Excellence in Compliance Testing

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Manual

(Part 1 of 4)

Cellnet Gas Module and Meter Installation Guide

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Cellnet Gas Meter Module Installation Guide
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PREFACE

This guide describes the installation process for Cellnet Gas Meter Module Installation and Retrofit and Gas Meter Installation and exchange for residential and commercial applications.

Any training provided directly to installers by the utility or by the Cellnet project management team takes precedence over this guide, as long as it does not involve altering the meter module retrofit process.

ABOUT THIS GUIDE

This is the February 2008 edition of the *Cellnet Gas Module and Meter Installation Guide*. It provides:

- Basic information of the field installation, retrofit, and exchange procedure used for residential and commercial gas meters
- Basic safety guidelines and detailed instructions for installing and exchanging of gas meters

Who Should Use This Guide

This guide is intended for use by utility employees responsible for installing meters and module retrofitting to already installed meters. It does not assume an expert level of industry or computer knowledge. This guide does assume that you are familiar with basic:

- Utility operations.
- Terminology of your industry.
- Procedures for performing basic HandHeld operations.

How This Guide Is Organized

Table P.1 illustrates how this guide is organized.

Table P.1 Description of Chapters

Chapter	Title	Description
1	Pre-Installation	Safety equipment and guidelines
2	Using the HandHeld Device	Step by step instructions on using the Handheld PC
3	On-Site Preparation	What to look for onsite
4	Gas Meter Exchange	Step by step instructions for exchanging gas meters
5	Residential Meter Module Installation	Step by step instructions for installing the residential meter
6	Commercial and Industrial Meter Module Installation	Step by step instructions for installing the C&I meter
7	Cellnet Pulse Recorder Meter Module Installation	Step by step instructions for installing the CPR
8	Meter Install Conclusion	Completion instructions
9	Gas Meter Preparation Program (GREP)	Information about the Gas Meter Preparation Program tool.
Appendix A	Aligning the New American Meter Dog	Highlights modifications made to the American Meter Dog
Appendix B	Visual Inspection of Indexes	Exchange indexes
Appendix C	Using the RF Buster	Instructions on using the RF Buster
Appendix D	End of Day	What to do at the end of the day
Appendix E	Difficult/Non-compatible Commercial Retrofits	Instructions for difficult or noncompatible commercial retrofits
Appendix F	CPR Information	Crimping wires for CPR
Appendix G	Compliance	FCC CFR Part 15.247, RF Exposure, Industry Canada

TYPOGRAPHICAL CONVENTIONS

This section describes the conventions used in this guide to make finding and understanding information easier. The following kinds of formatting in the text identify special information.

Convention	Description
All **bold**, initial capital letters	Refers to field names, buttons, menus, menu options, and keys. Examples: **Device** field, **Open** button, **File** menu, or **Ctrl** key.
All **bold** lower-case letters	Refers to the exact keystrokes you enter. What you type is always shown in lowercase letters. Example: Type **local** in the **Device** field.
Italicized lower-case word between less-than sign (<) and greater-than sign (>)	Refers to variables that occur in item names. Example: Add Sub Network To <*network name*> dialog, where <*network name*> refers to the name of a network.
<*menu*>	<*option*>	<*option*>...	Refers to the sequence of choices you should make to access a specific dialog or menu option. Examples: choose **Start**	**Settings**	**Control Panel** or choose **File**	**Open**.
Plus sign (+) between keys	Refers to pressing the keys at the same time. Example: **Alt+B**.
Comma (,) between keys	Refers to keys which are pressed sequentially. Example: **Alt,F**.

Note boxes provide essential information about Cellnet Gas Meter Module and Meter Installation.

Cautions provide information that you must read to avoid making relatively moderate errors during Cellnet Gas Meter Module and Meter Installation.

Warnings provide special, must-read information. If you ignore a warning, you may create a safety hazard, omit essential data or make a critical error. Warnings are in the same format as notes, except they are shown in bold text.

CONTACTING TECHNICAL SUPPORT

Cellnet technical support is available by telephone or email. When you contact technical support, be prepared to give exact descriptions of:

- The problem you encountered
- What happened and what you were doing when the problem occurred
- How you tried to solve the problem
- The exact text of any error messages

Telephone Access

Technical support is available Monday through Friday from 8:00 a.m. to 5:00 p.m. (EST) by calling 800-791-2567. If all support technicians are helping other customers, your call will be routed to the Cellnet Support voice mail system.

Leave a brief message that includes the following information:

- Your name
- Your company's name
- Your telephone number

A support technician will return your call as soon as possible within normal business hours. Technicians return all calls in the order that they are received.

Email Access

If you prefer, you may email a description of your problem to:

customersupport@cellnet.com

A support technician will return your email as soon as possible within normal business hours. Technicians return all emails in the order that they are received.

Ordering Publications

You can order publications from your sales representative. To order additional copies of this manual, use order number:

CO-0089-GB-07.07

Publication Comments

Cellnet welcomes your feedback and comments. If you have comments or suggestions for improving this publication, a form for reader's comments is provided at the back of this manual. If you would like a reply, include your contact information:

- Name
- Telephone number or fax number
- Email address
- Company name and address

Be sure to include the following information along with your comment:

- Title and number of this manual
- Page number or topic related to your comment

RELATED PUBLICATIONS

The following documents provide important related information.

Table P.2 Related Publication

Document	Description
1-Way Module Programming Cable	Programming the module via a PC or laptop and the 1-way cable
UtiliNet 1-Way Pulse Recorder for Water Applications	How to correctly install an UtiliNet 1-Way Pulse Recorder (here after referred to as CPR or Cellnet Pulse Recorder). It covers endpoint installation, pulse register programming, and troubleshooting.

CHAPTER 1 PRE-INSTALLATION

Proper planning and thorough preparation are critical for successful installation. This chapter outlines basic requirements for the pre-installation phase.

SAFETY OVERVIEW

Prior to starting the installation process, you must develop and launch an installer safety training plan for initial, refresher and ongoing safety training. Ensure that installers receive appropriate initial and refresher training to meet their specific safety-related responsibilities. You must provide safety training when:

- An existing installer assumes new duties for which he or she has not previously received training.
- New processes and methodologies representing new risks are introduced into the installation environment.
- Previously unidentified risks are reported.

The installation supervisory team assumes responsibility for ensuring that installers are properly trained, authorized, and continually qualified to perform their work. The team must also take responsibility for the safety of their installers and to assure safe work methodologies. Installers must understand that their supervisor's responsibility does not relieve them from their individual responsibility to perform the work safely and to follow all safety rules and procedures applicable to their work.

GAS METER INSTALLATION AND MODULE RETROFIT TOOL LIST

- Torque screwdriver with various slot and Phillip tips
- 5 - in - 1 screwdriver
- 14" Pipe wrench (2)
- 18" Pipe wrench (2)
- 24" Pipe wrench (1)
- 14" Channel locks 14" curve jaws
- #1 and #2 Phillips screw driver
- Screw driver - 1/8-inch slot blade
- Hammer Ball Peen
- Shovel and spade
- Crescent wrench
- WD-40
- Thread Lubricant
- Identification
- Door Hangers
- Clip Boards
- Pens/Pencils
- Safety cones
- Screwdriver- ½" slot blade x 10"
- Awl, Heavy duty
- Headlight flashlight
- Brass scraper 1 ¼-inch wide
- Diagonal cutters
- Handheld
- Personal Protective Equipment
- Clipboard
- Street Atlas
- RF Buster, P/N 26-1050
- Non-spark flashlight
- Cell phone or 2-way communication device
- Wire Brush
- Dresser/Roots Switch tester (for CPR installs)
- Cable ties
- T-10/T-15 Security torx driver (necessary for installing the CPR)
- Jumper cables
- Leak detection soap
- Pressure gages
- Grey spray paint and paint board (to prevent over spraying)
- Dead blow hammer

- Any required specialty tools

Your supervisor carries shovels, spades, saws all, hack saws, oversized tools, large ladders Please be careful to check the work area each time you change locations to be certain there are no tools left behind.

RF BUSTERS

Verify that the RF Buster is working correctly. Press and hold the push button Switch. The LED lights red, and the internal speaker sounds for approximately 1/2 second. If nothing happens or the LED lights and speaker sound continuously, then the 9V battery is probably low and needs to be replaced.

Figure 1.1 RF Buster

See Appendix C, *Using the RF Buster* for detailed instructions on how to use the RF Buster.

Handhelds (Handheld)

Handhelds are rugged, but you should still always handle them carefully. If the unit fails to operate in the field, use your Nextel phone to page your Supervisor for help. If possible, the Supervisor will assist in correcting the problem or bring a replacement unit out to you.

Figure 1.2 Handhelds with programming cables

Handhelds differ by program, but the ones shown above are currently in service. On the left is the DAP PC9800, a DOS-based Handheld. In the middle is the DAP CE5320, a Windows CE-based Handheld. On the right is the DAP CE5320b, a Windows CE-based Handheld.

Install Material

The Gas Meter Exchange process consists of using predetermined route information that identifies the meters that need to be retrofitted with the Cellnet Gas Meter Module and methods for recording data to document the installation. The route information describing the account address, existing meter ID, estimated meter reads, and any special instructions that describe circumstances unique to that particular account will reside in the installers Handheld.

From the Cross Dock, obtain Handheld and Meter Modules to install. The Handheld will be preloaded by the Cross Dock with all of the data for the assigned routes. The pre-loaded data includes the route, address, meter ID, and estimated read for the particular meters, plus specific instructions and required field collects information.

Each installer must validate that the handheld is properly loaded with the correct route information before leaving the Cross Dock.

METER COMPATIBILITY

Cellnet's Module family is compatible with specific brands and models of gas meters. Please see the latest list in the document *Gas Compatibility List*, available at www.cellnet.com.

COMPLIANCE

This apparatus is suitable for Class I, Division 2, Group D Hazardous Locations.

Warning - Explosion Hazard - Substitution of components may impair suitability for Class I, Division 2.
Danger - Risque d'Explosion - Le remplacement des composants peut affecter la conformité à la Classe I, Division 2.

CHAPTER 2 USING THE HANDHELD DEVICE

The DAP 5320b is a portable and rechargeable HandHeld computer unit. Its electric components are protected in hard plastic housing.

The features of the DAP 5320b include

- Windows-CE-based color LCD display
- Alphanumeric keypad
- Integrated barcode scanner
- 7-pin LEMO is used for charging the HandHeld or uploading/downloading from RIMS
- Automatic shutoff to maximize battery life
- Hand strap for secure handling.

The Handheld PC (the "Handheld") communicates with a desktop or laptop computer through a communications cradle and a 7-pin LEMO charging/ communications cable. It is configured to receive and transmit installation and manual meter read data to and from the RIMS and OCDB databases. The communications cradle and cable are also used for recharging (approximately 2.5 hours needed for full charge).

Figure 2.1 DAP PC5320B Hand Held PC and LEMO callout

Manufacturer Documentation

For more detail, visit the DAP website at https://www.daptech.com/docudap/.

Display

The DAP Handheld uses a TFT liquid crystal display (LCD).

Figure 2.2 CE Display

High-contrast characters are easily visible in normal light. Instructions for each screen display at the top of each screen in blinking red letters. The Handheld displays a tabbed view where you advance one screen at a time. You can go back as many screens as you want.

Keyboard

The keys on the keyboard are labeled with primary functions (such as: PWR (I/O), ESC, SP, BKSP), the 26-character alphabet, 0-9 numbers, and various symbols. Enter data by pressing the appropriate key. Enter other functions by pressing the FUNC (blue) key first, then pressing the corresponding alphanumeric keys.

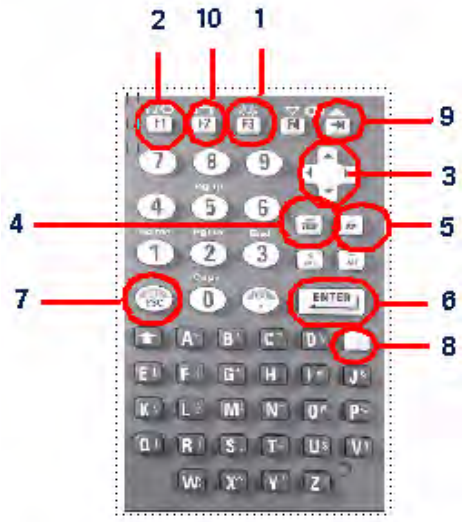

Figure 2.3 DAP Keypad

1 SCAN Button: small yellow F3 key; initiates scan of barcode

2 PWR key (I/O): F1 power key; turns unit on and FUNC then F1 turns the unit off

3 Arrow Cursor Pad key: changes selection, tabs up, down, left or right

4 BKSP: erases last character entered during text entry

5 SP: adds space to text entry

6 ENTER: enters function; saves entry and exits function

7 ESC: displays previous screen

8 FUNC + Key: blue colored function key in combination with other keys allows the user to enter non-alpha characters, adjust the contrast, turn on the background light, etc.

Entry Keys: alphanumeric characters (A-Z, 0-9)

CTRL/ALT: not used

9 Tab key: changes selection

10 F2: Displays current battery life

You can shut off the Handheld PC during installation with the automatic shutoff feature or by pressing FUNC + F1 key. The unit retains existing data and remembers the last step performed when it is turned on again.
Automatic shutoff is a sleep function. The unit shuts off after 3 minutes of inactivity. To turn on the Handheld PC after automatic shutoff, press the F1 key.

Program Conventions

- Keys are active for the displayed function. For example, if text is required, the alphanumeric keys are active; if a display option is to be selected, the Arrow Cursor Pad may be used as a tab key. If there is a list or drop-down type menu, there will be small arrows on the screen indicating that the Arrow Cursor Pad should be used for the selection.
- Most display options can be selected by pressing the hotkey (key corresponding to the first capital letter in the option). For example, N is the hotkey to select iNfo in the address screen. Pressing the hotkey is equivalent to tabbing to that item and pressing “enter”.
- A hotkey that is not indicated in the on-screen text and is available on the “Functions” menu screen is: T - this takes you to the Date/Time menu.
- The following keys are available at most screens:

  ARROW CURSOR PAD Advances to the next option

  ENTER Selects and enters the highlighted option

  ESC Exits current function and returns to previous function

  TAB KEY advances to the next option
- Other program conventions specific to a particular function are described in the appropriate section.

USING THE DAP HANDHELD

This section goes through the process of using a DAP Handheld for the installation of a Cellnet ready meter at a customer account.

Getting Started with the Handheld

A typical gas meter installation route consists of the following basic steps:

1 Check out meters with modules already installed and meter modules for retrofit. Pick up Handheld PC and labels. Prior to meter checkout, the HandHeld PC is programmed for an assigned installer and an installation route (account address, current meter ID, meter location, etc.).

2 Check route. Review installer ID route status: number of installations per route ID, installations completed or skipped.

3 Check account address. Verify address and any special customer information upon arrival at the customer site.

4 Check Meter ID. Verify that the meter ID matches the one in the Handheld.

5 Enter meter read. Enter meter reading from existing meter.

6 Scan meter ID. Scan meter ID from the changeout meter labels.

7 Install changeout meter. Label existing meter with a changeout label. Remove existing meter and replace with changeout meter.

8 Repeat steps 3 to 7 for each address.

9 Check in replaced meters. Return them to the Cross-Dock and dock the Handheld PC.

STANDARD METER INSTALLATION AND/OR MODULE RETROFIT

This section covers the installer steps and Handheld screens for the meter exchange process or gas module retrofit.

Check Route Status

1 Start the Handheld PC by pressing F1 (I/O) button. The screen below displays. If this screen does not display, press **Enter** or **ESC** keys to get to the Customer Address screen.

Figure 2.4 Handheld main screen

Initial boot screen displays the first work order's information:

- Handheld ID
- Installer name
- Installer ID
- Battery information
- Total route statistics
- Current route number

Table 2.1 Handheld Options and Active Keys for Check Route Status

Option or Active Key	Function
About	Displays information about the meter install software including version, copyright, and modules installed
Dock	Ends installation process; all installations are checked. If some installations are not completed, a message appears to verify that you want to dock.
Find	Allows the installer to search for a particular account by address, meter ID, customer name, or account number.
Next	Selects the next option

Table 2.1 Handheld Options and Active Keys for Check Route Status

Option or Active Key	Function
Arrow Cursor Pad	Highlights the next option
Enter	Saves any changes and advances to the next screen.
ESC	Exits the application.

The Handheld PC can be shut off during installation by the automatic shutoff feature or by the installer pressing the FUNC and then I/O key. The unit retains existing data and remains at the last step performed until it is turned on again

2 Press ENTER to display first address for displayed route.

Check Address

The address screen shows the account's address and any other information pertinent to the installation process. If there are special instructions for the account, the screen displays an instructions prompt; otherwise, a standard address screen displays.

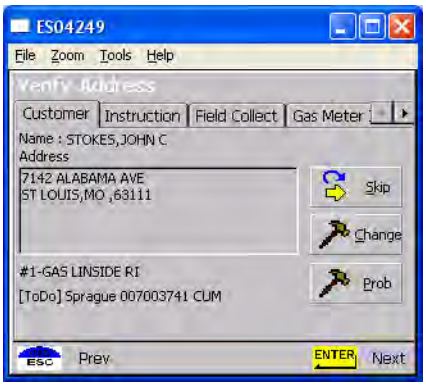

Figure 2.5 Handheld Address with special instructions

The Customer screen displays:

- Address information
- Sequence number in list of meters (#1 is first meter to be installed)
- Meter type (for example, gas meter)
- Meter location (Lxx or Lxxx, where xx or xxx is the utility-specific location code (for example L01)
- Read instruction code (R1xx, where xx is the utility-specific read) instruction code (for example RI00)
- Meter ID status of this record (ToDo, Skipped, or Completed)

Table 2.2 Handheld Options and Active Keys for Route Status screen

Option or Active Key	Function
Instructions	Displays text information about the account (Bad dog, Ring doorbell, etc.)
Skip	Skips the current work order
Change	Opens the Change screen to update details about the account
Prob	Opens the Problem screen with a list of up to 4 problems
ESC	Returns to the Previous screen
Enter	Saves changes and advances to the next screen

If the address or instructions exceed the length of the window, vertical scroll bars display. Arrow Cursor Pad moves the display up or down.

1 Press **ENTER** to view instructions.

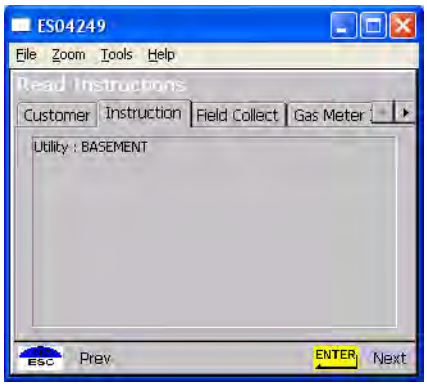

Figure 2.6 Handheld special instructions screen

Special instructions may include:

- Meter location
- Customer's medical condition
- Hazardous situation (guard dog).

Table 2.3 Handheld Options and Active Keys for Special Instructions

Option or Active Key	Function
Enter	Advances to the next screen
Arrow Cursor Pad	Highlights clientName

Table 2.3 Handheld Options and Active Keys for Special Instructions

Option or Active Key	Function
ESC	Exits the application

2 Press ENTER. The Utility Field Data Collection or the Dial Read Entry screen displays.

Utility Field Data Collection

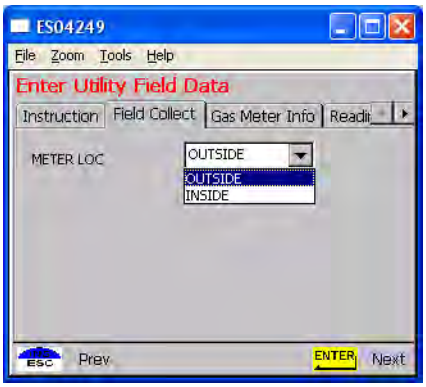

Figure 2.7 Handheld Utility Field Data screen

This screen varies—or is not used—depending on the utility. In this example, the utility company requires a description of meter location.

1 Select the relevant option and press the ENTER key.

Meter Information

After pressing ENTER, the Handheld PC displays the following prompts for drive constant and meter reading.

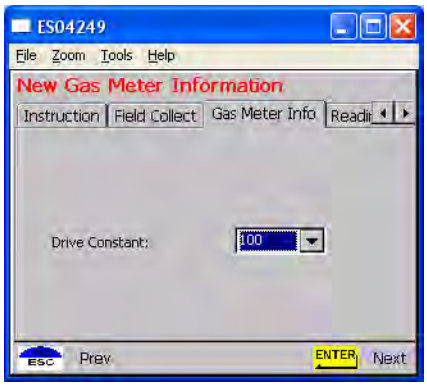

Figure 2.8 Handheld Dial read entry screen

The meter information screen displays various options for drive constant (also known as the meter constant or drive quantity). Residential gas meters have a drive constant of 1 or 2 (default value); commercial and industrial meters have a drive constant of 5, 10, 50, 100, or 500.

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Table 2.4 Handheld Options and Active Keys for Meter Reading

Option or Active Key	Function
Drive Constant	Enters drive constant.
Arrow Cursor Pad	Highlights the next option
Enter	Saves any changes and advances to the next screen.
ESC	Returns to the route status screen

1 Select the appropriate drive constant.

Installer must verify that the drive constant is the same drive constant as is noted on the gas index.

2 Press ENTER. The Handheld PC displays the following prompts for meter reading.

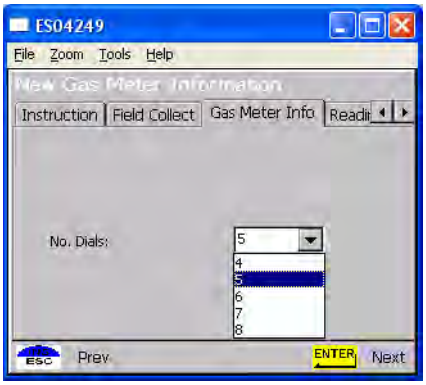

Figure 2.9 Handheld number of dials selection screen

- The meter information screen displays the following options for the number of reading dials: 4,5,or 6.
- The first dial counted is the 1,000 CF/rotation. Count up to the highest dial.

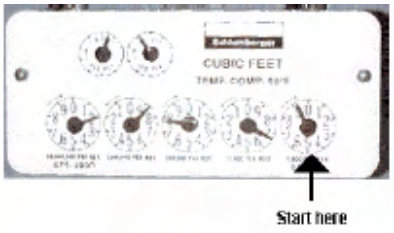

Figure 2.10 Handheld Start counting dials on the right.

Table 2.5 Handheld Options and Active Keys for Number of Dials selection

Option or Active Key	Function
No of Dials	Displays dial count.
Arrow Cursor Pad	Highlights the next option
Enter	Saves any changes and advances to the next screen.
ESC	Returns to the route status screen

Numeric field is highlighted for manual entry of meter reading from existing meter.

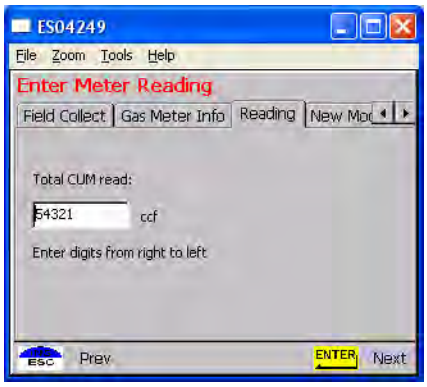

Figure 2.11 Handheld dial read entry screen

The meter reading is sometimes validated based on utility parameters, such as:

- Previous reading
- Read date
- Expected rate (ccf/day)
- Allowable percentage variation (utility specific).

If this check is not in place you will be prompted to enter the last four numbers of the meter ID and to re-enter the read.

.

Table 2.6 Handheld Options and Active Keys for Meter Reading

Option or Active Key	Function
0-9	Enters read.
Enter	Saves any changes and advances to the next screen.
ESC	Returns to the route status screen

1 Enter reading for existing meter in meter read screen. Enter values from right to left.

2 Press ENTER. You are now ready to scan the changeout label.

If the meter reading does not pass validation, refer to the section on Meter Reading Out of Range.

Program the Meter Module

The following steps apply to both a meter exchange or a module retrofit. New meters with modules do not require programming.

Begin installing the gas module by following the instructions in later chapters of this Guide.

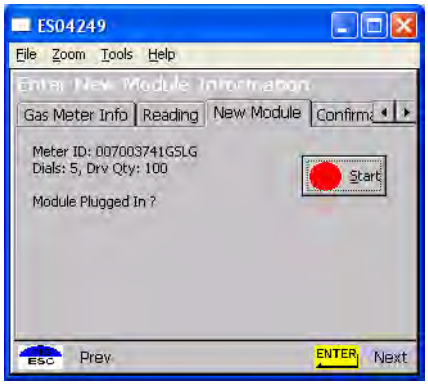

Figure 2.12 Handheld Initial programming screen

Program screen displays the meter information and prompts the installer to connect to the meter module.

.

Table 2.7 Handheld Options and Active Keys for Initial programming screen

Option or Active Key	Function
Start	Begins programming the module
Enter	Saves any changes and advances to the next screen.
ESC	Returns to the previous screen

1 Connect the Handheld PC to the meter module (refer to appropriate installation procedure).

2 Check to ensure that the information that you entered into the Handheld is correct, such as drive constant, Index read, and meter ID. For example, dials=4, meter ID=0123456G, meter constant=2.

3 Press ENTER to begin programming the meter module. The Handheld PC will display the following screens during programming:

The Handheld PC searches for the connected meter module. This process will take a few seconds.

If the meter module is not connected, an error screen displays. Refer to *"Special Cases"* on page 2-15 for more information.

The meter information is downloaded to the meter module. This process takes a few seconds.

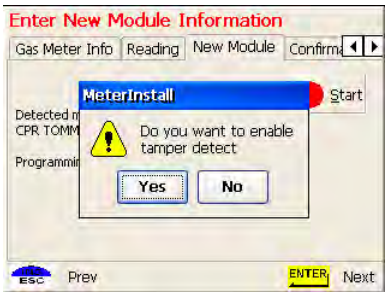

Figure 2.13 Handheld enable tamper feature

If the CPR endpoint is equipped with tamper notification, the installation procedure prompts you to indicate whether you want to enable it.

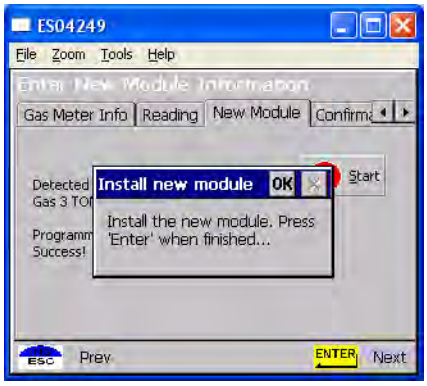

Figure 2.14 Handheld Install complete

Confirmation that program has loaded.

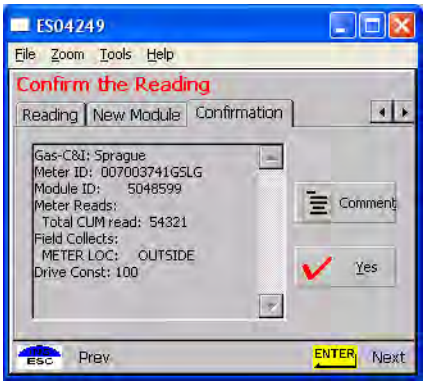

Figure 2.15 Handheld redisplays information

Meter information redisplays to verify the meter read and meter ID.

.

Table 2.8 Handheld Options and Active Keys for Programming the Meter Module

Option or Active Key	Function
Yes	Accepts meter reading and continues to next address.
No	Returns to the beginning of the current address.
Comment	Enter if required.
Enter	Saves any changes and advances to the next screen.
Arrow Cursor Pad	Highlights options Yes/No.

SPECIAL CASES

This section details causes of problems during an installation. However, this list may not cover all eventualities.

Meter Reading Out of Range

If the meter reading is out of range during standard meter installation, the software prompts for additional information (enter last four digits of meter ID, re-enter meter read, change meter ID if different that expected) before allowing meter installation.

1 Verify meter type and ID.
   a Enter the existing meter serial number in the Handheld.
   b Verify the existing meter serial number matches the existing meter serial number in the Handheld.
      — If the existing meter serial number does not match the existing meter serial number, in the Handheld, verify the address.

2 Perform technical review of meter.
Enter the appropriate code in your Handheld, and then call your Supervisor for support.

Figure 2.16 Handheld Read out of Range screen

The software requests the last four numbers of existing meter ID to confirm that the meter belongs to this account. If meter ID does not match, the account address is redisplayed for verification or depending on utility, specific instructions display.

.

Table 2.9 Handheld Options and Active Keys for Read Out of Range

Option or Active Key	Function
A-Z, 0-9	Enters the meter ID
Enter	Saves any changes and advances to the next screen.
ESC	Returns to meter read screen.

3 Enter the last four digits of the existing meter ID. The software requests verification of the meter read. This helps to confirm that the installer is at the right location.

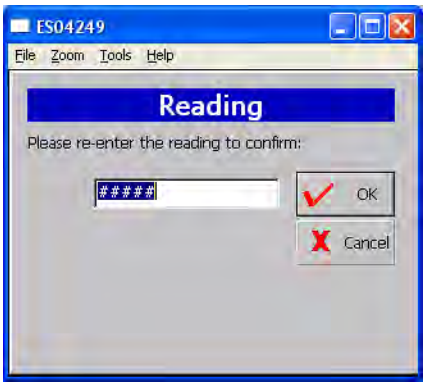

Figure 2.17 Handheld Re-enter meter read

.

Table 2.10 Handheld Options and Active Keys for Read Out of Range

Option or Active Key	Function
0-9	Enters the meter ID
Enter	Saves any changes and advances to the next screen.
ESC	Returns to meter read screen.

4 Re-enter meter reading.

Meter ID Confirmation

This section covers possible screens generated for invalid meter ID entries.

Figure 2.18 Meter already used

The changeout meter ID entered was used on another address.

Table 2.11 Handheld Options and Active Keys for Meter Already Used

Option or Active Key	Function
OK	Returns to scan screen
Enter	Saves any changes and advances to the next screen.
ESC	Returns to scan screen.

Change Meter ID

If the existing meter at the account address does not match the utility database, you can enter the correct meter ID. If so, enter skip code “Meter ID mismatch” and call Supervisor for instructions. This function updates the HandHeld — even though the existing meter will be replaced with the new change-out meter.

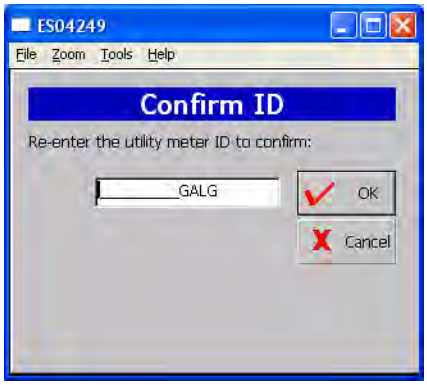

Figure 2.19 Handheld Meter ID Change screen

Skips

In some situations, you cannot install a gas module or replace the existing meter. You must skip it; for example, the meter is located in the house or an enclosed area and requires you to make arrangements with the customer for access.

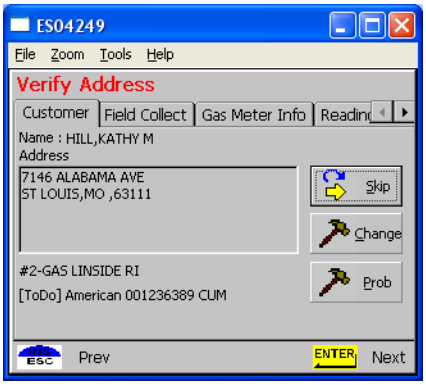

Figure 2.20 Options on address screen

1 Select the Skip option in the address screen and press ENTER or S. The Skip screen displays.

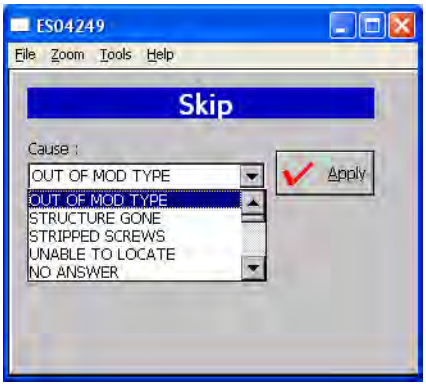

Figure 2.21 Handheld Skip screen

Choices on the Skip screen include:

- No access
- Key needed
- Locking ring
- Unsafe condition exists
- Medical
- Dog
- Appointment needed
- No Meter
- Meter Damaged

- Red/Yellow Tag
- Diversion
- Violence code
- Buried meter
- Tilted meter
- Found meter
- Disconnected or Shutoff meter
- Obstacle/Blocked

Table 2.12 Handheld Options and Active Keys for Skips

Option or Active Key	Function
Yes	Accepts problems displayed and returns to address screen.
No Access	Is the first of a list of skip choices displayed in this field.
Comment	Allows the installer to enter comments.
Enter	Selects options No Access, Yes, No, Comment.
Arrow Cursor Pad	Scrolls through skip fields.
ESC	Returns to address screen.

2 Select reason for skipping meter and press ENTER.

3 Select OK to accept reason for skipping meter ID. If you want to add a comment, select the Comment option. The software displays the selected skip cause and requests confirmation to skip meter installation.

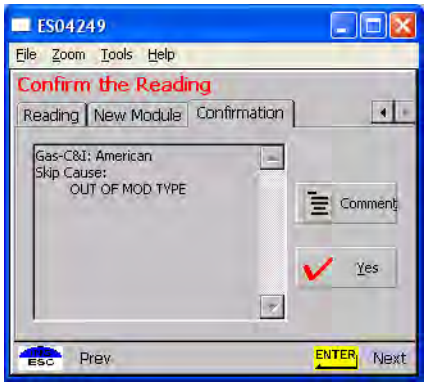

Figure 2.22 Handheld Skip Confirmation screen

Table 2.13 Handheld Options and Active Keys for Skip Confirmation

Option or Active Key	Function
Yes	Accepts skip cause and displays the next address screen.
No	Rejects the skip cause and returns to the current address

Table 2.13 Handheld Options and Active Keys for Skip Confirmation

Option or Active Key	Function
Arrow Cursor Pad	Highlights Yes/No.
ESC	Returns to current address screen.

4 Select YES to skip meter ID. The software records the skip in the route status and proceeds to the next address.

Medical alert is not normally used on gas (medical alert tags are commonly found on the electric meter).

OTHER FEATURES

The following functions are not directly related to the installation process, but are important features of the Handheld PC.

Problems

You can indicate up to four problems to record in a route's record.

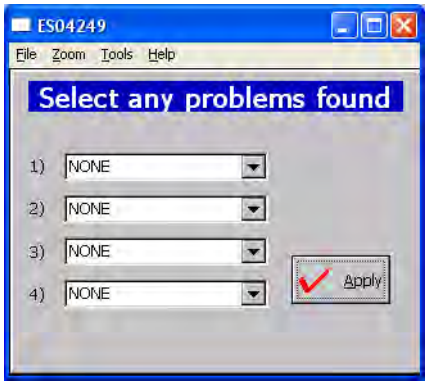

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Table 2.14 Handheld Options and Active Keys for Route Status

Option or Active Key	Function
Problem dropdown list	Displays problem options
Arrow Cursor Pad	Highlights Yes/No.
Enter	Saves any changes and advances to the next screen.
ESC	Returns to previous screen

Find

Use the Find feature to look up addresses, meter data, and route statistics.

1 Select FIND from the Customer Address screen.

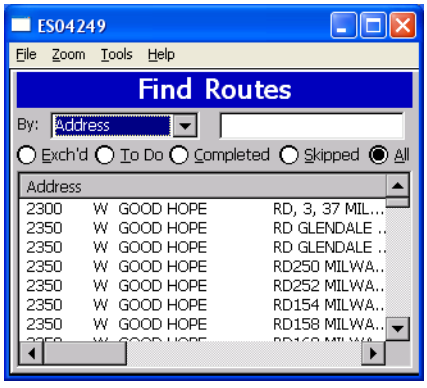

Figure 2.23 Handheld Find Screen

Meter data options include:

- Work Order
- MeterID
- Address
- Customer Name
- LAN Address

Route Status Options include:

- Exchanged
- All
- ToDo
- Completed
- Skipped

Table 2.15 Handheld Options and Active Keys for Find

Option or Active Key	Function
Search by	Displays meter data search options.
Text field	Enter full or partial address information to reduce the list returned
Radio buttons	You can narrow your search to return only Exchanged, To Do, Completed, Skipped, or All routes.
Enter	Selects highlighted option.
Arrow Cursor Pad	Scrolls through search fields and highlights options
ESC	Returns to function screen.

Select search criteria. Two search criteria must be selected: meter data and route status. For example, use the Arrow Cursor Pad to select Address (meter data) and Completed (route status) to search all addresses that have been completed.

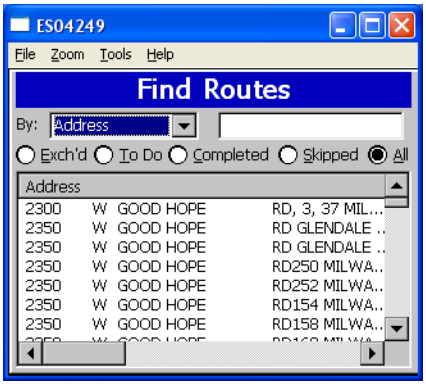

Figure 2.24 Handheld Sample search list

Screen shows all records containing the characters entered in the Find field.

- Alphanumeric keys are active in the Find field.
- Horizontal scroll bar is enabled if the text extends beyond the screen, as in this example.
- Arrow keys move the cursor from the Find field to the data records.
- Space (SP) key moves from addresses to Find field.

Table 2.16 Handheld Options and Active Keys for sample search list

Option or Active Key	Function
A-Z, 0-9	Enter search text into the Find field.
Arrow Cursor Pad	Scrolls through search fields and highlights option Address, ToDo, Ok.
Enter	Saves any changes and advances to the next screen.
ESC	Returns to function screen.

2 Select OK or O to accept search criteria and display search records.

3 Go back to the Search list, and type Elm to search all addresses with "Elm" in the record. Then select the relevant one by using the space SP key to move from addresses to Find field.

4 Use the Arrow Cursor Pad to move the cursor to the data records and use ENTER to select the desired record.

From this screen, additional information may display or you can modify the data record (for example, reinstall meter, record problem conditions, or change status to skip meter).

Table 2.17 Handheld Options and Active Keys for sample search record

Option or Active Key	Function
Back	Returns to Find screen
Enter	Saves any changes and advances to the next screen.
Arrow Cursor Pad	Highlights options back or Install.

CHAPTER 3 ON-SITE PREPARATION

ARRIVAL AT INSTALL SITE

1 Upon arriving at the installation site, verify the address in the Handheld. Check the Handheld for special instructions for that site (for example, medical customer, dog, key required for access to meter, meter location, and so on). If a medical alert code appears in the Handheld for that address they are to skip the install enter an appropriate skip code and move to the next exchange. A medical alert tag may be located on the electric meter.

2 If the installers come across any meters where a medical alert code appears in the Handheld for that address they are to discontinue the exchange, enter the appropriate skip code and move to the next exchange.Prior to Meter Exchange or Module Retrofit

1 Verify that the meter ID of the meter at the address is the same as that in the Handheld record; if not, verify it a second time. If the meter ID does not match, record the information to include mismatched ID on hard copy, record skip code of meter ID mismatch and call your Supervisor for direction.

2 Check to verify that the seal is intact and present. If the meter is unsealed and there is no evidence of tampering complete the meter exchange or module retrofit. If there is suspected tampering or evidence of diversion do not complete the install, record diversion on hard copy and enter skip code of diversion in Handheld and call your supervisor immediately.

3 If the premise is vacant and the service is shut off at the service riser valve, complete the meter exchange if at all possible. If you are unable to gain access to the premise finish your route, then try again before returning to the Cross Dock. Enter appropriate code in Handheld.

4 Inspect the meter for any gas leaks, unsafe conditions, excessive rusting or damage. While performing this technical review look over the meter for poor condition such as excesses rust, tampering, or odor of gas. If you judge the meter is seriously damaged report it than enter the appropriate code in the Handheld and call your supervisor for directions.

5 If it is determined that the meter has no unsafe conditions, you are ready to proceed with the module retrofit. Data will be required to be entered into the Handheld. If the reading is out of range (indicated by a prompt on the Handheld), then retype the meter identification number's last four digits to re-verify the correct meter. Reenter the gas meter index read into the Handheld.

See *"Residential Meter Module Retrofit"* on page 5-1 and *"Commercial and Industrial Meter Module Installation"* on page 6-1 for information about module exchange instructions.

6 If the meter is to be exchanged and it is partially buried, enter a skip code of "buried", and move to the next account. If a tilted meter is to be exchanged, perform the exchange and correct the tilt. If a module is to be installed on a tilted meter, complete the install, and enter a skip code of "titled".

7 If the installer comes across a violent or threatening customer, immediately leave the premise and call your Supervisor. If necessary, dial 911, after which you will enter into the Handheld and on the hardcopy a skip code of "violence code".

CHAPTER 4 GAS METER EXCHANGE

METER EXCHANGE PROCESS

Arriving at the Location

1 The installer confirms that he is at the right route address for that appointment using the Handheld. The installer arrives at the location on-time and with all the tools and equipment necessary to complete the installation without having to return to his or her vehicle. If applicable, locate the outside shutoff valve in case of trouble or emergency.

2 When the customer answers the door, introduce yourself and state the reason for your visit.

- Verify that the customer is at least eighteen years of age.
- Show the customer your ID.

3 Confirm the nature of the appointment and the time commitment required from the customer. Make sure the customer knows and agrees that it is convenient for you to turn off the gas during the installation process.

Verifying the Meter Site

Locate the meter and confirm the existing meter number, type, and size.

- If the meter number is correct but type and size do not match the equipment that you have been issued, call your Supervisor and request the appropriate equipment.
- If the meter id does not match the information in the handheld, call your Supervisor for meter number verification.
- If all information is correct continue the installation process.
- Prior to proceeding with the meter exchange process, inspect the condition of the gas regulator. It may be necessary to replace a defective regulator. Follow the utility-specific guidelines for regulator exchange.

Confirming Proper Installation Conditions

1 For the installation to qualify, confirm all of the following pre-existing conditions:
   - Visually examine the shut-off for signs of leaking or disrepair.
   - Perform the sniff test for signs of gas leaks using the Natural Gas Detection Device, and then the soap test on the shut off and couplings.
   - No Diversion or Tampering Evident - Visually inspect the service to the meter for signs of diversion or tampering.
   - Appropriate Access - Confirm that access to the meter allows a minimum work area to be established. Minimum work area includes wrench clearance, access to shut-off.
   - Appropriate Service & Piping Condition - Visually inspect the service and piping age and condition. Confirm that service and piping are fit for the removal and installation of a new meter and that there is no pre-existing leaks.
   - Appropriate Meter Orientation - Confirm the meter is installed horizontally or such that the meter exchange cannot take place.
   - If any pre-existing conditions are found contact your Supervisor immediately. The Supervisor will confirm your assessment and give you direction for completing the installation or to issue a skip code in the Handheld.
2 Set up the area for installation. Turn all possible lighting on (for inside sets). Clear an appropriate workspace and layout all tools, equipment. Prepare for leaks or emergency shut-off.

Shutting Off the Service

1 Notify the customer that gas service will be interrupted (reconfirm all gas apparatuses are off). Inspect for the proper operation of each gas appliance. Inspect the meter set for corrosion, burial or overbuilding, damage, improper installation, misalignment, outdated regulator (Model 1213B or 043R), or the smell of natural gas.
2 Connect the bonding jumper from service riser to the premise line. Verify that the existing meter is off by isolating (shut off) all gas apparatuses and confirm that there is no flow on the meter and register. If the meter is not functioning correctly, contact the Supervisor immediately. The Supervisor will confirm your assessment and give you direction.
3 Manually close the customer's shut off valve.
   - If you have any problem closing the valve, contact your Supervisor for direction which may include, if applicable, using the outside curb stop for shut-off.
   - If the outside curb stop is activated, the Supervisor will notify the Utility Supervisor.
4 Remove the original meter.
   a Using a pipe wrench and backup, attempt to loosen the meter coupling nuts.
   b Use mild torque building to moderate steady torque until the coupling nut begins to turn.
   c Do not jerk or snap the wrenches, or damage could occur.

d Loosen both coupling nuts and remove the old meter from the meter set. If you have any problem loosening the coupling nuts contact your supervisor for direction.

e Remove all old gasket material in the coupling nuts when applicable. Inspect the regulator and exchange if it is damaged or defective.

Installing the New Meter

1 Remove the new meter tag from the new meter.

2 Write install date, address, and initials on new meter tag.

3 Place new meter tag on the old meter register.

4 Insert new gaskets where applicable.

5 Exchange the regulator if damaged or outdated, and exchange any damage insulating unions. Level the meter set if the set is tilted.

6 Tighten the inlet-coupling nut.

7 Install pressure gauge to meter outlet, slowly open the rise valve, and adjust regulator to appropriate gas pressure at the meter outlet.

a Close the riser valve and remove gauge.

b Verify meter operation.

c Reconnect the outlet piping.

8 Before re-servicing - if service was shut off prior to the meter exchange, do not restore service.

During the installation, replace all biscuits in the outlet piping, and leave meter off "as found".

Restoring Service, Purging the Air, and Performing the Leak Test.

1 Open the shut-off valve very slowly.

– If you have any problem opening the valve contact your Supervisor for direction.

2 Check the test dial for movement to make certain no leaks occurred while performing the installation.

a Seal the regulator.

b Disconnect the bonding jumper.

c Clean and paint the meter set.

3 Check the coupling nuts, service and piping for leaks perform "leak test" (sniff test for signs of gas leaks using the Natural Gas Detection Device, and the soap test) and re-tighten if necessary.

4 Reenter the property and purge the air from the gas line by bleeding the furthest gas apparatus from the meter. You must bleed each individual apparatus.

Relighting All Apparatuses and Confirming Their Operation

Follow the procedure provided to you by the Utility for appliance relighting. If any adverse conditions arise, immediately shut off the gas, contact your supervisor for instructions, and record the appropriate comment in the Handheld such as, red/yellow tag defective appliance situation. Enter a Skip code such as, “red/yellow tag” in the Handheld.

Programming the Module

Refer to Chapter 2, *Using the HandHeld Device*, Chapter 5, *Residential Meter Module Retrofit*, or Chapter 6, *Commercial and Industrial Meter Module Installation*.

Performing Data Collection

1 See Chapter 2, *Using the HandHeld Device*.

2 Seal the new meter.

Cleaning Up the Work Area

Clean up all installation tools, equipment and debris. Turn off any lights that you may have turned on. Restore the customer premise to the pre-visit condition.

Exiting the Premise

1 Do a last check to ensure that you have all of your equipment and tools.

2 Thank the customer for allowing us to service their gas meter, exit the premise, and provide the customer with a door hanger.

MODULE RETROFIT (INDEX OR REGISTER) REPLACEMENT

Refer to Chapter 5, *Residential Meter Module Retrofit* or Chapter 6, *Commercial and Industrial Meter Module Installation*.

CUSTOMER SKIP OR CANCELLATION

If the customer's existing conditions do not qualify for new meter installation notify your Supervisor. Wait at the site until your Supervisor arrives for further instructions. If, in the Supervisor's opinion, the condition of the customer's existing service piping or appliances is such that significant damage would result from attempting to remove and replace the existing gas meter, your Supervisor will so inform the Utility of the condition. The Supervisor will advise you to:

- Inform the customer as to why the change-out will not take place.
- Document situation in handheld.
- Direct you to your next appointment.

If There Is Damage On Site When You Arrive

IMMEDIATELY turn off the gas. This will eliminate or minimize any property damages to customer.

- Call your Supervisor immediately. Communicate the gravity of the situation. He or she will immediately initiate any necessary actions.
- Do not leave the customer site until directed to do so.
- It may be necessary to dial 911.

Notes: