or —

    Press **No** or <N> to close the screen without saving changes to messages.

Setting the resequence flag

Accelerator key: <Q>

Pressing <X> has no effect.

If a route's accounts are out of sequence, setting the **Resequence** flag marks the route for resequencing by date time stamp during reading the route. The resequencing is done in the Billing system after uploading the route to Route Manager.

1. With an account in the route displayed, press <Q>.

    A dialog displays asking you to confirm the resequence.

Rt:0301740   160
2450 FOOTHILL BLVD

K MART #7107
Rtm **Resequence**   [×]

Mn:
Add Resequence?   :0
                                       :0
    [Yes]   [No]

Rd:-> [-2]   TC:0
St:10 : Unattempted

8 of 323 Accts |1 of 1 Rts
AM-On| Msg-3|AC|99%

The message box will pop-up to verify if resequencing is desired.

2. Select either Yes or No by:

- Touching **Yes** or **No.**

- Pressing <Y> or <N> on the keyboard.

- Moving to the desired button by using <Left> or <Right> arrow keys to select the response and press <Enter>.

Removing a resequence flag

To remove a resequence flag from a route:

1. With an account in the route displayed, press <Q>.

   A dialog displays asking you to confirm the resequence.

2. Select **No** or press <N>.

Performing a multiple parameter RF read

Accelerator key: <R>

Pressing <X> has no effect.

Use the multiple parameter RF read to get the index read and all the VRT requests.

1. With an account in the route displayed, press <R>.

   — Or —

   Press <Enter> on an unread account.

   RF interrogation starts and the status displays as *Reading RTM*, *Reading History* and *Reading TOU* and the background of the display changes color.
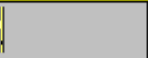
```
Rt:0110558        5060
158 COMANCHE CT

TODD C NICHOLLS
Rtm:03981398
Mn:12670670
                 [⧗]      IC:0
                          LC:0


Rd:->  -2          TC:0
 (( Power Card
 1 of 205 Accts |3 of 3 Rts
AM-On| Msg-4|AC|Hi100%
```

```
Rt:0110558        5060
158 COMANCHE CT

TODD C NICHOLLS
Rtm:03981398
Mn:12670670
                 [⧗]      IC:0
                          LC:0


Rd:->  -2          TC:0
 (( Reading RTM
 1 of 205 Accts |3 of 3 Rts
AM-On| Msg-4|AC|Hi100%
```
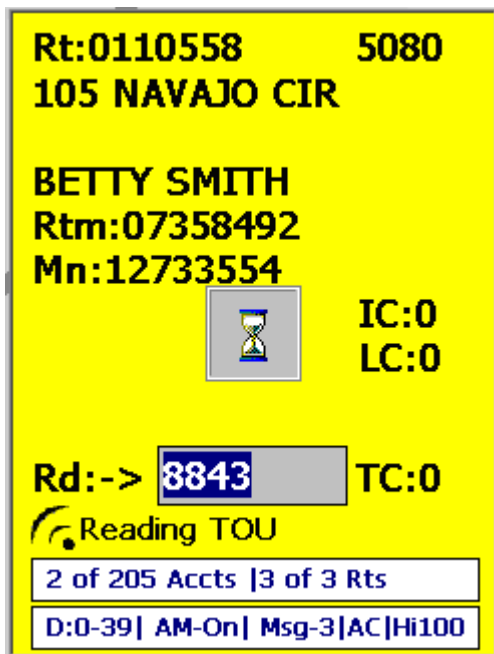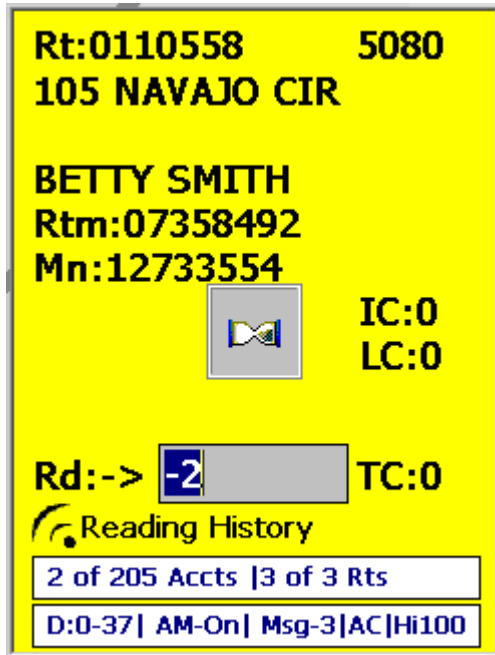
Rt:0110558   5080
105 NAVAJO CIR

BETTY SMITH
Rtm:07358492
Mn:12733554
                              IC:0
                              LC:0

Rd:-> -2   TC:0
Reading History
2 of 205 Accts |3 of 3 Rts
D:0-37| AM-On| Msg-3|AC|Hi100

Rt:0110558   5080
105 NAVAJO CIR

BETTY SMITH
Rtm:07358492
Mn:12733554
                              IC:0
                              LC:0

Rd:-> 8843   TC:0
Reading TOU
2 of 205 Accts |3 of 3 Rts
D:0-39| AM-On| Msg-3|AC|Hi100

If **Enable sound** is enabled, a sound will notify you of the status of the reading (success or fail).

If **Automove** is enabled and the reading was successful, the display shows the next account in the route. If the account just read is the last one in the current route an audible alert will sound.

Once the interrogation is completed the account record will be updated.

Performing a single history/TOU RF read

If a *D* appears in the lower left corner of the data entry display, the account contains one or more History and or TOU requests.

1. To retrieve the history or TOU request, press <D> to display a pop-up list of all requests.

2. Use the Up / Down arrow keys or a stylus to select the History/TOU request to read.

3. Press <Enter> to start the interrogation.

   An RF communications window will open and RF interrogation will start. The user will be able to watch commands issued and replies returned from the target RTM.
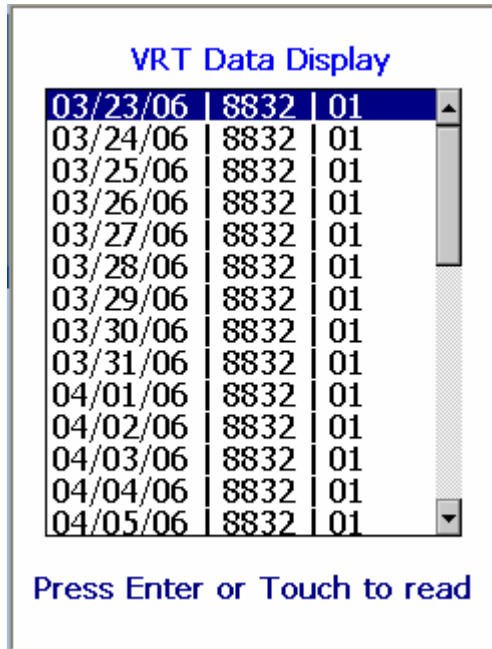
   The list will be updated with the information obtained from the RTM for the chosen VRT request.

   If a valid index read does not exist, one will be added to any single History requests.

   A new index read will be added to any Single TOU request.

   Once the interrogation is completed the account record will be updated.

4. Press <Esc> to close the screen.

Performing a general index RF read

Accelerator key: <G>

Pressing <X> has no effect.

Use a general index RF read to obtain an "on the fly" read of an RTM.

Note: The results of a general index read are **not** *returned to Route Manager.*

1. With an account in the route displayed, press <G>.

   A popup display opens.

RTM 7358492
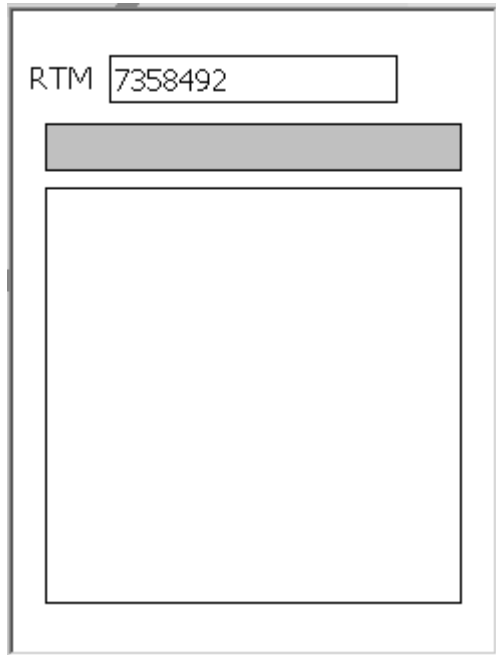
2. Enter the desired RTM number and press <Enter>.

An RF communications window will open and RF interrogation will start. You can watch commands issued and replies returned from the target RTM.

RTM 7358492

RTM: 7358492
Index Rd: 00008843
Status: 0B
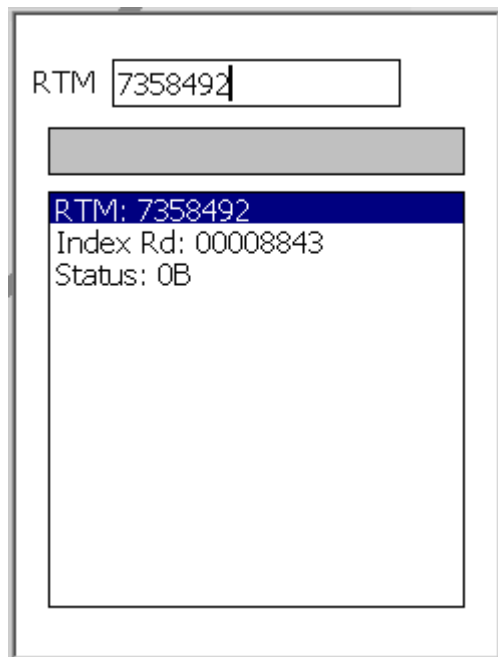
When the interrogation is completed, the communications commands will be replaced with read results.

Note: Data is NOT added to the database.

Jumps

Jumps are moving from the current account in the current route to various other accounts and routes.

Viewing Account Details screen

Accelerator key: <A>

Press <A> to trigger a jump to the Account Details screen of the selected account on the data entry screen.

Pressing <X> has no effect.

Press <Esc> to close Account Details screen.

Jumping to the beginning of current route

Accelerator key: <B>

Press <B> to trigger a jump to the first account in the current route.

Press <X> to return to the screen displayed prior to the jump.

If you press <B> at the beginning of the route a beep sounds and the display remains on the current account.

Jumping to the end of current route

Accelerator key: <E>

Press <E> to jump to the last account in the current route.

Press <X> to return to the screen displayed prior to the jump.

If you press <E> at the end of the route a beep sounds and the display remains on the current account.

Jumping to a specified sequence number

Accelerator key: <J>

1. Press <J> to jump to a specified sequence number in the current route.
2. After pressing the J hot key an entry window will pop up.
3. Type the sequence number in the box and
4. Press <Enter>.

Press <X> to return to the screen displayed prior to the jump.

Jumping to the next route

Accelerator key: <N>

Press <N> to jump to the next route.

Pressing <X> has no effect.

If you press <N> on the last route a beep sounds and the display remains on the current account.

Jumping to the previous route

Accelerator key: <P>

Press <P> to jump to the first account in the previous route.

Pressing <X> has no effect.

If you press <P> on the first route a beep sounds and the display remains on the current account.

Jumping to next unread account in the current route

Accelerator key: <U>

Press <U> to jump to the next account with a index read of -2 and trouble code 0 in the current route.

Press <X> to return to the screen displayed prior to the jump.

Searching the current route

Searches allow you to jump to any specified account in the current route. The following searches are available:

- Account number
- RTM number
- Meter number
- Customer (name)
- (Customer) Address
- Premise code
- Specific trouble code
- Any trouble code

Performing a search

1. Press <H> to display the search type dialog.

2. Use the <Up> and <Down> arrow keys or the stylus to select the type of search.

   — Or —

   Press <Tab> or use the stylus to select fields on the screen.

3. Select whether **Exact Match** is wanted or the search performed by partially submitted information, **Like Match**, is preferred (except for search for accounts with trouble code).

4. Enter the **Search For** text string.

5. Click **Search** to begin the defined search

   — Or —

   Press <Enter> while the **Search** button is highlighted.

6. Press <Esc> to cancel the search.

   Searches with only one account returned will jump directly to that account.

   If the search results in multiple accounts, the results list will present the list of accounts:

Search For	*	Clear
07358477	0007096097	
07359531	0007082173	
07358485	0007113271	
07359209	0007082887	
07359120	0007094176	
07357824	0007094347	
07358450	0007091643	
07358550	0007088907	
07358467	0007091130	
07359444	0007094667	
07359405	0007082972	
07358471	0007091625	
07358491	0007082962	
07359212	0007094658	
07359122	0007091233	

7. To jump to an account, select an item from the results list and press <Enter>.

   Or

   Select the account by tapping with the stylus.

8. Press <Clear> to clear the search and to start over.

9. Press <X> to return to the account displayed prior to pressing <H>.

Note: RTM number for exact search has to be 8 digits.

Example Search - Address

To search for all addresses that begin with "3102 DEWAR":

1. Enter 3102 DEWAR in the **Search For** string.

2. Select **5 Address**.

3. Click **Like Match**.

4. Click **Search**.

   If multiple accounts are found, they are displayed as Address followed by first part of address.

5. Select the account to view the account's screen.

6. Press <H> to return to the search results screen.

   — Or —

   Click **Clear** to return to the search screen to start a new search.

Example Search - Customer

To search for all Customers named "Smith":

1. Enter Smith in the **Search For** string.

2. Select **4 Customer**.

3. Click **Like Match**.

Search For SMITH|

| 1 Account # |
| 2 RTM # |
| 3 Meter # |
| 4 Customer |
| 5 Address |
| 6 Premise CD |
| 7 Message |
| 8 Trouble CD |
| 9 Trouble CD Any |

Like Match
Exact Match

Search

Use TAB key to change fields

4. Click **Search**.

   Multiple accounts show Customer name and first part of the Address.

Search For SMITH   Clear

SMITHS MANAGEMENT CORP |
G L SMITH PROP MGMT | 504
LARRY C SMITH | 166 FOOTHILL
TAMMY M SMITH | 166
DAN J SMITH | 166 FOOTHILL B

5. Select an account to view the account's screen.

6. If that account is not correct, press <H> to return to the search results screen.

   — Or —

   Click **Clear** to return to the search screen to start a new search.

Viewing additional information

The Account Data Entry screen provides access to several information screens. Most of these take the form of a dialog.

Press <Esc> to close the information screen and return to the Account Data Entry screen.

Viewing Help and available commands

Accelerator key: <F1>

Pressing <X> has no effect.

To display the information:

- Use the <Up> and <Down> arrow keys to select the desired accelerator key from the list and press <Enter>.
- Click the desired function with the stylus.
- Press the shortcut letter on the keyboard.
- Press <Esc> to close the dialog.

Viewing Routes Selection screen

Accelerator key: <F2>

Pressing <X> has no effect.

The Routes Selection screen allows you to select a route to be processed.

To select a route from a list:

1. Press <F2> to view the Routes Selection screen.
2. Use the <Up> and <Down> arrow keys to select the desired route.
3. Press <Enter> to view the first account in the selected route.

   Note: Clicking the desired route with a stylus jumps to the first account in the selected route
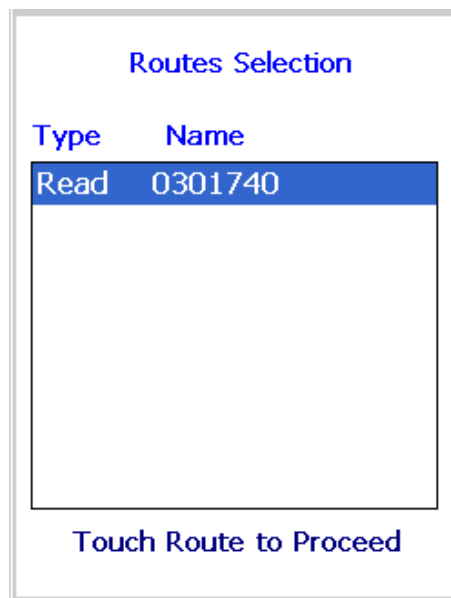
4. Press <Esc> to close the dialog.

Viewing Route Summary screen

Accelerator key: <F3>

Pressing <X> has no effect.

The Route Summary screen shows battery life (%) as well as statistics collected from the route.

1. Press <F3>.

A list of routes displays.

2. Use the <Up> and <Down> arrow keys to select the desired route.

3. Press <Enter>.

A dialog displays the Route Summary screen.
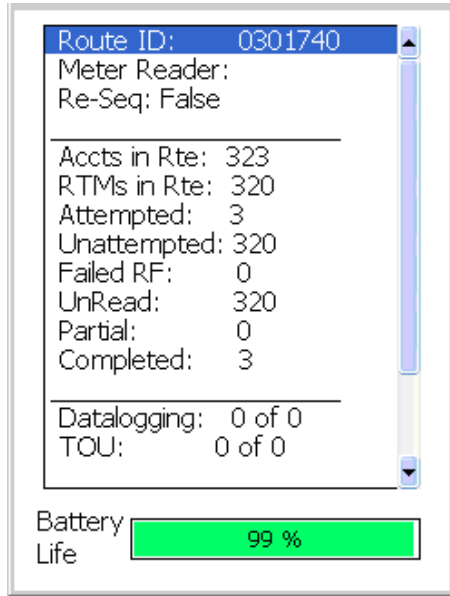
4. Press <Esc> to close the dialog.

Viewing Account Details screen

Accelerator key: <A>

The Account Details screen displays additional information about the account.

1. Press <A> to display the account details of a selected account on the data entry screen.
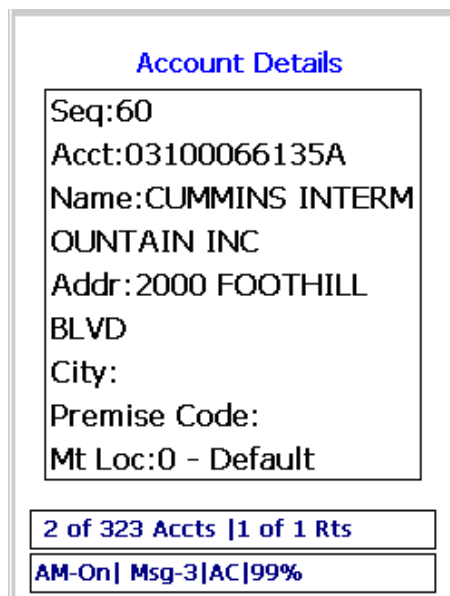
2. Press <Esc> to close the dialog.

Viewing Instruction Code screen

Accelerator key: <I>

Instruction codes are used to indicate instructions for Meter Reader.

1. Press <I> to view the list of available instruction codes.
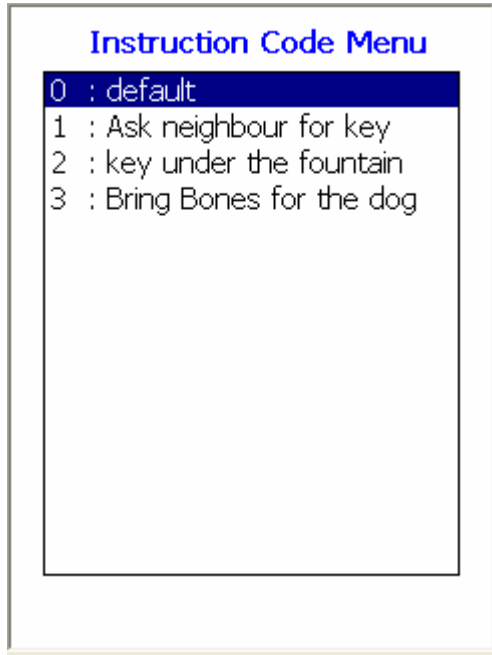
2. Press <Esc> to close the dialog.

Viewing Location Code screen

Accelerator key: <L>

Location codes are used to indicate the location of meters and RTMs.

1. Press <L> to view the list of available location codes.
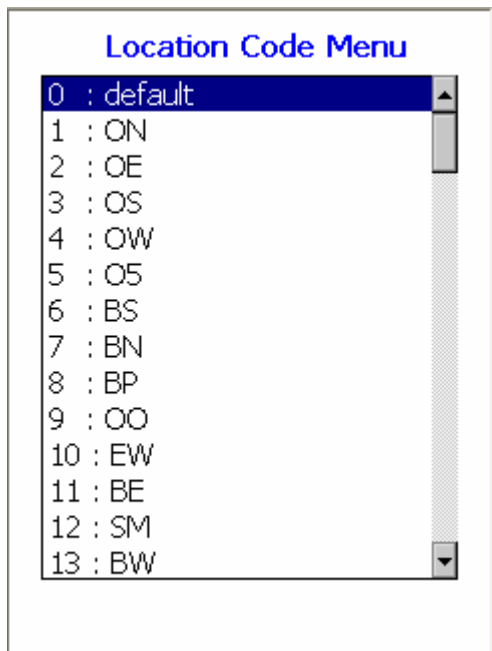
2. Press <Esc> to close the dialog.

Viewing Error Log screen

Accelerator key: <O>

1. Press <O> to view the Error Log screen.
2. Use the <Up> and <Down> arrow keys to move within the screen.
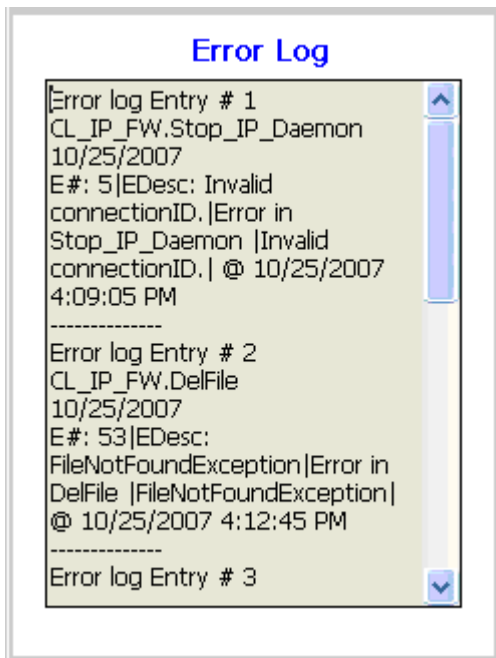
3. Press <Esc> to close the dialog.

Viewing Trouble Code screen

Accelerator key: <T>

Trouble codes are used to indicate problems with obtaining readings.

1. Press <T> to view the list of available trouble codes.

2. Use the <Up> and <Down> arrow keys to move within the list.

3. To enter a Trouble Code 2, tap the screen with the stylus then use the <Up> and <Down> arrow keys to move within the list.
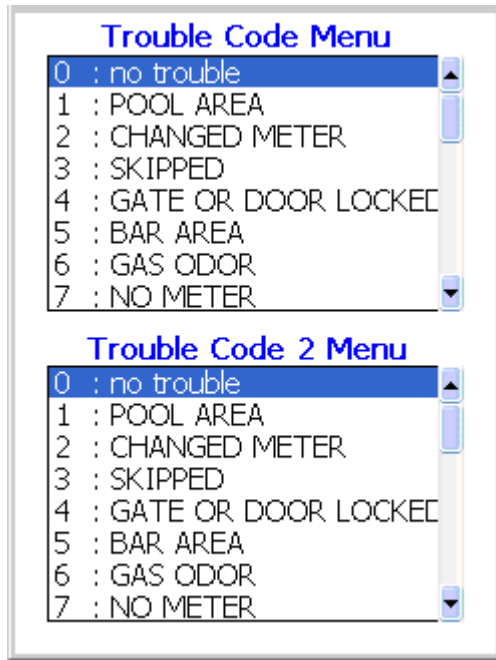
4. Press <Esc> to close the dialog.

Viewing appointments

Route Manager allows you to set appointments for an account.

To view appointments for a selected account:

1. From the Routes Selection screen, select a route.

2. If there are appointments set for selected route, the message, "Do you want to view the appointments for this route?", will display on the screen.
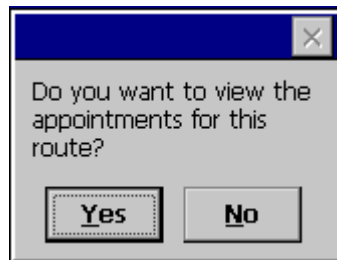
3. Click on **Yes** to view the list of current appointments for the selected route.

   After clicking on **Yes** to view the list of appointments, a brief list will display all appointments set for selected route.

Note: Only appointments whose date is greater than or equal to the current date will be displayed.
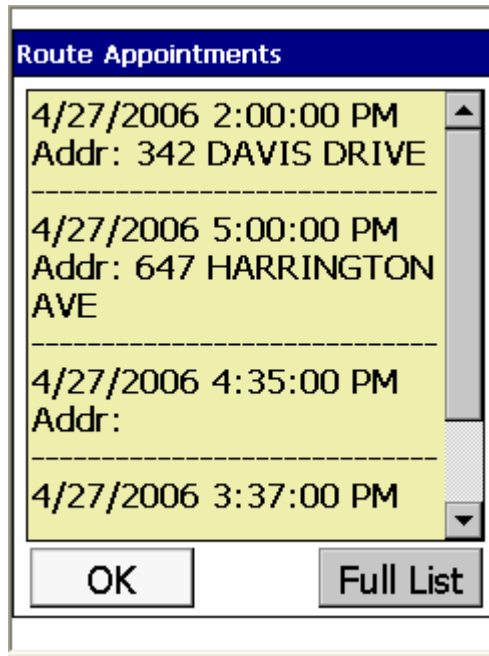
4. To view the appointment details, click **Full List**.

   The appointment date/time, customer name, service address, and note will be displayed.

   The full appointment screen will also be displayed just prior to moving to the account on the route for which the appointment was made.
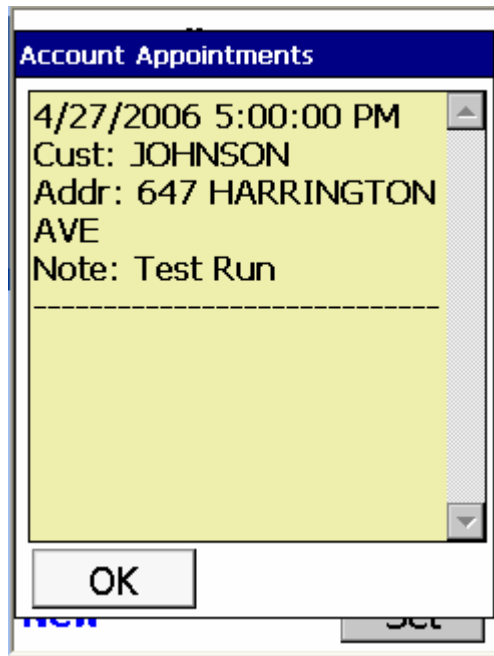
5. Click **OK** to close the Appointments screen.

6 Using the VersaProbe

The VersaProbe device is a universal probe for remote reading of water meters equipped with a remote register and touchpad. With a true open-architecture design, it allows the utility to read any brand touchpad meter in the system with a single probe, eliminating the need for multiple sets of reading equipment.

The VersaProbe can be used as a standalone device (disconnected mode) or attached to a handheld device (connected mode). When used as a standalone device, the VersaProbe will store reads until it is attached to the handheld device at a later time. The reads are then unloaded and attached to the correct accounts in the route.

Configuring a VersaProbe connection

The VersaProbe can communicate to the handheld device using either a serial or Bluetooth connection. All communications use the Sensus I/O mode.

Serial communication mode

To communicate in serial mode:

1. For the PI 500 handheld, connect the lemo end of the lemo cable to the Dap handheld's lemo port and the other end of the cable to the 6-pin connector of the VersaProbe.

    For the evoWalk handheld, connect the 11-pin mini DIN end of the cable to the Radix handheld's Port A and the other end of the cable to the 6-pin connector of the VersaProbe.

2. Press <V> to view the VersaProbe Connection screen.

3. Ensure that **Serial** is selected and that the **Com Port** is **Com1**.

4. Check **Auto Display** to automatically display the VersaProbe Connection screen.

    If **Auto Display** is not checked, press <V> at the main menu screen or Meter Readings screen to view the VersaProbe Connection screen.

5. Click **Connect**.

    Once the connection is established, the **Connect** button changes to **Drop**.

VersaProbe Connection

● Serial   Com Port: 1 ▼
○ Bluetooth

Connected   Drop

Port Closed
Port Opened
Ready for Reads...

☑ Auto Display   OK
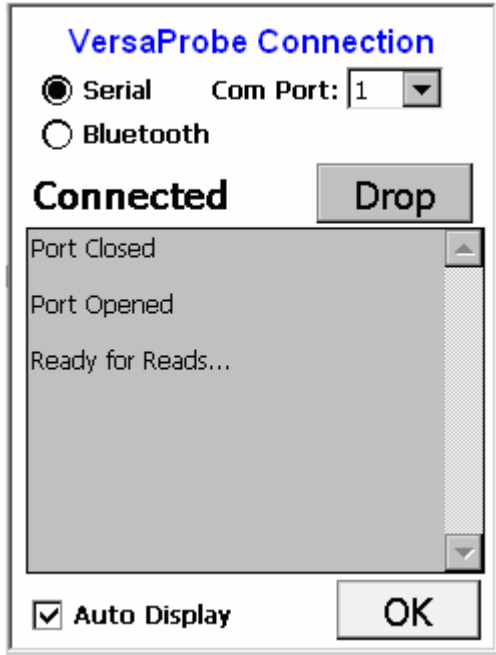
6. Click **Drop** to cancel the connection.

Bluetooth communication mode

To activate the Bluetooth radio:

1. Press and hold the trigger button for about 12 seconds.

    During this time the display will progress through several steps.

    Initially asterisks begin to appear on the display, from left to right.

    + 100 ELSTER / AMCO
    ****

2. As you continue to hold the trigger button, a blinking * will appear in the right corner of the protocol list display to indicate that Bluetooth radio is installed.

    0....................45
    PROTOCOL LIST   *
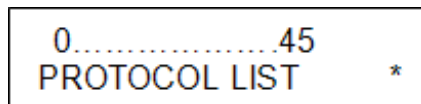
3. Continue holding the trigger button, until the display indicates you can release the button.
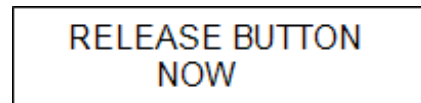
    RELEASE BUTTON
    NOW

4. Release the trigger button.

    The Bluetooth radio initializes.

```
INITIALIZING
BLUETOOTH RADIO
```

The VersaProbe will perform a short radio module test and then display its Bluetooth device address (BDA) also known as the Bluetooth ID.

5. Enter the Bluetooth ID into the handheld by updating the handheld's configuration properties using Route Manager.

    See Chapter 9, "Communicating with Route Manager" for details.

```
BDA=006057FD4736
CONNECT VTCE NOW
```

6. On the handheld, press <V> to view the VersaProbe Connection screen.

7. Ensure that **Bluetooth** is selected and that the **Com Port** is correct:

    - For the PI 500 handheld the **Com Port** is **8**.

    - For the evoWalk handheld the **Com Port** is **6**.

8. Check **Auto Display** to automatically display the VersaProbe Connection screen.

    If **Auto Display** is not checked, press <V> at the main menu screen or Meter Readings screen to view the VersaProbe Connection screen.

9. Click **Connect**.

    Once the connection is established, the **Connect** button changes to **Drop**.

10. Click **Drop** to cancel the connection.

Reading using a VersaProbe

In order to read an account with a VersaProbe, the account must be configured with the
Probe Encoder Number of the VersaProbe. On the handheld, the **RTM** field shows the
encoder number to be used by the VersaProbe.

Note: The probe encoder number must be 10 digits long.
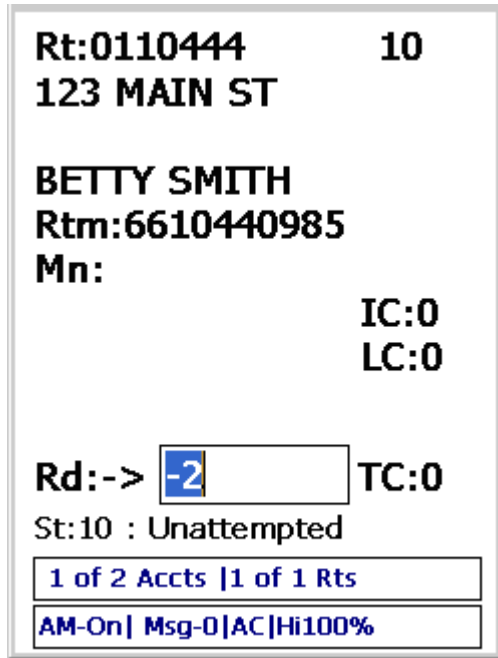
Rt: Route ID	Sequence Number
Address 1	
Address 2	
Rtm: Probe Encoder Number	IC: Instruction Code
Mn: Meter Number	LC: Location Code
Rd: Index Read: • -2 - indicates unread account • positive number - indicates a reading	–>: Direction of Data Entry TC: Trouble Code
St: Account Status	
Number of Accounts in route	Number of Routes in handheld
AM-off/on AutoMove enabled	Msg-0 There are 0 messages in the alarm category.	AC or BT : the source of power for the handheld: • AC from cradle • BT from battery

Hi100% : shows the charge level
in the battery i(for example, 100%)

The VersaProbe can read meters in either the connected or disconnected mode.

Establishing the VersaProbe connection

See for details on configuring the
connection.

1. At either the main or data entry screen, press <V> to view the VersaProbe
    Connection screen.

2. Ensure the connection settings are correct and then click **Connect**.

    Once the connection is established, the status changes to *Connected* and the *Ready
    for Reads* message displayed.
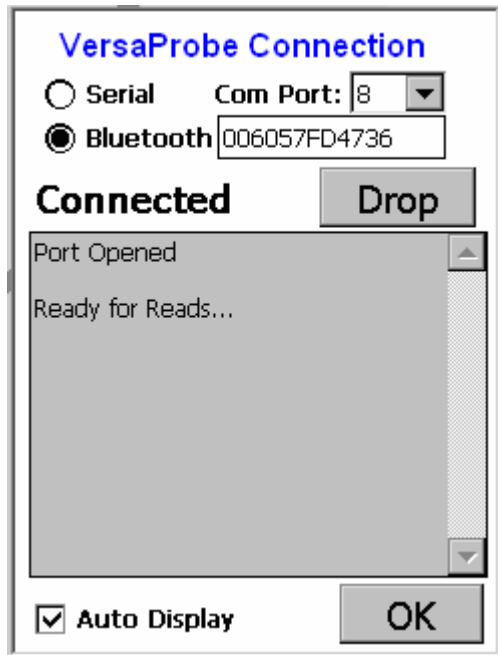
3. You are ready to read meters using the VersaProbe (see "Reading a meter" on page 56).

Reading a meter

When the VersaProbe is ready for the reads (see "Establishing the VersaProbe connection" on page 55):

1. Hold the VersaProbe up to the meter.

2. Press the trigger button and then release it within less than four seconds.

   If **Enable sound** option is enabled, a success or fail sound will alert you with the result of reading.

   *Note: If **Auto Display** is checked the handheld will automatically display the VersaProbe Connection screen to read the meter. If it is not checked, press <V> at the main menu screen or Meter Readings screen to show the VersaProbe Connection screen.*
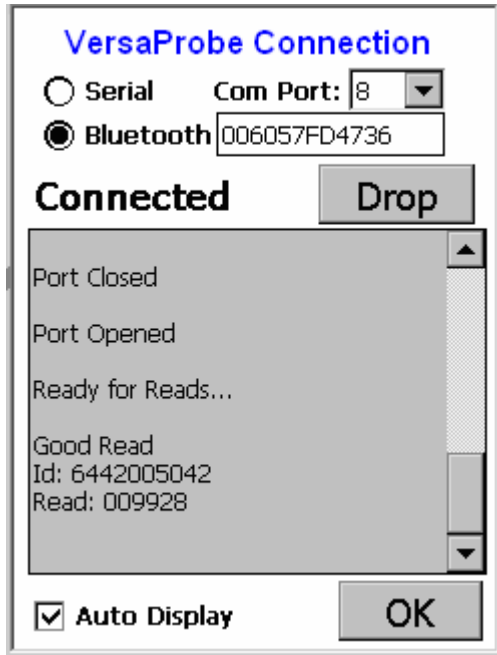
3. Click **OK** to return to the Meter Readings screen.

   You will be returned to the last Account screen you were on, not to the account that was just updated. However, the read will be updated in the account as shown below.
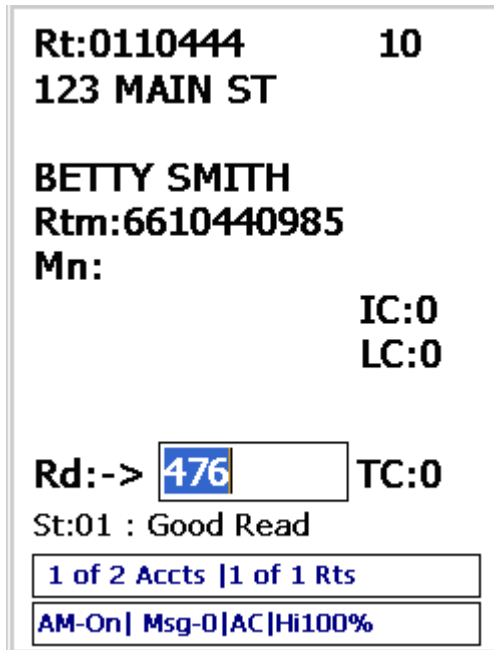
- Elster PI software will match the VersaProbe read to the correct account using the probe encoder number, no matter what route the account is found in.

- If the encoder number is not found in any route, then a mismatch error will be displayed.

- If the VersaProbe is used in the disconnected mode, then the handheld device will take each stored reading from the VersaProbe and match it to the correct account after the VersaProbe is reconnected to the handheld device.

Note: If you return to the Account screen for the encoder you just read and the read value is -2, press <Enter> to refresh the screen. The read value is replaced by a positive number indicating the reading.

Note: If AutoMove is on, press <Enter> again to advance to the next Account screen.

4. When ready to unload the stored reads, connect the VersaProbe to the handheld device and press the VersaProbe's trigger to start the unload process.

7 Installing RTMs

The PI 500 handheld can be used to install and read RTMs and the PI 900 can be used to install RTMs. The handheld can perform the following actions:

- program an RTM index
- set special gas and water (PI 500 only) parameters
- verify and set RTM date and time
- capture GPS coordinates

The handheld can also capture additional information associated with meter and index change outs performed at the time of the RTM installation.

All information is saved on the handheld device and brought back to Route Manager for review and storage.

Installing RTMs using the PI 500

In order to use the handheld to install RTMs, a route must first be set up in Route Manager with a Route Type = Install. This route will contain the meter number, customer name, service address and other account information. Typically this route is imported from a CIS system where the route is being used as a manual read route.

Appointments can be assigned to accounts in the Install route from Route Manager.

After the route is downloaded to the handheld device you can select the route from the handheld device Route Select screen. The selected route should have a type of Install.

After moving to an account in the route, you can do one of the following:

- a meter change out followed by a RTM install (see "Changing out a meter" on page 60)
- an index change out followed by a RTM install (see "Changing out an index" on page 61)
- a RTM install without a meter or index change out (see "Installing an RTM" on page 62)

The RTM installation is done at low power so that the meter installer can stand close to the RTM. The handheld can be held from 0 to 3 feet from the RTM.

After the installation is finished, the GPS coordinates of the meter are captured before the handheld moves to the next account. Once all accounts are complete, the route can be uploaded into Route Manager.

Changing out meters and indexes

Note: The appearance of the handheld display is configurable. Refer to the **Route Manager User Guide** *for details. Your handheld display may appear different from examples shown in this manual.*

1. From the RTM installation screen, press <F4> to view the Change Out screen.
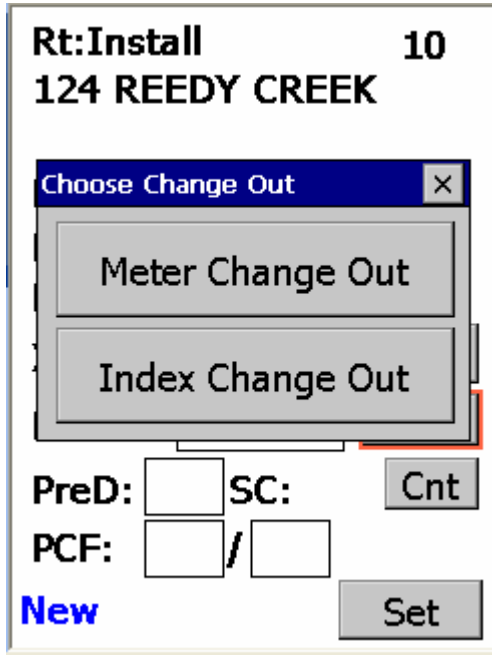
2. Choose either **Meter Change Out** or **Index Change Out**.

   The Change Out screen displays:

   - "Changing out a meter" on page 60
   - "Changing out an index" on page 61

Changing out a meter

1. If you selected **Meter Change Out**, enter the **Old Index**.

2. Enter the **New Meter** number.

   The PI 500 will display the Old Meter number for the account.
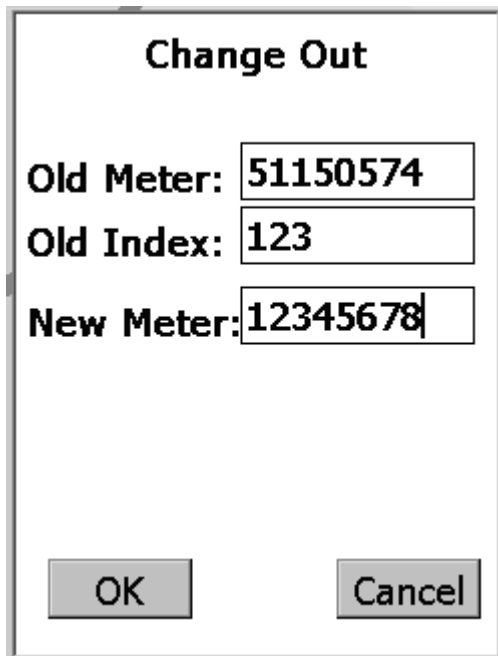
3. Click **OK** when finished.

   After a successful change out, the installation screen displays the status *Meter Change Out*.

Changing out an index

1. If you selected **Index Change Out**, enter the **Old Index**.
2. Enter the reading from the **Old Index** that you plan to change out.

3. Click **OK** when you are finished.

   After a successful change out the installation screen displays the status *Idx Change Out*.

Installing an RTM

The RTM installation screen and process will vary slightly depending on whether the meter is a gas or water meter, and the generation of the RTM. The table below details the specifics of each RTM generation.

RTM Generation	Meter Type	RTM Serial Number	FCC ID	Programming Notes
2.0	Water, Gas	< 2500000	G8J3GNAMR8	Programming Stick
2.5	Water (pit)	$\geq 2500000 \leq 6500000$	G8JPIT25	magnet
2.5	Water (remote)	$\geq 2500000 \leq 6500000$	G8JGEN25	Programming Stick
3.x	Water (remote)	$\geq 2500000 \leq 6500000$	G8JGEN03	magnet
	Gas (remote)	$\geq 2500000 \leq 6500000$	G8JGEN03	jumper
5.0	Gas (direct)	> 6500000	G8JVRT01	
	Water (remote, integral)	> 6500000	G8JVRT02	
	Water (pit)	> 6500000	G8JVRT03	
	Gas (standalone)	> 6500000	G8JVRT04	

The screens for Gen 5 gas and water installation are shown below.

Water meter RTM installation display

Rt: Route ID

Mn: Meter Number	Meter type: Water
LC: Location Code	

MT: Meter Type	MC: Meter Location Code	TC: Trouble Code
Rtm: RTM Serial Number		Find: Used to find the RTM Serial Number
Mt Rd: Index Read		GPS: It will show GPS screen
PreD: PreDivider	SC: Subcounts	Cnt: Used to read Subcounts
L Cnts: Leak Counts		L Hrs: Leak Hours
		Set: To set entered parameter values

Gas meter RTM installation display

Rt: Route ID

Mn: Meter Number	Meter type: Gas

LC: Location Code	MC: Meter Location Code	TC: Trouble Code
Rtm: RTM Serial Number		Find: Used to find the RTM Serial Number
Mt Rd: Index Read		GPS: It will show GPS screen
PreD: PreDivider	SC: Subcounts	Cnt: Used to read Subcounts
PCF: Pressure Compensation Factor		
		Set: To set entered parameter values

To begin the installation process:

1. Press <F> or click **Find** to read the serial number of the RTM that is within the range of the short range antenna.

   You can also enter the RTM serial number in the **Rtm** text box and then press **Find** to ensure that only the RTM number you entered is searched for.

   The lower left corner of the screen displays the status of the Find operation.

   a. For Gen 2 RTMs: enter the serial number before pressing **Find**.

Note: You must enter 7 digits for the serial number. Use a leading zero for serial numbers less than 1000000.

   b. For Gen 2, Gen 2.5 Water and Gen 3 Water RTMs, disconnecting the battery will erase the serial number. The serial number must be entered because the **Find** command will not work.
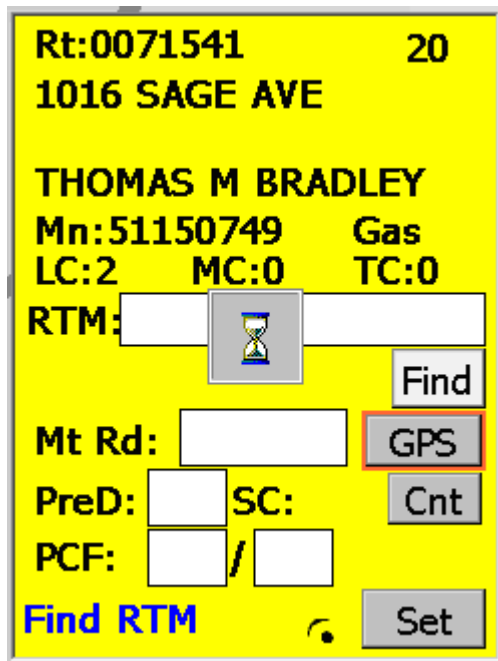
2. Once the RTM is found, the handheld will display the RTM serial number and its parameter values as shown below.

   Parameter values will vary for pre Gen 5 RTMs.

   If **Enable sound** option if on, a success or fail sound will alert you to the result of reading.
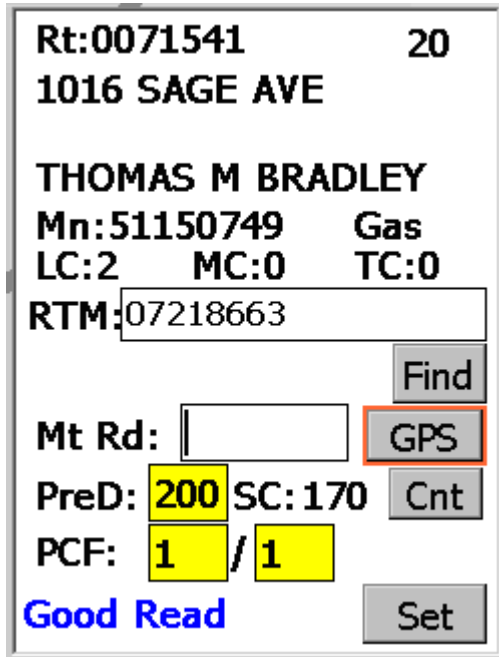
3. For pre Gen 5 RTMs, follow the instructions on the screen to place and remove the programming stick, jumper or magnet. The magnet can be removed after the programming operation has finished. See Chapter D, "Programming Pre Gen 5 RTMs" for more details on placing the programming stick, jumper or magnet.

For Gen 5 RTMs, follow the instructions below.

Setting gas RTM values (Gen 5)

Item	Description
Mt Rd	meter index reading
PreD	The predivider value can be set to 1, 2, 4, 5, 7, 9, 10, 20, 50, 100, 200, or 250. This value represents the number of counts that must be collected from the meter to represent one count for the RTM. For example, if the predivider was set to 2, 10 pulse counts from the meter would be stored as 5 pulse counts in the RTM.
PCF	pressure compensation factor The pressure compensation factor is represented as a numerator over a denominator (any number from 1 to 255).

Setting water RTM values (Gen 5)

Item	Description
Mt Rd	meter index reading

Item	Description
PreD	The predivider value can be set to 1, 2, 4, 5, 7, 9, 10, 20, 50, 100, 200, or 250. This value represents the number of counts that must be collected from the meter to represent one count for the RTM. For example, if the predivider was set to 2, 10 pulse counts from the meter would be stored as 5 pulse counts in the RTM.
L Cnts	leak counts Leak counts can be set to any number from 1 to 9999.
L Hrs	hours for leak detect Leak hours can be set to 0, 1, 2, 3, 4, 6, 8 and 12 (hours that evenly divide 24 hours)

Programming an RTM

Note: Before programming the RTM, Elster recommends that the RTM be checked to see if it is recording subcounts correctly.

Checking subcounts

To check subcounts:

1. Press **Cnt** or <C>.

   The current RTM subcount will be returned.

2. Rotate the wriggler on the RTM, counting the rotations.

   Refer to your *TRACE VRT Gas Transponder* manual (P/N 52870T010) for details.

3. Reread the subcounts and verify that the subcount value has increased by the correct number of rotations.

   When you have verified the subcounts are recording correctly, proceed to .

Programming the RTM

To program the RTM:

1. Enter the desired values and then click **Set** or press <S>.

   The interrogator will read, check and set the parameter values.

```
Rt:0071541              20
1016 SAGE AVE

THOMAS M BRADLEY
Mn:51150749      Gas
LC:2      MC:0      TC:0
RTM:07218663

                   [Find]
Mt Rd: 8663        [GPS]

PreD: 200 SC:0     [Cnt]

PCF: 1  / 1

Set Pass           [OK]
```

The final status will be displayed as either Set Pass or Failed.

After a successful installation:

- The RTM subcount value will be set to zero.

- The status will be displayed as Installed.

2. Press **OK** to move to the next account.

If the GPS coordinates are zero, the interrogator will automatically read them at this time.

Using the scanner

The scanner feature is available with installation routes. To use the scanner requires a Bluetooth card in the handheld device and the scanner must be Bluetooth enabled.

The scanner can be used instead of using **Find** or typing in the RTM serial number at the beginning of the installation process.

- To use the scanner, press the scanner trigger while scanning the RTM serial number bar code label.

    A successful scan will cause the handheld to beep and cause the scanner to beep twice.

    The scanned RTM serial number will then be displayed in the **RTM** field.

See "Scanner and GPS properties" on page 87 for scanner configuration properties for the handheld device.

Taking GPS coordinates

GPS coordinates can be captured during RTM installation. To use GPS requires a Bluetooth card in the handheld and the GPS receiver must be Bluetooth enabled.

Note: Turn on the GPS receiver before trying to capture GPS coordinates. The device takes about 30 - 45 seconds to get a good satellite fix.

Automatically

To capturing GPS coordinates, press **OK** after a successful RTM install (see "Installing an RTM" on page 62). If the GPS coordinates are zero, they will automatically be captured before moving to the next account.

Manually

1. At the install route screen, press **GPS** or <G> to view the GPS Details screen.

   • If the GPS coordinates have not yet been read, moving to the GPS Details screen will trigger reading the GPS location.

     A successful receive will display latitude and longitude values in decimal format.

   • If GPS coordinates have been saved, moving to the GPS Details screen will display the previously captured coordinates.
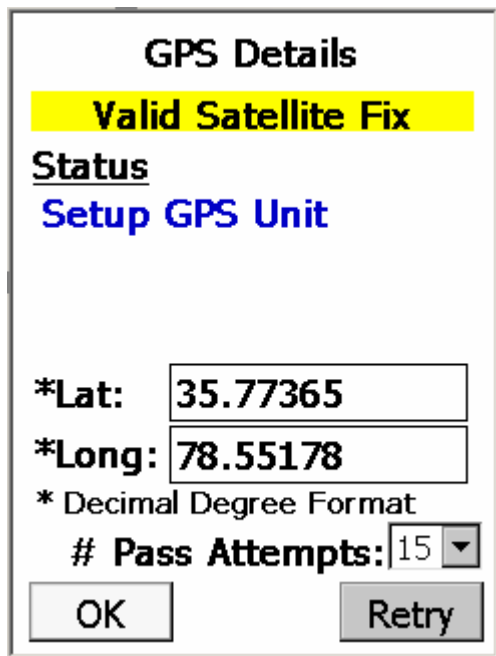
The **Status** field describes the various phases of the GPS reading process. First the GPS port is opened, followed by the setup of the GPS receiver.

Once the device is setup, it reads the RTM location in latitude and longitude values.

A successful read displays a status of *GPS Info Completed*.

2. If the GPS read fails, press **Retry** or <R> to retry the operation.
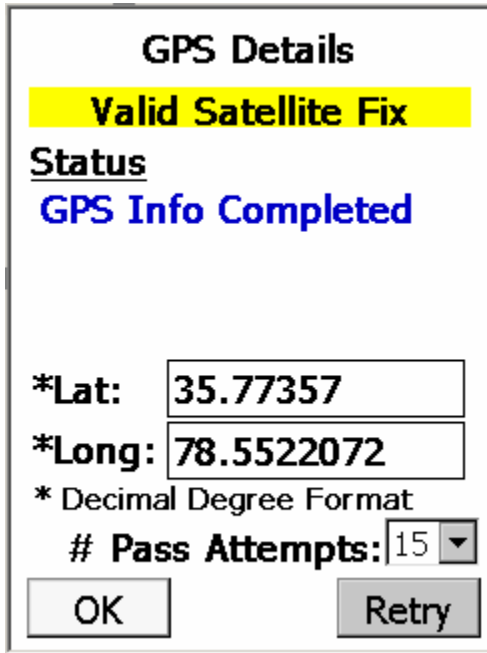
3. Click **OK** to exit the screen and save the coordinate values.

4. When you are finished installing RTMs, turn the GPS receiver off to save its battery life.

See "Scanner and GPS properties" on page 87 for GPS configuration properties for the handheld device.

Installing EnergyAxis gas modules using the PI 900

The PI 900 installs and programs EnergyAxis Gas modules. To install EnergyAxis Gas modules:

1. From the Account installation screen, press <F> or click **Find**.
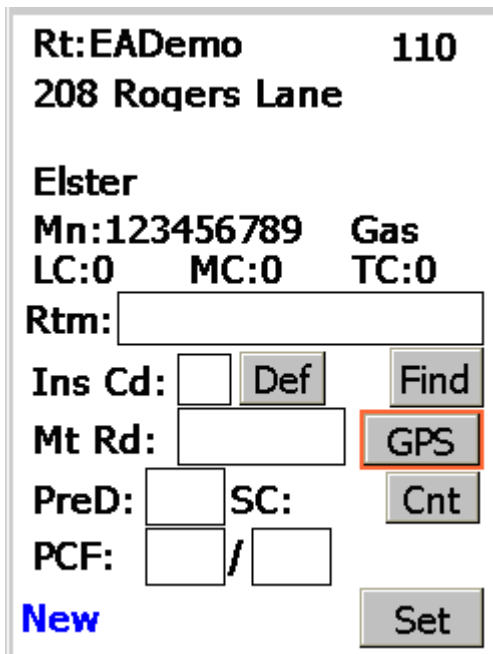
The screen prompts you to hold a magnet on the RTM for 2 seconds.
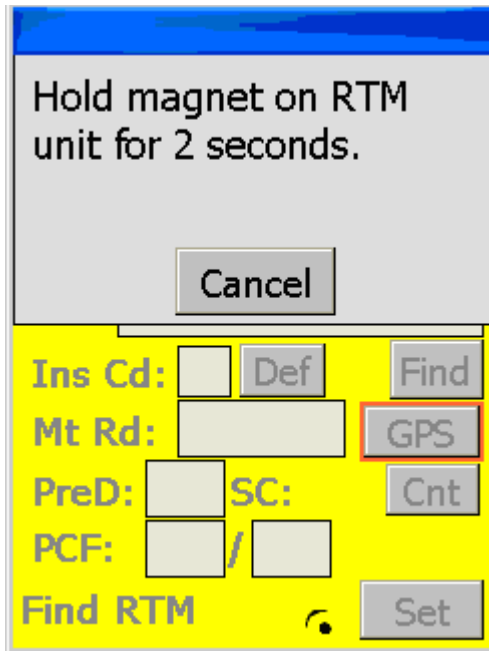
2. Hold a magnet on the side of the RTM for 2 seconds.

   Click Cancel to return to the installation screen.
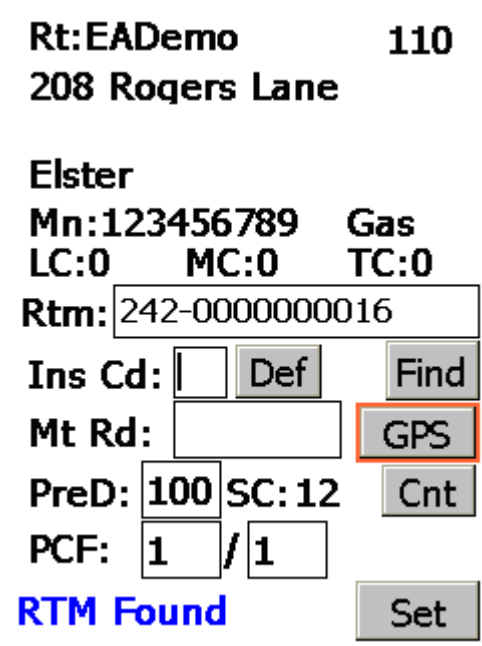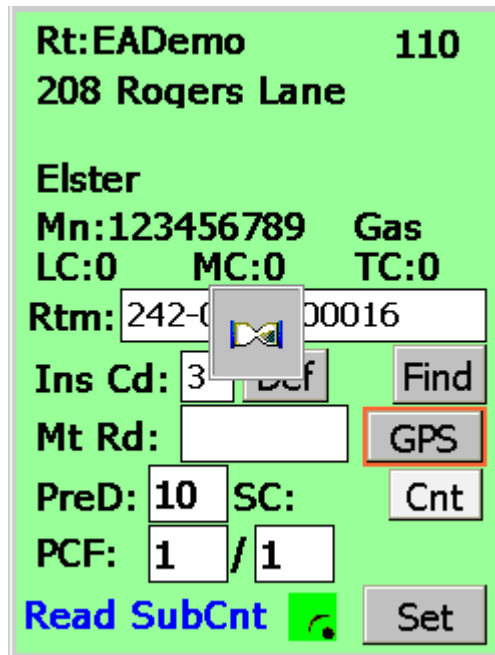
3. After the 2 seconds, the RTM broadcasts the RTM number and is recognized by the handheld.

   The handheld displays the following information for the RTM:

   - RTM number
   - PreDiv
   - Sub-counts
   - PCF
   - Status message

   The handheld prompts you to read the Subcounts. See "Checking subcounts" on page 71 for details.

Checking subcounts

To check subcounts:

1. Press **Cnt** or <C>.

   The current RTM subcount will be returned.

```
Rt:EADemo              110
208 Rogers Lane

Elster
Mn:123456789    Gas
LC:0      MC:0      TC:0
RTM:242-0000000016
Ins Cd:[  ] [Def]      [Find]
Mt Rd:[        ]      [GPS]
PreD:[100]SC:13      [Cnt]
PCF:[1  ]/[1  ]
Good Read            [Set]
```

2. Rotate the wriggler on the RTM, counting the rotations.

   Refer to your *EnergyAxis Gas Module* manual for details.

3. Reread the subcounts and verify that the subcount value has increased by the correct number of rotations.

   When you have verified the subcounts are recording correctly, proceed to "Programming the RTM" on page 72.

Programming the RTM

To program the RTM:

1. Click **Def** or press <D>.

   The screen displays the Ins Def Codes (Installation Definition Codes).
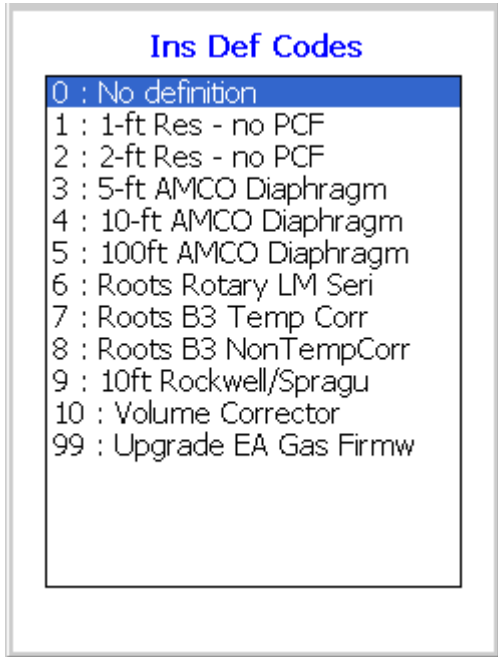
2. Select the appropriate Installation Definition Code from the list.

Note: Code 99 is reserved for upgrading the module firmware using a file obtained from Elster Customer Support. Use this code only if directed to by Elster.

Note: Refer to the **Route Manager User Guide** *for details on configuring Installation Definition Codes.*
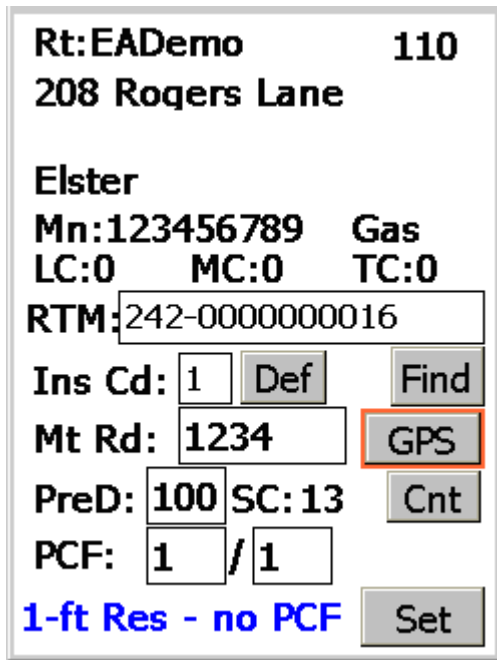
3. Enter the visual read index value in the **Mt Rd**.

— Or —

If you wish to use the default values, select the Installation Definition Code = 0.

a. Enter the **PreD** value.

b. Enter the **PCF** value.

4. Click **Set** or press <S>.
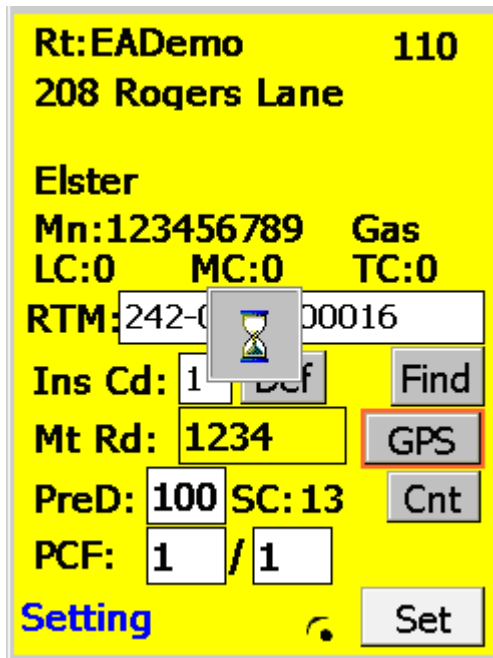
The interrogator will read, check and set the parameter values.

Rt:EADemo   110
208 Rogers Lane

Elster
Mn:123456789   Gas
LC:0   MC:0   TC:0
RTM:242-0   00016
Ins Cd: 1   Def   Find
Mt Rd: 1234   GPS
PreD: 100 SC:13   Cnt
PCF: 1   / 1
Setting   Set

The final status will be displayed as either Set Pass or Failed.

Rt:EADemo   110
208 Rogers Lane

Elster
Mn:123456789   Gas
LC:0   MC:0   TC:0
RTM:242-0000000016
Ins Cd: 1   Def   Find
Mt Rd: 1234   GPS
PreD: 100 SC:13   Cnt
PCF: 1   / 1
Set Fail   Set
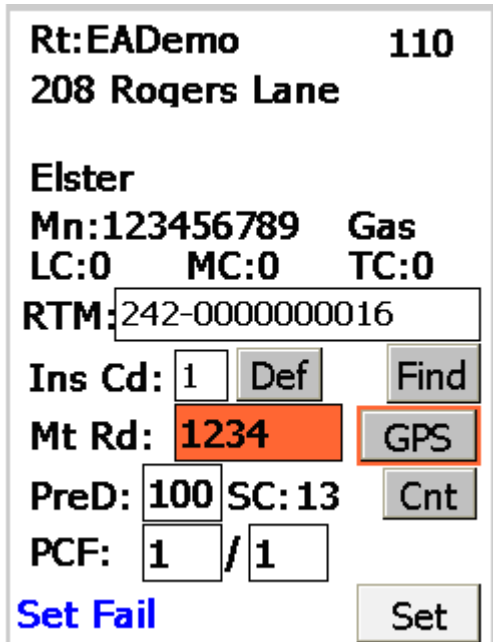
After a successful installation:

• The RTM subcount value will be set to zero.

• The status will be displayed as Installed.

• The date and time will be set.

5. Press **OK** to move to the next account.

8 RTM Verification

The handheld device can also be used to verify the RTM index reading against the visual meter reading. In Route Manager the route must be set to a Read Type = Verify before the route is downloaded to the handheld device. After the download, check that the Route Type is Verify when you select the route on the handheld device.

Reading a meter with verification

Note: The appearance of the handheld display is configurable. Refer to the **Route Manager User Guide** *for details. Your handheld display may appear different from examples shown in this manual.*

1. After selecting the route, the Account screen displays with a field for the verify read.

```
Rt:002416          3
491 COURTHOUSE RD

Meadows, Delbert
Rtm:07218663
Mn:512481
                IC:0
                LC:0
V Rd: 8665

Rd:-> 8663    TC:0
St:01 : Good Read
 1 of 416 Accts |1 of 3 Rts
AM-On| Msg-1|AC|Hi100%
```
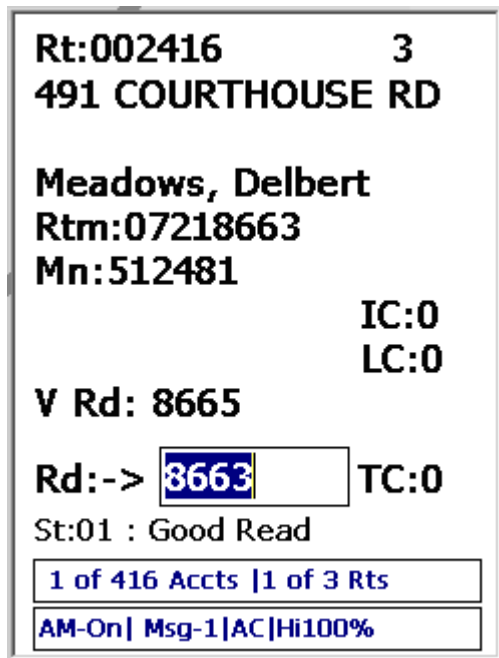
Rt: Route ID

Rtm: RTM Serial Number

Mn: Meter Number   IC: Instruction Code

MT: Meter Type   LC: Location Code

V Rd: Visual Read

Rd: Index Read   –>: Direction of   TC: Trouble Code
                    Data Entry

St: Account Status

D:0-35 Number of VRT details (requests)   AM-off/on AutoMove enabled
available

Msg-0 There are 0 messages in the   AC / BT : shows the source of
alarm category.   power for the handheld:
                                           • AC from cradle
                                           • BT from battery

Hi100% : shows that the battery is
charged at 100%

2. If the current read value is -2 and the RTM number is not blank, then pressing <Enter> will trigger an RF read of the RTM along with verification of the RTM reading against a visual meter reading.

3. After pressing <Enter>, the screen shown below will appear.

```
Rt:V12345                112
123 N 2nd St

Enter Meter Read
  Enter Visual Meter Read: S

  ┌────────────────┐
  │                │
  └────────────────┘

  ┌─────────┐      ┌──────────┐
  │   OK    │      │  Cancel  │
  └─────────┘      └──────────┘

Rd:-> -2           TC:0
St:10 : Unattempted
  2 of 3 Accts |2 of 2 Rts
AM-On| Msg-0|AC|Hi100%
```
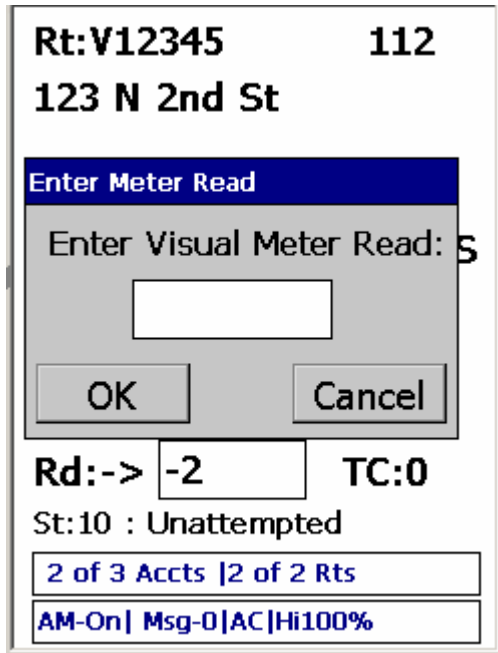
4. Enter the meter read obtained by visually reading the dials associated with the meter and press <Enter> or **OK** to continue.

   If the difference between the visual meter read and the RTM read is less than or equal to the allowed tolerance as set through Route Manager, then the verification will pass.

5. Press <Enter> or **OK** to return to the data entry screen.

   The verification information will be returned back to Route Manager.

```
         Verify Details
Status:  Passed

Mtr Rd: 8663
RTM Rd:8663



                          ┌──────┐
                          │  OK  │
                          └──────┘
```
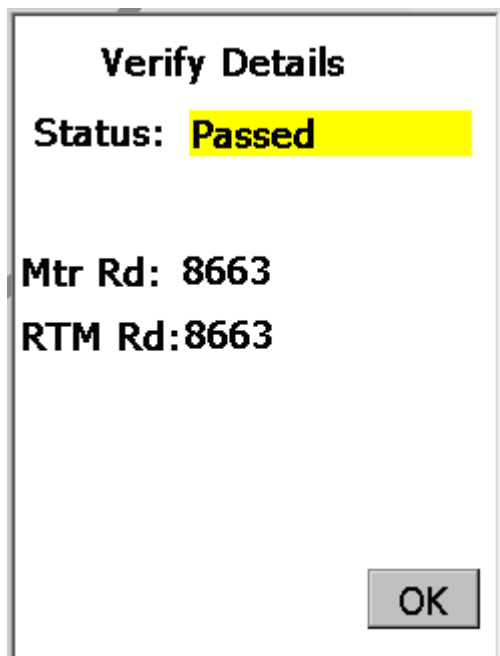
   If the difference between the visual meter read and the RTM read is greater than the allowed tolerance as set through Route Manager, then the verification will fail.

6. Press <Enter> or **OK** to return to the data entry screen.

The failed verification information will be returned back to Route Manager.
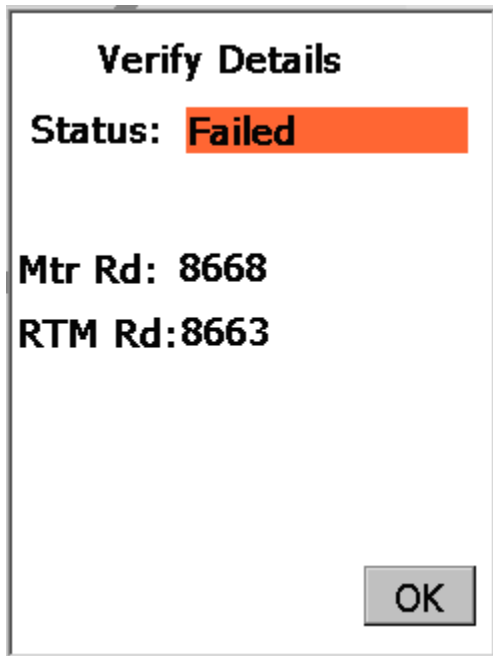
Programming for verification

If the route has the **Verify Allow Programming** flag set, then you will be able to reprogram the RTM with a new index value after a failed verification. The screen displayed below shows a failed verification.

After failed verification

1. Enter the new index value as the **Pg RTM** value and touch **Set** or press <Enter> to continue with programming.
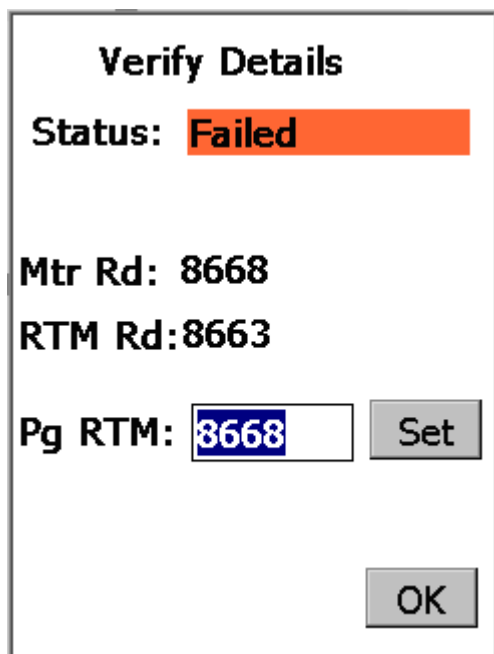
After a successful program operation, the screen below will appear.

Verify Details

Status: Set Passed

Mtr Rd: 8668

RTM Rd: 8663

Pg RTM: 8668   Set

OK
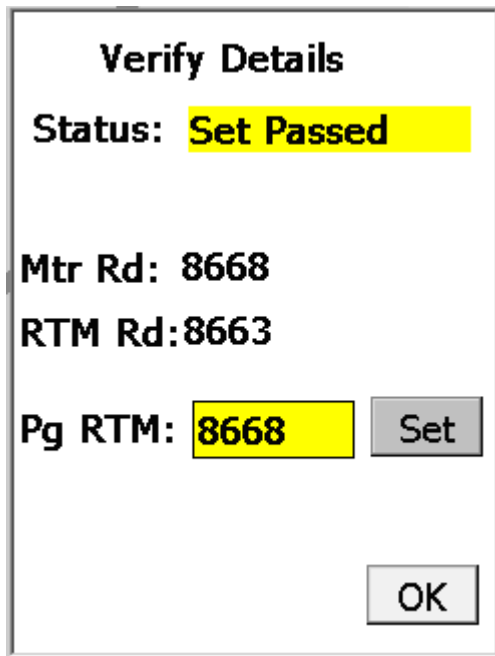
2. Press <Enter> or touch **OK** to continue.

After successful verification

You also have the option of reprogramming the index after a successful read verification.
After the verification test passes, the screen below will be displayed.

1. Touch **Set** to program the RTM with the value shown in the **Pg RTM** box, or press
<Enter> to continue without programming.

Verify Details

Status: Passed

Mtr Rd: 8668

RTM Rd: 8668

Pg RTM: 8668   Set

OK
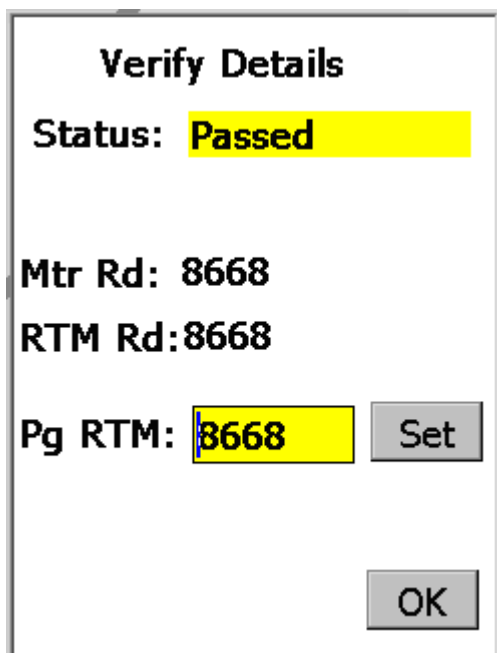
9 Communicating with Route Manager

In order to move routes back and forth between the handheld device and Route Manager, the handheld device must first be set up to communicate over Ethernet to the Route Manager computer. Ethernet communications can be done over the utility's local area network using either dynamic or static IP addressing. If the Route Manager PC is not on a network, communications to the handheld device can be done via a router connection or through an Ethernet cross over cable connecting the handheld device cradle to the PC using static IP addressing. Contact Elster for more details on how to set up communications if you are not on a network. If you are on a network, your utility IT administrator should be able to assist in the initial communications setup.

Once the initial setup has been done to connect the handheld device to Route Manager, follow the steps below to move routes back and forth between the handheld device and Route Manager.

Establishing communications

1. Ensure that the handheld device's cradle and the computer with Route Manager are connected with the proper cable (Ethernet).
2. Ensure that the handheld is properly seated in its cradle.
3. Make sure the handheld is in communications mode: press <F3> from the Main Menu.
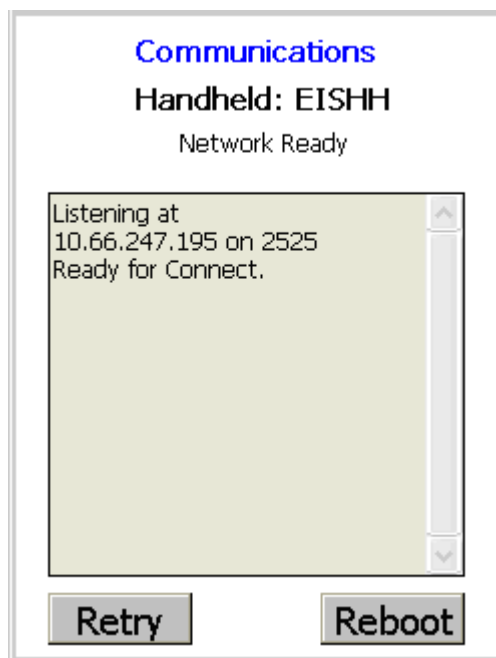
4. Open Route Manager on your computer.
5. Select **Devices**.
6. From the Handheld Selection drop list select the desired handheld.

7. Click **Connect**.
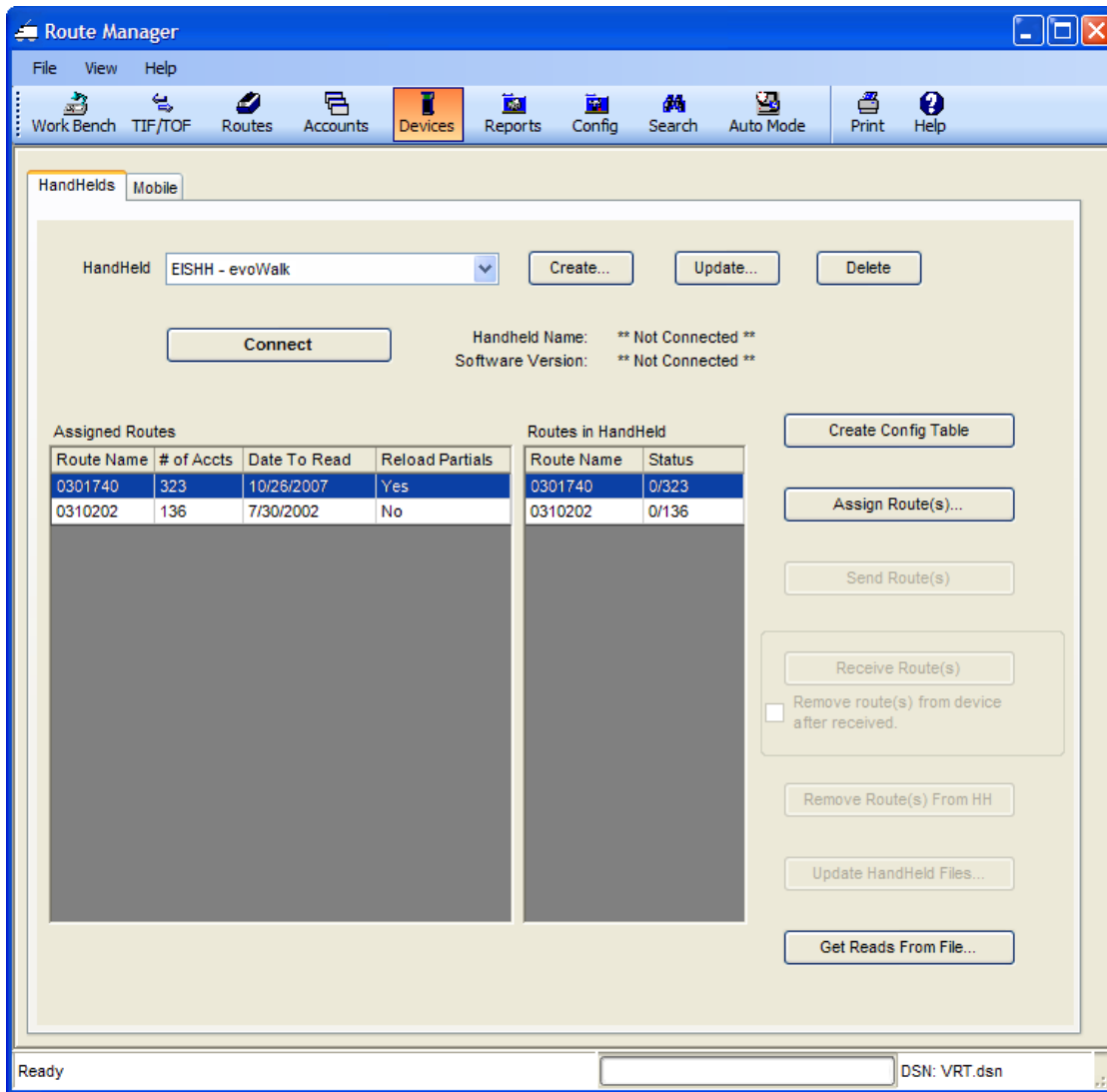
Upon successful connection:

- The **Connect** button will display **Disconnect**.

- The Serial Number and Handheld Software Version will be displayed directly beneath the **Disconnect** button.

- The Handheld function buttons will be disabled.

- The Handheld Communication buttons will be enabled.

- If Routes exist in the handheld they will be displayed in the Routes in Handheld display list.
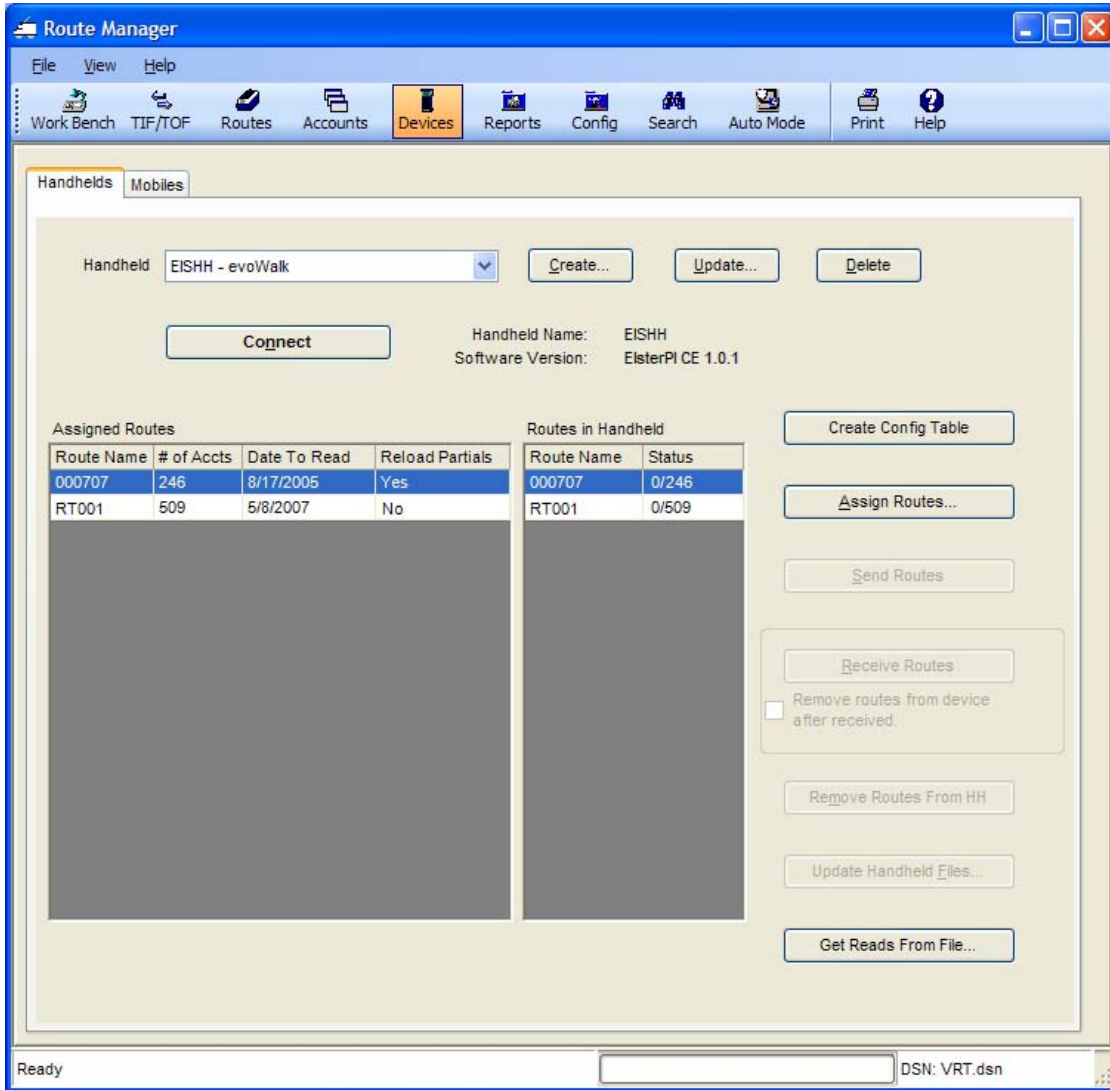
Downloading routes from Route Manager to device

Note: To prevent overwriting data on the handheld, the **Send Route** command will be disabled if the routes on the handheld contain meter readings that have not yet been uploaded to Route Manager. To delete routes on a handheld without uploading existing data, click **Remove Routes from HH**. See *"Removing routes from the handheld device" on page 83* for details.

1. Follow the connection steps as described in *"Establishing communications" on page 80*.

2. Ensure that the desired Route is assigned to the connected handheld.

3. Highlight the desired routes in the **Assigned Routes** display list.

4. Click **Send Route** to send the route to the Handheld Device.

   After the Route has been sent successfully to the Handheld device, the Routes in Handheld display grid will be updated to display the sent routes.

5. Press <Esc> on the handheld to exit from the Route Manager Communications screen.

Uploading routes from device to Route Manager

1. Follow the connection steps as described in "Establishing communications" on page 80.

2. Select the desired **Routes** to receive from the Routes in Handheld display list.

3. Click **Receive Route** to start the process.

   Upon successful completion the Route Status will change to Transferred.

Removing routes from the handheld device

Each time you download routes to the handheld device, all existing routes on the handheld will be deleted. Old routes are not deleted until AFTER the new routes have been successfully downloaded, so you may not have enough room on the handheld to store both the old routes and the new routes at the same time. If your routes are extremely large, you may wish to delete existing routes from the handheld device before downloading new routes.

You may follow either of the two procedures below to delete routes from the handheld device.

After a successful upload

1. Follow the connection steps as described in "Establishing communications" on page 80.

2. Select the **Remove Routes from device after received** check box.

3. Click **Receive Routes**.

Without receiving the routes first

1. Follow the connection steps as described in "Establishing communications" on page 80.

2. Once connected, select the route to remove from the **Routes in Handheld** display list.

3. Click **Remove Routes from HH**.
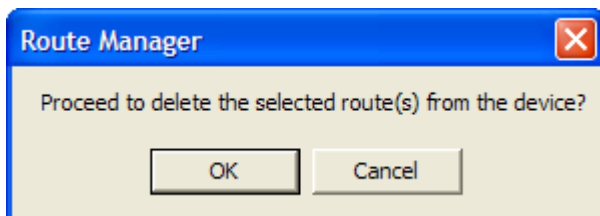
4. Click **OK** on the message box.

Updating handheld files

Route Manager can be used to download files other than route files to the handheld device. You may need to download a new executable or configuration file to the handheld device after advice from Elster Technical Support. The instructions below show the steps involved.

1. Follow the connection steps as described in "Establishing communications" on page 80.

2. Click the **Update Handheld File** button.

   The Update Handheld Files screen displays.
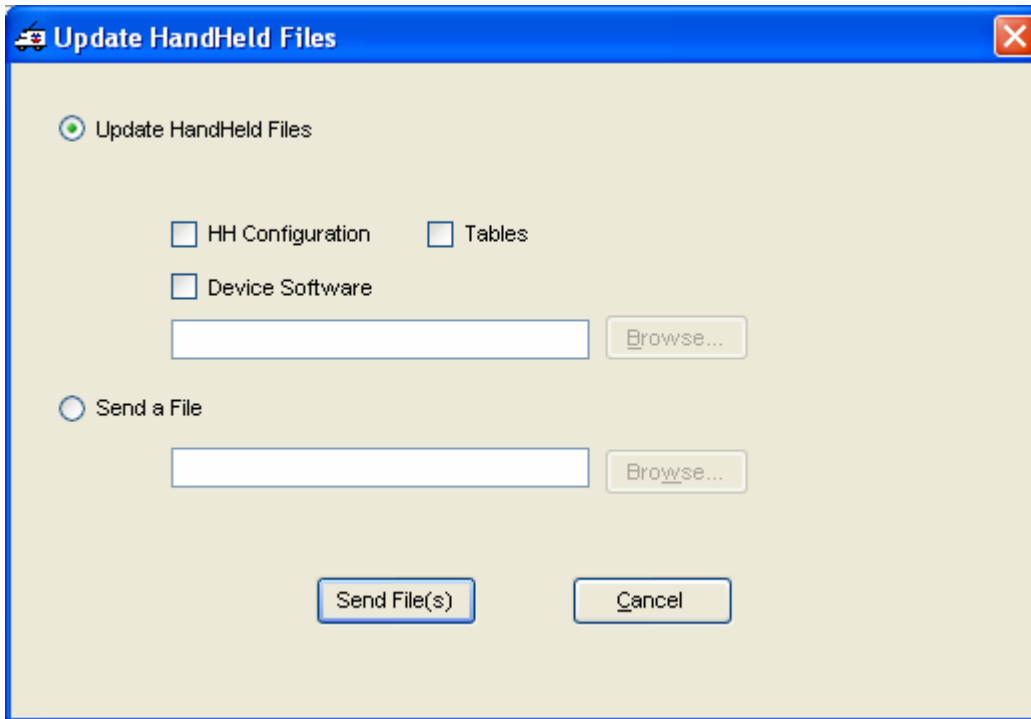
3. Select one of the two options: **Update Handheld Files** or **Send a File**.

    a. Update Handheld Files - Select the check boxes for the files you wish to update and then click **Send Files**.

       • HH Configuration - updates the handheld with new or changed configuration files (see the *Route Manager User Guide* for details).

       • Device Software - select and browse to the location of the **UPGSOFTW.ZIP** file that will be transferred to the handheld. This file can contain one or more of the following files:

Note: Elster recommends that you only use this option only if directed to by Elster Customer Support.

          • ELSTERPI.EXE - a new executable for the handheld software

          • *.HEX - a new firmware file to be downloaded to the PI 500 or PI 900 handheld RF cards

          • *.HEX - a new firmware file to be downloaded to the EnergyAxis gas module.

       • Tables - downloads new database template files (*.DBQ) to the handheld.

Note: Elster recommends that you only use this option only if directed to by Elster Customer Support.

    — Or —

    b. Send a File

       Browse becomes active.

4. Type or **Browse** for the desired file names and locations.

5. When the desired files are selected, click **Send Files** to begin updating the handheld's files.

10 Setting up devices in Route Manager

Before connecting the handheld device to Route Manager, the handheld device must be set up in Route Manager with the correct communication properties. The *Route Manager User Guide* details how to set up a handheld device. The information below gives information specifically about the handheld device properties.

Handheld device properties

Make sure the following values are added correctly.

Property	Value
Handheld IP Address:	IP address of handheld
Transfer Type:	Ethernet
RF ComPort:	Select the appropriate port for the handheld: • for PI 500 - ComPort 2 • for PI 900 - ComPort 3 • for evoWalk - ComPort 3
RF Type	Select the appropriate system: • Trace - 0 • evolution - 1 • EnergyAxis - 2

VersaProbe properties

Make sure the following values are added correctly.

Property	Value
Probe Baud Rate:	9600
Probe ComPort:	Select the appropriate ComPort: • Com8 for Bluetooth Communication • Com1 for Serial Communication
Probe Bluetooth ID:	Select appropriate Bluetooth ID of the device *Note: You will find this ID in the VersaProbe communication mode and It is created in Route Manager under* **Configuration > Misc Codes > VersaProbe Bluetooth ID > Create.**

Scanner and GPS properties
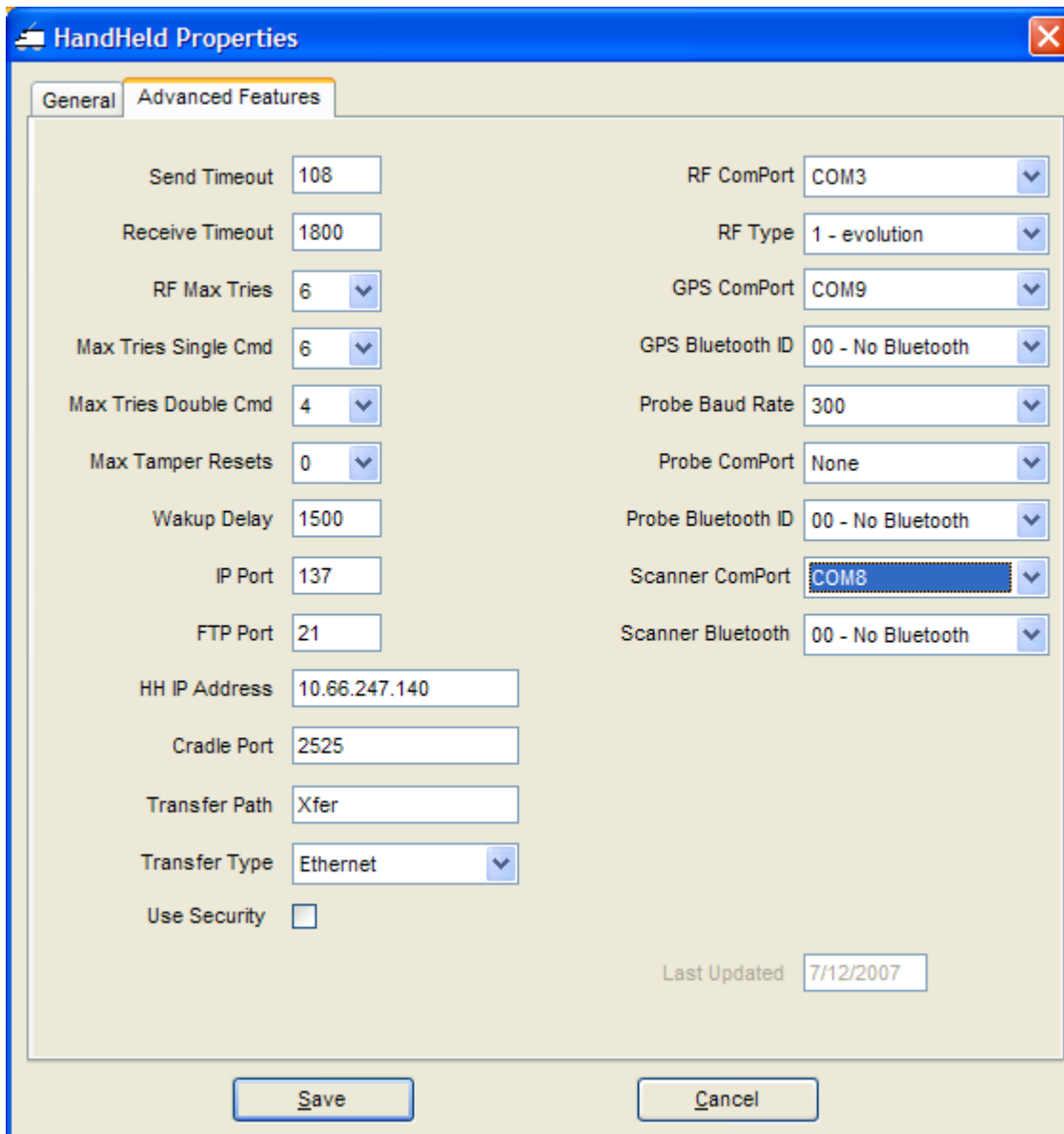
Make sure the following values are added correctly.

Property	Value
GPS ComPort:	COM9
Scanner ComPort:	• COM8 • None

A Accelerator keys for meter reading

Accelerator Keys	Action
A	Account Details
B	Jump to Beginning of current route
C	Clear Reading
D	Detail History / TOU for Current Account. Pressing <Enter> key initiates RF interrogation for the selected item
E	Jump to End of current route
F	Force account to Unattempted (only for manual read)
G	General Interrogation of the entered RTM.
H	Search menu
I	Instruction code.
J	Jump (by sequence)
L	Location code.
M	Message (Comments). Messages can be added or edited if allowed.
N	Jump to Next route
O	ErrOr log
P	Jump to Previous route
Q	Set the Re-Sequence flag for upload back to CIS
R	RF Read Index and all VRT requests for current account. Pressing <Enter> key initiates RF interrogation for the selected Account
S	Skip code. Allows selection of skip code for current account.
T	Trouble code. Allows selection of trouble code for current account.
U	Jump to next Unread account
V	Jump to VersaProbe connection screen
X	Jump to record displayed prior to the jump (Only available for B,E,H,J,U accelerator keys)
F1	Displays key list with description. When an item is selected the choice is executed (if appropriate).
F2	Route Selection / Load
F3	Current Route Summary or Communication on the main screen
F4	Configuration Settings

B Accelerator keys for installing RTMs

Accelerator Keys	Action
A	Account Details
B	Jump to Beginning of current route
C	Read Sub Counts
E	Jump to End of current route
F	Find RTM
G	GPS Screen
H	Search menu
I	Instruction code.
J	Jump (by sequence)
L	Location code.
M	Message (Comments). Messages can be added or edited if allowed.
N	Jump to Next route
P	Jump to Previous route
Q	Set the Re-Sequence flag for upload to CIS
S	Set RTM values
T	Trouble code. Allows selection of trouble code for current account.
X	Cancel last move
F1	Displays key list with description. When an item is selected the choice is executed (if appropriate).
F2	Route Selection / Load
F3	Current Route Summary or Communication on the main screen
F4	Displays change out screen

C Troubleshooting

General troubleshooting

1. Click on the screen with the stylus if the navigation using device keys does not produce expected results.

2. Try to reboot handheld:

   a. PI 500 - press and hold <F1>+ <0> +<9> keys together for few seconds.

   b. evoWalk and PI 900 - hold down the <R> + <X> + <¦> keys down simultaneously for several seconds until the screen goes blank.

   — Or —

   Refer to the *Elster Handhelds Installation and Administration Guide*.

Trouble in connecting the device to Route Manager

1. Make sure the handheld device is correctly seated in the cradle and there is not any contaminated material in between the cradle and handheld's contacts.

2. If using a router (instead of Company's Network connections) for handheld and host PC communication, make sure that the firewall on the host PC is disabled, from the Windows **Start** menu, select **Settings > Control Panel > Windows Firewall** and select option **OFF**.

3. Check if the Handheld's LED is glowing either green or red. If not then maybe the AC charger is faulty.

For Interrogator PC card error messages or further information, please contact:

Customer Support
Elster
208 South Rogers Lane
Raleigh, NC 27610

T+1 800 338 5251 (US toll free)

F+1 919 212 4801

trace.support@us.elster.com

energyaxis.support@us.elster.com

D Programming Pre Gen 5 RTMs

Gen 2 RTMs (FCC ID G8J3GNAMR8)

Gen 2 RTMs (serial numbers < 2,500,000) must be programmed using a four position programming stick (EIS P/N 52800G101). Place the programming stick over the four jumpers located on the lower right corner of the circuit border which is visible from the back of the RTM when prompted to do so by the handheld device. Remove the programming stick before the verify process begins as prompted by the handheld device.

For Gen 2 RTMs, you can read the serial number, index and subcounts. You can program the serial number and the index. If the battery is disconnected, the serial number is lost. You cannot read the RTM when the serial number is lost, but you can program the serial number and index in order to prepare the RTM for reading.

Gen 2.5 water pit RTMs (FCC ID G8JPIT25)

Gen 2.5 Water Pit RTMs are programmed using a magnet on the programming switch. When prompted by the handheld device, place a magnet on the bottom of the RTM (opposite side of the RTR or HRT wires). The magnet may be removed after the programming is complete.

For these RTMs, you can read the serial number, index and subcounts. You can program the index.

Gen 2.5 water remote RTMs (FCC ID G8JGEN25)

Gen 2.5 Water Remote RTMs are programmed using a programming stick. Before programming, remove the four seal screws and cover from the RTM. Locate the group of three jumper pins on the lower left corner of the circuit card. When prompted by the handheld device to place the magnet, slide the socket end of the programming stick over these pins (polarity is not critical). (The handheld device cannot distinguish between the pit and remote Gen 2.5 RTMs, so the prompt always refers to the magnet.)

For these RTMs, you can read the serial number, index and subcounts. You can program the index.

Gen 3.x water remote RTMs (FCC ID G8JGEN03)

Gen 3.x Water Remote RTMs are programmed using a magnet. It is not necessary to remove the enclosure cover to program these RTMs. Locate the target molded into the lower right hand side of the enclosure. The texture is different from the rest of the box. When prompted by the handheld device to place the magnet, position and hold the magnet on the target.

For these RTMs, you can read the serial number, index and subcounts. You can program the index.

Gen 3.x gas remote RTMs (FCC ID G8JGEN03)

Gen 3.x Gas Remote RTMs are programmed using a jumper. The jumper is supplied from the factory in a neutral position. When a RTM is programmed, the jumper is repositioned onto the PRGM pins. These two positions are illustrated below.
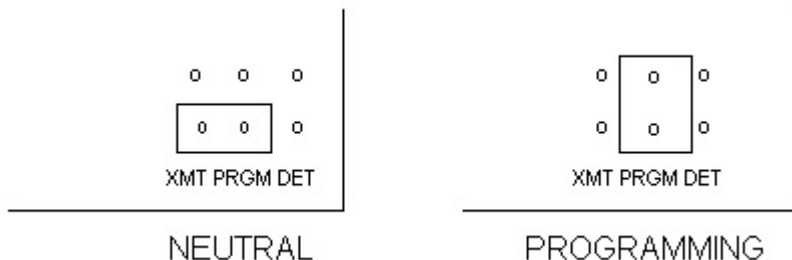
The positions shown above are the ONLY TWO valid positions for this jumper. Any RTM which is found with its jumper in any other position should be corrected to the NEUTRAL position for maximum performance.

When prompted by the handheld device, place the jumper into the PROGRAMMING position. Remove the jumper when prompted by the handheld device and place back into the NEUTRAL position.

For these RTMs, you can read the serial number, predivider, type, revision and subcounts. You can program the index.

Index

About Elster Group

Elster Group is the world's leading manufacturer and supplier of highly accurate, high quality, integrated metering and utilization solutions to the gas, electricity, and water industries. In addition, through its subsidiary Ipsen International, it is the leading global manufacturer of high-level thermo- chemical treatment equipment.

The group has over 8,500 staff and operations in 38 countries, focused in North and South America, Europe, and Asia. Elster's high quality products and systems reflect the wealth of knowledge and experience gained from over 170 years of dedication to measuring energy and scarce natural resources.