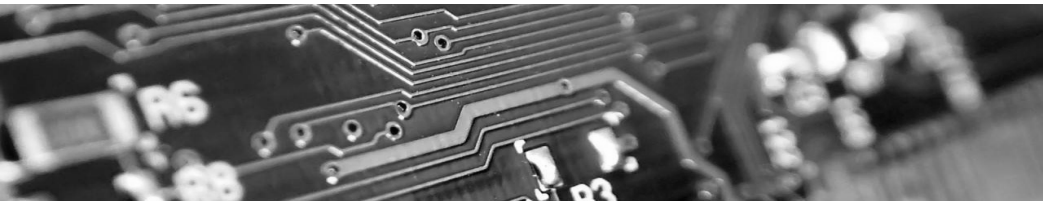
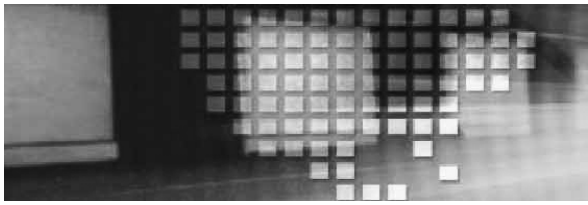
RF System Manager (SMiRF)
PDA Field Service Tool
Quick Start Guide





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NOTICES

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FCC Compliance

Note: 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.

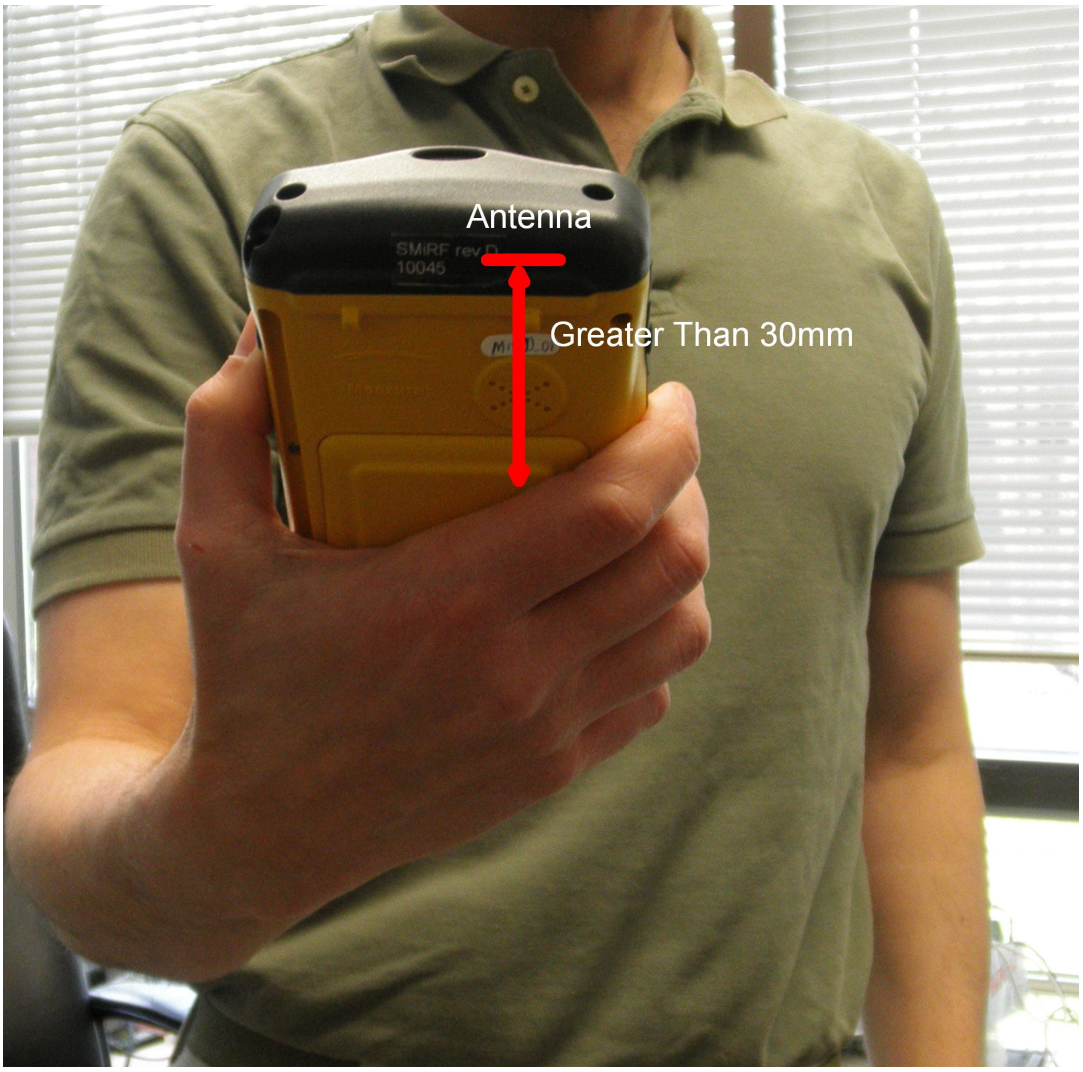
CONTAINS FCC ID: VE4-MM8-P

Caution: Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment. Only the manufacturer supplied antenna is approved for operation with the equipment.

NOTE: Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment

RF Exposure

User should hold the SmiRF in such a manner as to maintain a distance greater than 30mm (1.2 inches) between the user's hand and the antenna, which is mounted in the top cover of the SmiRF.



Introduction

MeshPlus® networks are used for remote monitoring and control of commercial, industrial, and municipal equipment such as automatic utility metering, municipal lighting, and traffic management. Hundreds of thousands of devices are currently being monitored and controlled by MeshPlus® networks.

The MeshPlus® handheld RF System Manager (SMiRF®) is used by installers and field service technicians to deploy and manage MeshPlus MIU devices such as utility meter interface units (MIUs). With a SMiRF®, MIUs may be easily installed, upgraded, checked, and shutdown for shipping. By following the instructions in this quick start guide, you can get your SMiRF® up and running quickly and easily.

Your SMiRF product kit includes:

- Aceeca rugged PDA
- MeshPlus SMiRF module (installed in PDA)
- USB or Serial sync and charging cable
- Charging power supply
- Sync software on CD or DVD
- SMiRF® FST software on CD or DVD

Additional options include:

- Extra batteries
- USB cradle for PDA charging, sync, spare battery charging
- Softickk PPP software for USB Sync
- Bluetooth (PDA factory option) for Bluetooth Sync
- GPRS mobile field sync cradle
- Hand Strap
- Belt storage/carry pouch

A typical installation also requires a desktop or laptop computer running a Microsoft Windows operating system such as Windows XP, Vista, or 7.

The SMiRF® can be used stand-alone to install MeshPlus MIUs such as meter interface units (MIUs) or in conjunction with other MeshPlus® MeshMaster software to provide centralized work order management for field installations, reading, and service. Both methods are described in this guide; installation and configuration of MeshMaster is described in the MeshMaster documentation set.

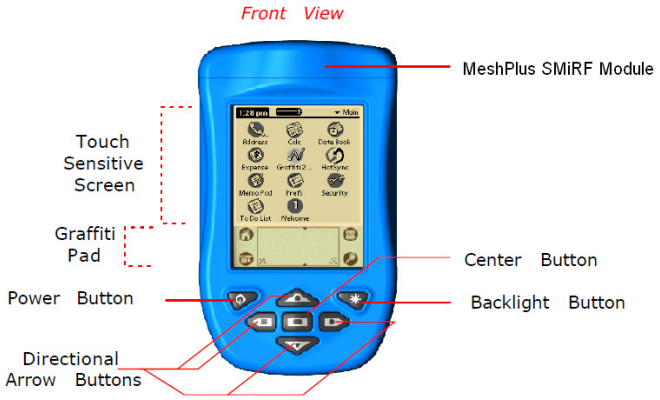
Please refer to the user's guide for each product for details on their operation. This guide provides basic installation and configuration guidance for the SMiRF-specific aspects of these software products.

This manual will help you get your SMiRF configured and running.

Quick Tour

Let's examine the SMiRF:

The SMiRF is a rugged waterproof Aceeca PDA that uses a touch-sensitive screen and directional buttons for user interaction. The built-in MeshPlus SMiRF module adds wireless communication with other MeshPlus devices and a Global Positioning System (GPS) receiver for location services.



The SMiRF has a built-in stylus for precise selection of items on the screen, a field-removable battery pack, and a waterproof connector for charging and communications.

SMiRFs are available with FSTN (gray-scale) and TFT (color) displays; all displays have back lighting available for use in low-light conditions. A variety of accessories are available including hand straps, charging cradles, spare batteries, belt carry pouches, and automotive cradles. For more details on the PDA hardware and accessories, refer to the Aceeca PDA user manuals and website: http://www.aceeca.com

Navigation

Press the Power button to turn on the PDA. The PDA application laucher shows a list of all the software that is installed on the PDA. Locate the SMiRF application software icon then launch the software by tapping the icon with your finger or stylus.

Application software icon

HINT:
If you don't see the icon, press the center hard-button on the PDA or tap the "Home" icon until it appears.

Home Icon

The

SMiRF application software will first check and configure the SMiRF Module installed in the top of the PDA. If the module is not found or is not working properly, the software will display an error message and exit; otherwise, the SMiRF application software will start and the home page will be displayed.

Home Page

The SMiRF application home page provides quick-launch buttons for the most common operations:

- **Tasks** – opens the list of work orders

SMiRF Home Page

- **Install** – ad-hoc installations
- **Read** – ad-hoc reading/data collection
- **Exit –** quit the FST applications

The name of the configured technician (user) for this PDA is displayed at the top of the screen.

The home page also provides a menu button in the top-left corner to access the program main menu. To launch any of the home page operations, tap the desired operation with the stylus.

Main Menu

The SMiRF application software provides pull-down menus to navigate among the various functions. To access the pull-down menus, use the stylus to tap either the word "Menu" in the top left corner of the screen or the pull-down menu icon in the lower left corner of the screen, then tap on a pull-down menu.

Menu Icon

HINT:
The menu can always be accessed by tapping in the top-left corner of the screen, even when the word Menu is not shown there.

File Menu

The File menu offers access to common functions quickly. To access one of the functions, tap it with the stylus. These functions are typically used to install and manage devices that have not been assigned as tasks in MeshMaster; for example repeaters or demonstration or pilot MIUs.

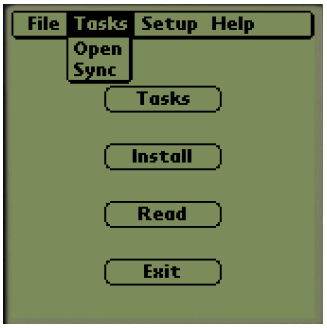
- **Home**
  At any point, you may choose Menu->File->Home to return to the Home Page.

- **Install**
  To begin installing an MIU *without* a work order, select Menu->File->Install. Some devices such as MIU repeaters typically do not have associated work-orders and are installed this way. You will be prompted to fill in the data required for a successful installation. Do not use the Install menu function to install devices that have an associated work order.
- **Read**
  To read an MIU and store the results without a work order, select Menu->File->Read. Do not use the Read function to read devices that have an associated work order.
- **Service**
  For advanced MIU diagnostics and service, tap Menu->File->Service. The Service operation allows technicians to check a remote device's radio, battery and power status, and to perform operations such as software upgrades and taking an MIU out of service (e.g. for shipping).

- **Exit**
  Exit the FST application and return to the PDA launcher.

Tasks Menu

Most field service operations such as installing, reading, and maintaining devices should be managed using the MeshMaster service management system. The MeshMaster system creates work-orders (tasks) and assigns them to specific field service technicians or field service teams. When the SMiRF is synchronized with MeshMaster, it downloads the list of tasks for its technician and presents them in the order in which they should be performed.



- **Open**
  Opens and displays the list of work orders (tasks) to be completed. Work orders are created and assigned to field technicians or teams with MeshMaster and downloaded to the SMiRF PDA during Sync operations. The work orders are presented in the order in which they should be performed.
- **Sync**
  Uploads completed work orders (tasks) to MeshMaster for storage and processing. The list of work orders is then cleared and all open work orders are downloaded from MeshMaster to the PDA. During the Sync operation other information may also be downloaded such as new firmware for MIUs or for the SMiRF itself. In order to synchronize, the SMiRF must be:

  - connected to a PC/workstation via USB cradle or cable
  - connected to a PC/workstation via Bluetooth wireless connection
  - connected to the internet via a GPRS mobile cradle

  Synchronization may only be performed when the SMiRF has access to the internet via one of the above methods. The synchronization configuration and process is described in detail later in this guide.

Setup Menu

SMiRF configuration is performed via the Setup menu. Configuration settings are stored persistently and remain set until changed or until all settings are cleared by resetting the SMiRF to its factory configuration.

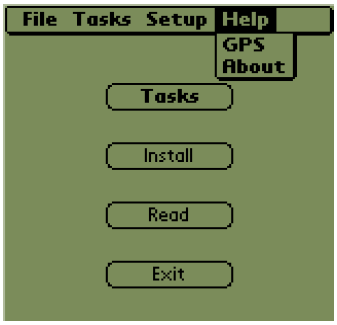
- **Wireless**
  Configures the MeshPlus wireless radio communication settings such as SSID and radio mode.
- **Hardware**
  Displays the SMiRF module hardware information such as revision, data of manufacture. Additionally displays any problems or important alerts and allows the user to reset the SMiRF module.
- **Firmware**

Displays the SMiRF module operating firmware and firmware stored for upgrading other MeshPlus devices. Firmware is automatically loaded into the SMiRF during task synchronization and then installed on the SMiRF module when the software restarts.

- **Preferences**
  User preferences such as whether to allow handwriting recognition (Graffiti), whether to require GPS coordinates for all installations, etc. are configured and stored using user Preferences.
- **Defaults**
  Use Defaults to change default installation settings such as the default number of register dials or multipliers for pulse registers. Default settings are stored persistently in the SMiRF.
- **Server**
  The MeshMaster server provides service management via work orders as well as access to firmware upgrades and other data. In order for the SMiRF to synchronize with the MeshMaster server, it must be configured with the appropriate internet address and security information.
- **User**
  The MeshMaster manages work orders for a user. In order to get the specialized work orders for a user (technician), the user's login name and password must be configured.

Help Menu

The Help menu provides information about the SMiRF application software and several advanced diagnostic features.



- **GPS**
  Provides detailed status regarding the state of the GPS satellite receiver.

- **About**
  Displays information about the SMiRF operating environment and software version.

Setup and Configuration

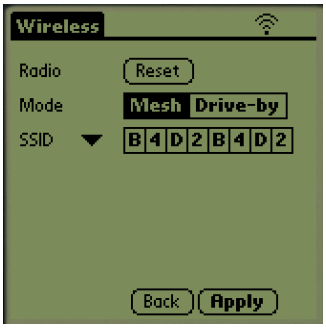
Configuration of the SMiRF is performed using the Setup pull-down menu functions. Each pull-down menu choice opens a form (a graphical user interface) that displays information about the current settings and configuration and allows them to be changed. Changes are stored persistently.

Wireless Setup

To communicate with other MeshPlus and StarPlus devices, the SMiRF module contains a radio and configurable controller. When the SMiRF module is communicating with a remote device or is waiting for a remote device to communicate with it, and the wireless link icon is displayed in the upper right corner of the display.

Wireless Link icon

To successfully communicate with other MeshPlus and StarPlus devices, the radio controller must be configured to match the remote devices:



Wireless Window

Mesh – MeshPlus mode wherein devices communicate with each other to form a fixed network; messages "hop" from device to device until they reach a gateway that stores and forwards the message to the internet.

Drive-by – StarPlus mode wherein devices only communicate with StarPlus controllers, typically mobile devices in a van or handheld devices such as a SMiRF.

To change the mode of operation, tap the desired mode with the stylus. Your MeshPlus system administrator can tell you the proper radio mode of operation.

Each MeshPlus or StarPlus deployment may also be assigned a unique Service Set Identifier (SSID) that is used to prevent one deployment from interfering with another. The SSID consists of 8 digits where each digit can be either 0-9 or A-F. Your MeshPlus system administrator can tell you what the proper SSID is for your deployment.

To change the SSID, tap each digit and choose the desired letter or number from the list that appears. After you choose a digit, the next digit's list will automatically open. When you are done making changes, tap anywhere outside the open list.

Once changes have been made to the wireless configuration, press the "Apply" button; this will cause your changes to be saved permanently. In some cases, you may also need to reset the radio and controller by tapping the "Reset" button; you will be prompted to do this if it is required.

Your SMiRF will **not** communicate with other MeshPlus or StarPlus devices if the wireless settings on your SMiRF and the other devices do not match.

User Preferences

Users may configure aspects of how the SMiRF operates for convenience and to prevent errors. The initial (default) user preferences are shown to the right and are discussed below:

Allow Graffiti

The SMiRF provides two methods for text and number entry: virtual keyboards and handwriting recognition.

Handwriting recognition uses an engine and style called "Graffiti". Using graffiti, the user traces block letters in the graffiti pad area of the touch-screen:

Graffiti Pad

Letters are traced in the left portion of the graffiti pad and numbers in the right portion. Experienced users can enter data, especially numbers, very quickly using graffiti and often find it faster than choosing letters or numbers on a virtual on-screen keyboard. However new users may be confused if they select a data entry field and a virtual keyboard is not displayed. As a result, the default user preference is not to allow graffiti: when a data entry field is selected, a virtual keyboard is automatically displayed.

If the "Allow graffiti" box is checked, the keyboard will not automatically be displayed and the user is free to enter data using graffiti handwriting recognition. Users can always pop-up a virtual keyboard on demand by tapping the abc and 123 dots in the graffiti pad area.

For more information on Graffiti go to the manual for the Meazura MEZ1000 RDA, pages 24-29.

Require GPS

When installing new equipment, it is important to record the GPS location. Several of the mapping features of MeshMaster and some aspects of MeshPlus fixed networks depend on having accurate GPS location data for each device.

When the "Require GPS" preference box is checked, installation of new equipment is not permitted unless the GPS location has either been provided in advance (in a work order) or the current location is detected by the GPS receiver in the SMiRF.

In some cases, it may be necessary to turn this protection feature off; for example when demonstrating the operation of a SMiRF indoors where no GPS signal is available, however in general GPS should be required for device installation.

GPS location data is critical to several MeshPlus and MeshMaster features. Users are **strongly** encouraged to leave this preference checked.

Show Wiring Hints

Many MeshPlus devices are connected to other equipment that is monitored and controlled by the MeshPlus device. For example utility meter interface units (MIUs) are typically connected to utility meter registers using three wires.

When wiring hints are enabled, an alert box pops up when it is time to make a wired connection showing the proper color wires to use for the type of device being connected and where to connect them.

Wiring hints may be very helpful for a new technician when installing equipment, however for experienced technicians, hints become just another button to press. Experienced technicians can suppress these pop-ups by un-checking the preference box to “Show wiring hints”.

The default preference setting is to show wiring hints.

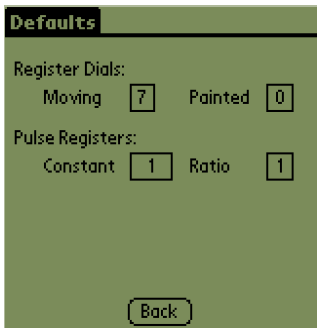
MIU Firmware Upgrades

MIUs run embedded software (firmware) that can be upgraded from the SMiRF. During installation, the SMiRF will determine whether an embedded software upgrade is available and appropriate for the MIU. If an upgrade is available, the SMiRF will communicate this to the user based on this preference.

The Default selection is “Ask” so when a field service technician installs an MIU that may be upgraded, the SMiRF asks if the technician wishes to perform the upgrade. When the preference is set to “Always” the SMiRF will automatically upgrade the embedded MIU software without asking. With the “Never” option selected, the upgrade is not done automatically nor is the technician asked, but a button is displayed during the install process to allow the technician to to manually upgrade the software if desired.

When the user preferences have been set as desired, press the “Back” button to return to the Home Page.

Defaults



Defaults are used to eliminate repetitive steps when installing multiple MIUs of the same kind. Set the default values to the configuration required for the common MIU type. Then during installation these fields will start with the correct values.

For example, when installing an MIU connected to an encoded register, it is necessary to configure the number of moving and painted dials for accurate readings. (see Install). If most MIUs will

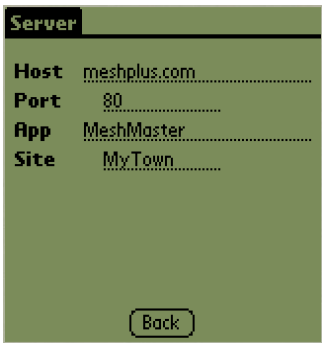
be installed on registers with 6 moving dials and 1 painted dial, set the defaults appropriately to save time during each MIU installation.

Similarly, when installing an MIU connected to a pulse register, the default settings for pulse constant and pulse ratio may be configured to avoid the need to enter that data during each MIU installation..

Server Setup

In order for the SMiRF to communicate with the MeshMaster server software, it must be configured with the internet connectivity information to locate the server.

The server configuration includes the following:



Host – domain name (e.g. meshplus.com) or an IP address (e.g. 96.244.83.43) of the MeshMaster web application server .

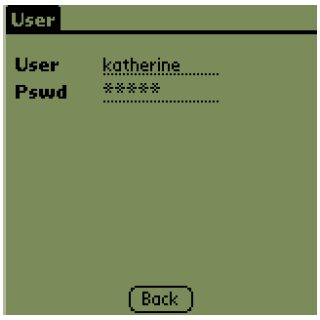
Port – The TCP port used to connect to the MeshMaster web application. The default port is 8080 but may be configured to any port by your MeshPlus system administrator. Your MeshPlus system administrator should tell you what port to use.

App – The name and path to the MeshMaster web application on the server. Your MeshPlus system administrator should tell you what application path and name to use.

Site – A single MeshMaster web application may manage multiple MeshPlus deployments. The site name specifies which deployment the SMiRF will be servicing. Your MeshPlus system administrator should tell you what site name to use.

User

In order to download assigned work orders from MeshMaster, you need to enter your MeshMaster account information.



User – Each user in a MeshMaster system is assigned a user name and password. You should enter your assigned user name here. This user name is used to authenticate with the MeshMaster web application server and to select which work orders are downloaded to the SMiRF. Your MeshPlus system administrator should tell you your user name.

Password – Each user in a MeshMaster system is assigned a user name and password. You should enter your assigned password here. You can change your password using the MeshMaster web application. Your password is not shown after it has been entered; stars are shown in place of the password to protect your privacy. If you select the password field, a dialog will pop up to allow you to enter a new password; your old password will not be displayed. Enter your password using graffiti or the pop-up keyboard (press the abc dot) and press the “Save” button when finished. If you press the “Cancel” button, your password will not be changed.

When you are finished configuring the User settings, press the “Back” button to return to the Home Page.

Tasks

Sync

The sync operation is used to upload completed work orders to MeshMaster and to download a field technician's tasks for the day. The sync operation is expected to be used at the beginning and the end of each work day. The Sync function is available under the "Tasks" menu. Tap the Sync button to submit completed tasks, download new tasks and download updated firmware. After Sync is finished, a window provides a summary of the activity.

NOTE
To synchronize the SMiRF, the PDA must be connected to a PC/Workstation running Softickk PPP software. Connection may be via a the USB charging cradle, USB cable, bluetooth wireless link, or GPRS mobile cradle. If the PDA is unable to synchronize, refer to the trouble-shooting section.

Work-orders

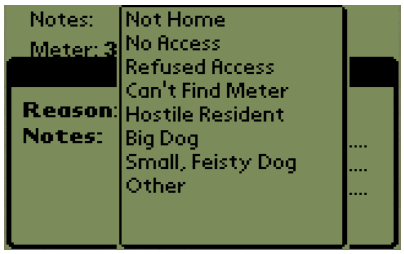
At the start of each work day, technicians should sync their SMiRF to receive a list of the latest work-order (task) assignments. To access these work-orders tap "Tasks". The screen will change showing the open tasks with each task on its own page.

The information for each task includes:

Task - What to do (e.g. Install or Read)
Notes - Important account notes; for example, a note to call the homeowner before accessing the property or a warning about a guard dog.
Meter - The water meter Id, usually stamped on the side of the brass water meter and useful for confirming that the task is being performed at the proper customer location.
Address - The address to find the meter/MIU. Tapping the address box with the stylus will give you more additional information about the location.
Done - Checked if the task has been completed. To change the status of a task to incomplete, tap the check mark.

Buttons are provided to assist with finding specific tasks and starting work on the task:

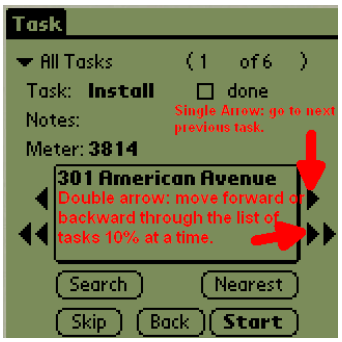
- **Search -** Allows technician to enter an address, partial address, meter ID, or partial meter ID; the list of tasks are then automatically searched for a match.
- **Skip –** If a task cannot be completed (e.g. if the property cannot be accessed), allows the technician to record the reason the task is being skipped.



- **Back -** Returns to the home page
- **Start –** Starts work on the task (please refer to the appropriate section for that type of task for the next steps)
- **Nearest –** Finds the nearest task based on the current GPS location.

> **NOTE**
> this feature requires a GPS location lock as indicated by the GPS location icon (satellite dish) in the upper right corner of the display.

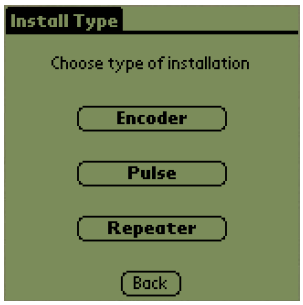
A filter selector in the top left corner of the screen can limit which tasks are shown to make navigation easier. By default, all tasks are displayed, however the displayed tasks may be limited to only open tasks or only completed tasks. Tap the arrow next to the current filter choice to select which tasks should be displayed.



Task Navigation
On either side of the address are arrow keys that allow the technician to move through the list of tasks. The single arrow moves to the next or previous tasks; the double arrows move forward or backwards through the list of tasks 10% at a time (for example, with a list of 200 tasks, pressing the double-right-arrows will advance 20 tasks).

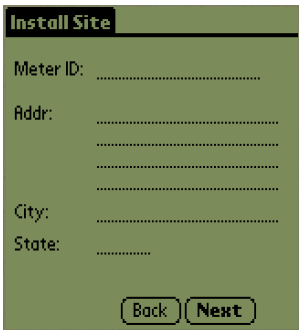
Install Tasks

MIU installations are typically performed in response to an assigned work-order (task). MIUs may also be installed independently by a technician (e.g. for a demonstration or as a repeater to extend range). The installation processes for task assigned and independent installs are very similar. They are described below and the differences are noted.



To install an MIU without a work-order, tap “Install”. Then select the type of MIU to be installed.

When connecting an MIU to an absolute encoder or pulse register, the software displays wiring hints for connecting the MIU to the register. After correctly wiring the devices, tap “OK” to continue.



If the MIU location and meter ID have not already been provided in the work-order, a form is presented for the technician to enter the Meter Id, Address, City, and State. If installing a Repeater there will be no Meter Id. The Meter ID and the Address are required fields. You may not proceed without filling out all of the required fields.

Once a city and state have been entered, they are automatically filled in for subsequent installs unless manually changed.

Pulse constant/ratio only shown for Pulse registers

When connecting an MIU to a water meter register, enter the number of moving and painted dials. Tap on the numbers to adjust them to match the dials on the face of the register being installed.

If the MIU is being connected to a pulse register, you must also set the initial register reading, the pulse constant and pulse ratio.

To set the initial reading, tap the moving dials and pick their proper values from the list shown. Your system administrator should provide the pulse constant and ratio values. The pulse constant is a multiplier applied to each pulse from the register, the pulse ratio is a divisor. For example, to configure a register that generates a pulse for every 5 gallons consumed, enter a pulse constant of 10 and a pulse ratio of 2.

Consumption = Pulses x Constant / Ratio

When done tap, “Next”.

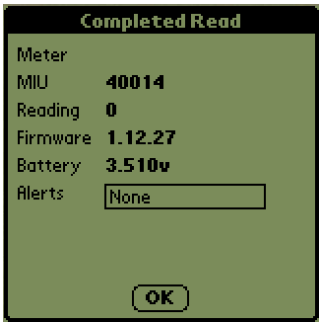
When the SMiRF prompts you to activate the MIU, place a magnet against the activation location on the MIU. When the MIU has been successfully activated, it will initiate radio communication with the SMiRF and in a few seconds the SMiRF will beep to indicate that the MIU has been detected; it will then gather information about the MIU using radio communications and display it on a screen for review.

It is critical to confirm that this information is correct, **especially the MIU ID**. When many technicians are working in the same area, it is possible that the SMiRF received a message from a different MIU that was activated by another technician. It is very important to check the Meter Id and MIU ID to ensure the installation is properly recorded. If any of this data is in error, tap “Back” and correct it. When everything is correct tap “Next”.

The SMiRF performs the installation using the entered data and the acquired GPS information. If GPS information is not available an warning message is displayed. Upon successfully installing the device an installation summary window is shown for review. When done evaluating the information, tap “OK”.

Read Tasks

MIU reads are typically performed in response to an assigned workorder (task). MIUs may also be independently read by a technician to collect the latest register reading. The read process is very similar for assigned and independent reads: Press "Read" on the Home page for an independent Read. When prompted, activate the MIU to be read by placing a magnet on the activation location on the MIU. When the MIU has been successfully activated, it will initiate radio communication with the SMiRF and in a few seconds the SMiRF will beep to indicate that the MIU has been detected; it will then gather reading and status information from the MIU using radio communications and display it on a screen for review:



- **Meter** - Meter Id
- **MIU –** MIU serial number
- **Reading** - The last register reading recorded by the MIU. Pulse registers always return the current reading as shown on the face of the register. Encoded registers are read hourly and the reading returned will be accurate within the last hour.
- **Firmware** - The current MIU firmware version
- **Battery** - the MIU battery voltage
- **Alerts** - any alerts (problems) on the MIU

It is critical to confirm that this information is correct, **especially the MIU and Meter ID**. When many technicians are working in the same area, it is possible that the SMiRF received a message from a different MIU that was activated by another technician. It is very important to check the Meter Id and MIU ID to ensure the reading is properly recorded.

When done viewing the reading information, tap "OK". If completing a task, you will return to the workorder/task display. If completing an independent read, you will return to the activate MIU screen ready to perform another reading.

Setting up your PC

Installing Palm Desktop Software

The following instructions guide you through installing Palm Desktop so that you can transfer updated software from your computer to your SMiRF. After installation, refer to the online Help in Palm Desktop for information on how to use the software.

To ensure a safe and uninterrupted installation of Palm Desktop

Do the following before installing:

- Turn off your computer and connect the cradle/communications cable to it. Do not place your SMiRF (PDA) in the cradle or connect it to the communications cable until instructed.
- Do not copy the Palm Desktop files to your computer's hard disk. You must use the installer to place the files in their proper locations and to decompress the files.

Installing Palm Desktop Software on a Windows computer

1. Exit any open programs, including those that run at startup (such as Microsoft Office), and disable any virus scanning software.
2. Insert the Meazura™ Desktop CD into the desktop computer's CD-ROM drive.

> **NOTE**
> If the installation does not begin, click the Windows Start button, choose Run, enter D:\install_menu.exe, and then click OK. If necessary, replace D: with the drive letter assigned to your CD-ROM drive.

3. Follow the onscreen instructions to complete the installation. During installation, you may be asked to insert your SMiRF (PDA) into the cradle or connect it to the communications cable.

Upgrading your Palm Desktop Software

To upgrade Palm Desktop, follow the steps below:

1. Synchronize your old SMiRF (PDA) with your old Palm Desktop to ensure that the latest information from your SMiRF is backed up to your desktop computer.

2. (Optional) To prevent data loss, go to the folder that stores Palm Desktop (for example, C:\Program Files\Palm), copy the folder and its contents, rename it (for example, Palm Backup), and store the copy outside the Palm Desktop folder.

3. Make sure you installed the new software in the same folder as the old software.

4. To prepare for the first HotSync operation that will synchronize your SMiRF with your new Palm Desktop, go to the HotSync Manager and choose Custom.

NOTE
Select your username, if it does not already appear in the box.

5. For all conduits, click Change, and select the Desktop overwrites handheld option. Then click OK.

NOTE
For the conduits named, "Install", "Install Service Templates" and "Install To Card", Desktop overwrites handheld is not an option. These should remain Enabled.

6. Connect your new SMiRF handheld to your desktop computer with the communications cable or USBcradle and press the HotSync button. For more information on how to do this refer to your Quick Start Guide included in your kit. If the Select User dialog box appears on your desktop computer, select your username.

For more information on the HotSync process please refer to the Meazura MEZ1000 RDA handbook pages 91-94.

Setting up a WorkStation

In order to connect the PDA to the internet to allow to sync to download or upload tasks to a server. The PDA needs an internet connection. The SMiRF supports 3 methods:

1. USB Cradle/cable + a 3rd party program called Softickk PPP http://www.Softickkk.com/ppp/
2. Bluetooth internet connection
3. GPRS cradle connection

Softick PPP

Softick PPP allows the SMiRF to access the Internet or a Local network through your laptop/desktop PC. The Softick enables PPP communications over the SMiRF cradle/cable USB connection. With Softick PPP a user can synchronize with a remote MeshMaster server (upload completed tasks, download new tasks and other data). Softick PPP is available here: http://www.softick.com/ppp/

The Softick website and manual provide installation and configuration information.

Softick PPP requirements

- A Palm OS (PDA)
- Windows 7
- Palm Desktop 4.1 or higher Installed
- USB or Bluetooth/Serial connection

Maintaining Your Handheld

Environmental Factors

Storage Conditions

Store the SMiRF in a cool dry place.

Operating Conditions

While operating the SMiRF please ensure it is free of moisture, particularly when operating around electrical equipment. The SMiRF is waterproof and dustproof and can be operated in most environmental conditions. We do **not** recommend operating the SMiRF in extreme conditions (e.g. underwater for long periods, in extreme hot and cold environments, or at extreme altitude).

Cleaning Your SMiRF

When removing mud or other debris from the SMiRF, use a damp cloth and a soft bristle brush and completely dry the SMiRF before use.

Warning
For safety reasons, ensure that the SMiRF is completely dry before charging and operating near electrical equipment.

Maintaining your Battery Pack

Changing the Battery

Before changing the battery to save data on the PDA by performing a backup the SMiRF so no data is lost. After Backing up the SMiRF Follow the directions below to change the battery:

1. Either perform a HotSync or perform card backup to save any data in the SMiRF
2. Remove the battery clip
3. Remove the old battery
4. Install the new battery
5. Replace the retaining clip
6. Sync or restore the card backup depending on what you did in step one.

Battery Usage

The SMiRF comes with a rechargeable Lithium Ion battery pack that can be purchased from Aceeca or participating resellers. The battery life between charges varies with usage but typically allows up to 30 hours of continuous use.

Battery Warnings

- Do not heat or throw the battery into a fire.
- Do not use or store the battery close to fire or inside a car in which the temperature may be over 60℃.
- Do not put the battery in your pocket or in a bag together with metal objects such as necklaces, hairpins, coins, or 97 screws. Do not store the battery with such objects.
- Do not short circuit the (+) and (-) terminals with a metal object such as a needle, necklace or hairpin.
- Do not pierce the battery with a sharp object such as a nail.
- Do not hit with a hammer, step on, throw, drop or allow the battery to undergo other such strong shock.
- Do not disassemble or modify the battery.
- Do not solder the battery directly.
- Do not use a battery that is severely scarred or deformed.

Battery Storage

Unlike NiCd (Nickel Cadium) batteries or NiMH (Nickel-metal Hydride) batteries, lithium-ion batteries should be charged early and often. When not in a device the battery should be kept at charge level of around 40%. Never use battery maintenance software to maintain your battery as this can reduce the life of your battery. Li-ion batteries should be kept cool. Ideally stored in a refrigerator. They should not be subjected to freezing temperatures. Aging will occur much faster at high temperatures (such as a hot car) and will reduce the life of your battery. Purchase a Li-Ion battery pack only when you need a replacement, ensuring you receive a fresh battery pack.

- Do not use the battery with dry cells or other primary batteries, or batteries of a different package, type, or brand.
- Stop using the battery if it exhibits abnormal heat, odor, color, deformation or is in an abnormal condition.
- Keep away from fire immediately when leakage or foul odor is detected.
- If liquid leaks onto your skin or clothes, wash well with fresh water immediately.
- If liquid leaking from the battery gets into your eyes, do not rub your eyes. Wash them well with clean water and consult a doctor immediately.
- Before using the battery, be sure to read the user's manual and cautions on handling thoroughly.

- For information on installing and removing the battery from equipment, thoroughly read the user's manual for the specific equipment.
- Batteries have life cycles, so if the time that the battery is powering the equipment becomes much shorter than usual, the battery life is at an end. Replace the battery with a new one.
- Remove a battery whose life cycle has expired from equipment immediately.
- When the battery is discarded, make it non-conducting by applying vinyl tape to the (+) and (-) terminals. The battery must either be discarded as specified by the relevant local

body or put it in the recycling box of a store that is cooperating in the recycling of rechargeable batteries.

- When not using the battery for an extended period, remove it from the equipment and store it in a place with a low humidity and low temperature.
- If the terminals of the battery become dirty, wipe them with a dry cloth before using the battery.
- The battery can be stored within a -20℃ to 40℃ temperature range.

Battery Charging

The lithium-ion battery can provide between 300-500 charge/discharge cycles. The lithium-ion battery is different from most other rechargeable batteries as charging from a partially charged battery keeps the battery in good condition whereas other batteries perform better when fully discharged before recharging again. Fully discharging the lithium-ion battery should be avoided wherever possible. For most users, charging the battery at the end of each day is the ideal choice. The lithium-ion battery pack typically lasts about 2-3 years, but potentially longer if cared for properly.

- When charging the battery, use dedicated chargers and follow the specified conditions.
- Do not use or charge the battery close to fire or inside a car in which the temperature may exceed 60℃.
- Stop charging the battery if charging is not completed within the specified time.
- Thoroughly read the user's manual for the charger before charging the battery.
- The battery can be charged within a 0℃ to 45℃ temperature range.
- Use the battery only in the specified equipment.
- Do not charge the battery in a place where static electricity is generated, or let the battery touch something that is statically charged.

Recycle and Disposal Methods

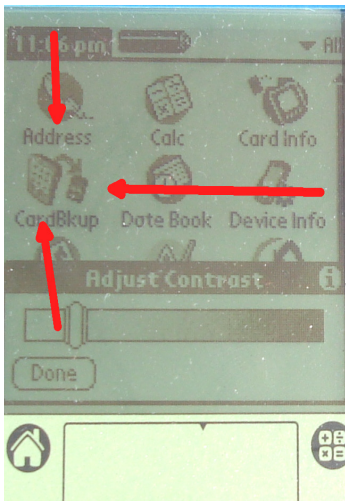
Lithium ion batteries, like all rechargeable batteries are recyclable and should be recycled.

CAUTION
If your battery is damaged, or if it no longer holds a charge, dispose of it promptly and properly. Do not dispose of it along with general waste. Call your local waste disposal agency or environmental agency for advice on disposing of the battery.

Backing up the SMiRF

The SMiRF software and data collected are stored in volatile memory inside the SMiRF; volatile memory is only retained while power is present. In order to have a back up for your SMiRF software and all data collected, you should backup your SMiRF regularly. To backup the SMiRF:

1. Locate the “CardBkup” application



2. Launch the CardBkup application
3. Tap “Backup Now”
4. Select the memory card to receive the backup
5. Assign a name for the backup
6. Tap “Begin Backup”
7. The SMiRF will backup all the data on the Card
8. When the backup is finished, tap “Done”

Refurbishment Services

Aceeca offers refurbishment services for your PDA. The types of services that exist are:

- Replacement of touchscreen
- Replacement of gaskets and keypad
- Refitting of module
- Refurbishment of damaged exterior

For more information about the refurbishment process, please contact Aceeca through their website at http://www.aceeca.com.

Trouble Shooting Section

Restart Software

A soft reset allows your RDA to get a fresh start, similar to rebooting a desktop computer. All records and

entries are retained after a soft reset.

To perform a soft reset, press and release the Power and Backlight button together.

Restart Hardware

A hard reset will erase all records and entries stored in your PDA. NEVER perform a hard reset unless a soft reset does not correct your problem. Always ensure you have backed up your data, if possible, before performing a hard reset on your PDA. You can restore any data the you previously backed up to your card.

To perform a hard rest, do the following:

1. Press and hold the Power and Backlight buttons together, then release the Backlight button only.
2. Release the Power button when the SMiRF Powered logo appears.
3. Follow on-screen instructions:
    - If you want to abandon the hard reset, press the down arrow button.
    - If you want to continue with the hard reset, press the up arrow button.

Note

When you perform a hard reset, the current date and time are retained. Formats, preferences, and other settings are restored to their factory default settings.

Non-Synchronizing work-orders

If the work-orders are not synchronizing properly then check to see if the Handheld has a method to communicate with the internet installed or setup. Without a method to communicate with the internet the PDA cannot exchange information with the server.