Handheld RFID Reader
Model 702

Owners Manual

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Safety Information

Introduction

We provide important safety information and warnings to assist you in understanding and avoiding potential harm to yourself, and possible damage to equipment, during the installation and use of the 3M™ Handheld RFID Reader Model 702.

- Although this manual describes potential hazards you may encounter during installation and operation of this product, we cannot predict all of the possible hazards and this list should not be a substitute for your judgment and experience.
- Before you install and use this equipment, please read and observe all safety information and instructions in this manual.
- If you are unsure about any part of this installation or of the potential hazards discussed, please contact your supervisor immediately.

BEFORE YOU PROCEED WITH THE INSTALLATION, PLEASE READ THE INTENDED USE STATEMENT AND ALL SAFETY MESSAGES.

Safety messages

We include safety messages and safety labels in this manual to help you protect your safety and the safety of others. This section contains important information to help you recognize and understand these safety messages.

Safety message format

Safety messages are designed to alert you to potential hazards that can cause personal injury to you or others. They can also indicate the possibility of property damage.

Each safety message box contains a safety alert symbol ( ); one of two signal words: **WARNING**, or **CAUTION**; and a safety message. The signal words and symbols, and their meanings, are shown below.

In addition to the symbols and words explained previously, each safety message:

- Identifies the hazard.
- Describes what you can and should do to avoid the risk of exposure to the hazard.
- Describes the probable consequences of not avoiding the hazard.

WARNING Indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.

CAUTION Indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury or property damage.

The (**I**nformation) icon is used in this manual to draw your attention to other important information.

Safety messages contained in this manual

Read, understand, and follow all safety information contained in these instructions before using the 3M™ Handheld RFID Reader Model 702. Retain these instructions for future reference.

Intended use

The 3M Handheld RFID Reader Model 702 is designed and tested for use processing 3M Radio Frequency Identification (RFID) Tags. These tags are used to identify items, such as books, videocassettes, files, etc., for various users. The Model 702:

- Reads 3M™ RFID Tags placed in items that are arranged on a shelf or on a desk.
- Processes identification codes stored in the RFID tags that can, for example:
  - be compared with user-generated lists to assess and correct the shelf order of the items
  - aid with reshelving items
  - aid with sorting items
  - identify items the user is searching for, based on user-generated search lists
  - associate identified items with storage locations

The product has not been tested or proven safe for other uses.

Safety messages

⚠ WARNING

To reduce the risks associated with fire and explosion, which, if not avoided, could result in death or serious injury and/or property damage.

- Do not attempt to use a damaged battery pack, charger, or power supply;
- Do not allow battery pack to come in contact with water;
- Do not disassemble, crush, or incinerate the battery pack — at the end of service life, dispose of the battery pack in accordance to federal, state and local requirements;
- Replace battery pack with Molicel MCR-1821G/1-H battery pack only;
- Do not store the battery pack in areas that may exceed temperatures of 100°C/212°F;
- Use the charger with the supplied power supply only.

To reduce the risks associated with hazardous voltage contained within the battery charger, which, if not avoided, could result in death or serious injury:

- Do not use the charger or power supply if the case or cord are damaged;
- Do not use in outdoor or wet environments;
- Do not attempt to service or repair the charger or power supply — no user serviceable parts inside.

⚠ CAUTION

To reduce the risks associated with repetitive strain injuries from overuse of the Handheld unit, which, if not avoided, may result in minor or moderate injury:

- Do not operate the unit too long between rest periods.

To reduce the risks associated with environmental contamination from the potentially hazardous chemicals within the lithium-ion battery pack, which, if not avoided, may result in minor or moderate injury:

- At the end of service life, dispose of the battery pack in accordance to federal, state and local requirements.

To reduce the risks associated with environmental contamination from circuit boards containing lead-bearing solder within the Handheld, which, if not avoided, may result in minor or moderate injury:

- At the end of service life, dispose of the handheld unit in accordance to federal, state and local requirements.

Safety labels

We include safety labels on the devices for your safety and the safety of others. Safety labels are designed to alert you to potential hazards associated with a piece of equipment that can cause personal injury to you or others. Safety labels can also indicate the possibility of property damage.

Please read all safety labels.

Explanation of signal words and symbols

Each safety label contains a safety alert symbol ( ), one of two signal words (**WARNING**, or **CAUTION),** and a safety message.

The signal words and symbols, and their meanings, are shown below:

WARNING: Indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.

CAUTION: Indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury.

Attention: Refer to accompanying documents.

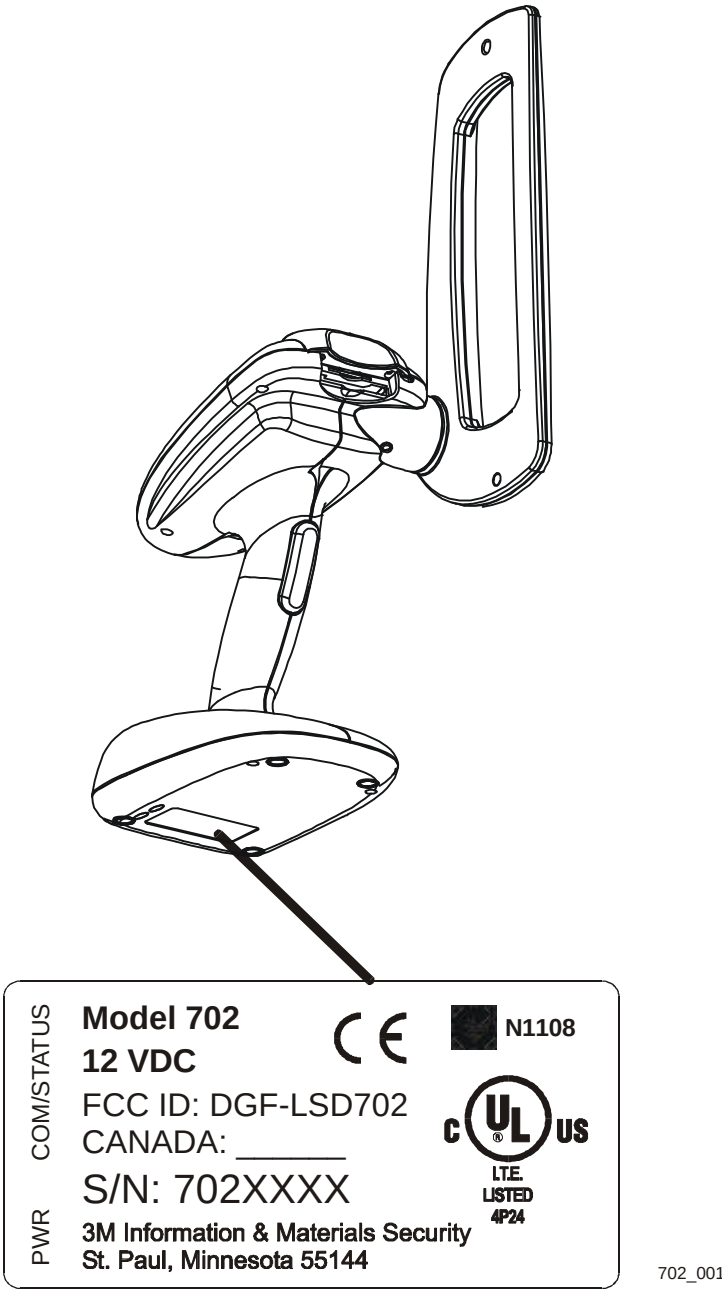
Warning: Risk of electric shock. Refer all servicing to manufacturer.

Safety label replacement

We consider safety labels to be an important part of all devices. Safety labels should be replaced immediately if they become hard to read.

If any of the safety labels are missing or cannot be read, please contact 3M Library Systems Technical Service for a replacement label.

Safety label locations



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EMC, USA, and Canada Compliance

FCC Radio Frequency Rules and Regulations

This equipment has been tested and found to comply with the limits for a Class A device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can emit radiated radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC Intentional Radiator Certification

FCC ID: DGF-LSD702

This equipment contains an intentional radiator approved by the FCC under the FCC ID number shown above. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NO MODIFICATIONS. Modifications to this device shall not be made without the written consent of The 3M Company. Unauthorized modifications may void the authority granted under Federal Communications Commission Rules permitting the operation of this device.

Industry Canada Radio Frequency Rules and Regulations

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numerique de la classe A respecte toutes les exigences du Reglement sur le materiel brouilleur du Canada.

CANADA: Pending

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference received, including interference that may cause undesired operation of the device.

EMC Compliance Europe

This equipment complies with the requirements of the RATE and EMC directives.

Getting Started

This section provides basic instructions on how to set up the handheld.

IMPORTANT NOTE!
Save all the original handheld packing materials so you can pack the Handheld if you need to return it for repair.

Specifications

Operating Temperature	Typical ambient temperature range: 50°F to 104°F (10°C to 40°C)
Storage Temperature	-40°F to 131°F (-40°C to 55°C)
Humidity	0% to 85% RH, non-condensing
Memory Card	Type I or Type II CompactFlash™ card.
Battery type	Only use a Molicel MR.-1821G/1-H battery.
Battery charger	Only use a Molicel MAC-1821B battery charger.
Typical charge life	A fully charged battery will last for approximately 3 to 4 hours of "trigger time" (time the trigger is pressed or activated). This typically provides many hours (even a full day or two) of use before recharging is required.
Typical time to fully charge a battery	The battery charger will charge a fully discharged battery in approximately 4.0 hours.
Battery Charger Power	100-240 Vac, 1.0A, 50-60 Hz

IMPORTANT NOTES!
To avoid damaging the Handheld, treat it as you would an expensive camera or a similar sensitive electronic device. ▪ DO NOT drop the Handheld. ▪ DO NOT leave the Handheld in locations where it might fall. ▪ DO NOT leave the Handheld in direct sunlight. ▪ DO NOT expose the Handheld to heat. ▪ Only use the point of the stylus to touch the various buttons and checkboxes on the screen. ▪ Never use a pen, pencil, or other sharp object on the display screen.

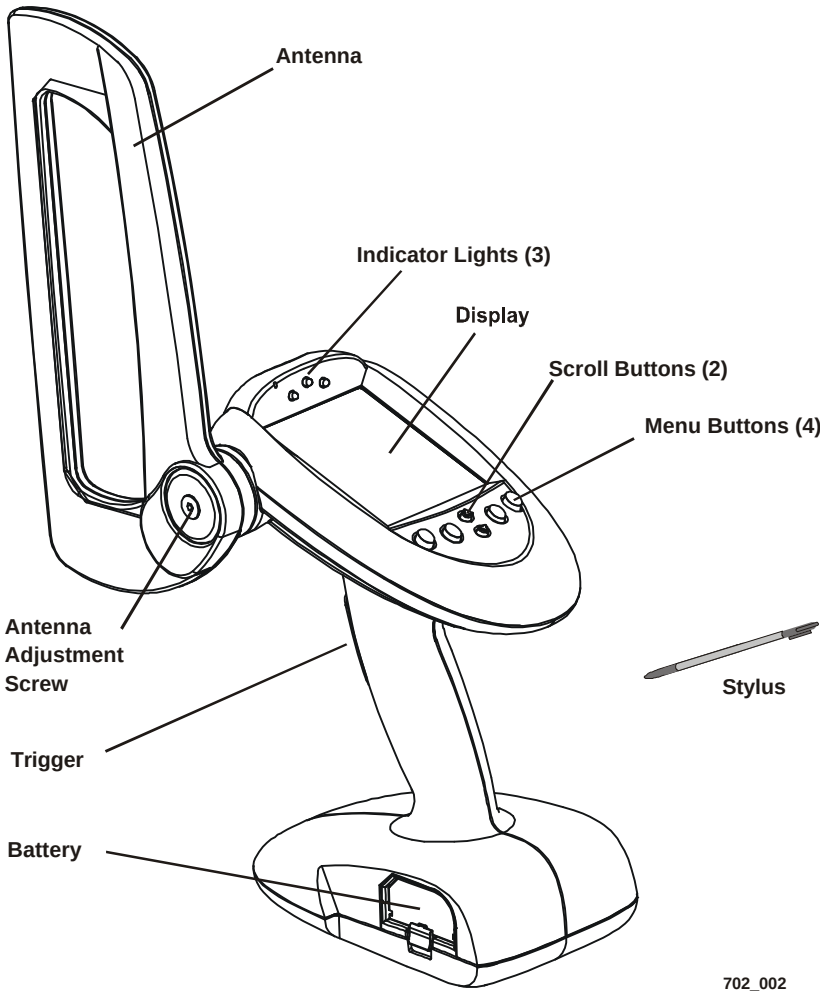


Figure 1: Handheld components.

Controls and indicators

The handheld display includes menu selections and setup screens with various checkboxes.

- Most tasks are selected using the **menu buttons**. You can also use the **stylus** to select various handheld functions.
- Use the **stylus** to check and uncheck the various checkboxes that appear in the setup screens.

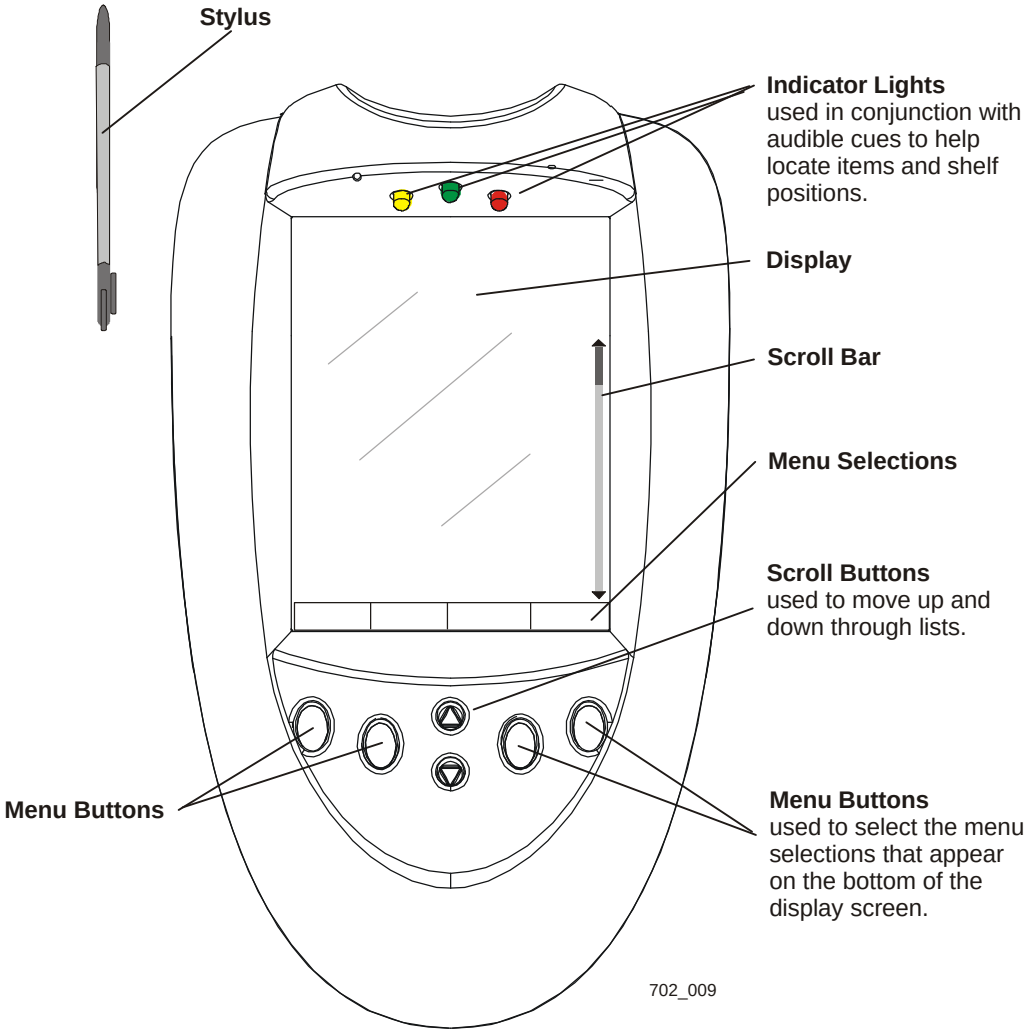


Figure 2: The handheld includes a menu-driven display screen.

Using the Handheld Device for the first time

Step 1 – Use 3M Data Management software to export lists and 3M Handheld Software onto a memory card.

1 Use the other software supplied with your system to install and set up the **Handheld Software** (located on the CD-ROM delivered with the handheld) on the same computer where you installed the other software.

2 Export Handheld Software onto a memory card.

- This occurs automatically whenever you export data to a memory card.

3 Insert the memory card into the handheld.

- See **Inserting the memory card** on page 18.

Step 2 – Charge the battery and insert it into the handheld.

1 See **Charging the battery** on page 17.

2 Insert the charged battery into the handheld.

Step 3 – Calibrate the screen

1 Press the **Reset** button (located on the bottom of the handheld near the antenna).

2 Follow the instructions to calibrate the screen using the handheld stylus.

- Tap **Next** at the **Country/Date/Time** screen.
- Tap **Done** at the **Setup Complete** screen.

Step 4 – Load and set up the 3M software

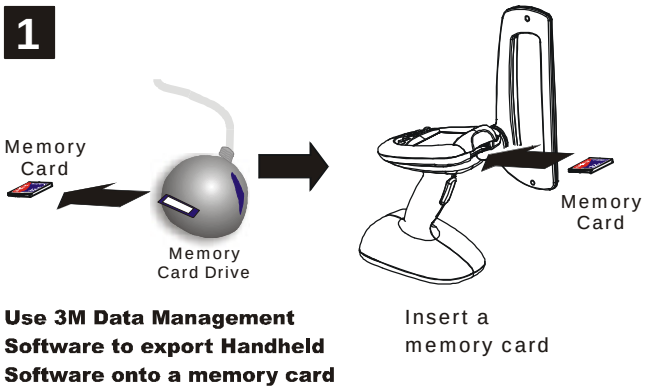
1 Press and release the trigger on the handheld to load software into RAM (takes approximately 15 seconds) and display the **Palm Preferences** screen.

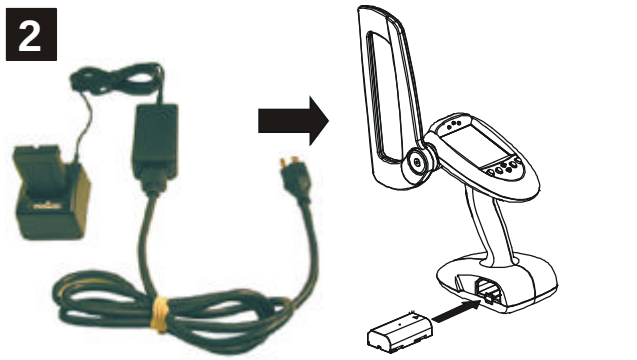
- Continue to the next step without setting any preferences.

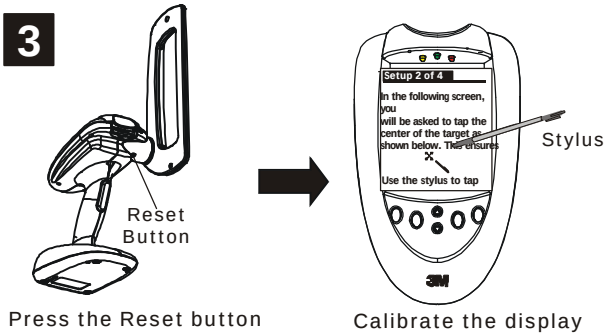
If the 3M software does not load properly, perform the reset procedure on page 13 and try again.

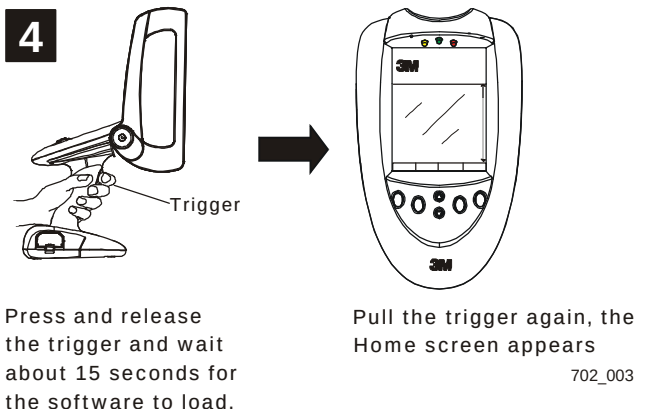
2 Press and release the trigger on the handheld again to display the **3M Software Home** screen. (You may have to set the time functions before the Home screen appears.)

3 Refer to the *3M Handheld Software Manual* for Staff and Admin Setup procedures.









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Inserting the memory card

The memory card contains the data and Handheld Software required for operation.

1 - Install a pull tab on the memory card

The handheld includes a number of pull tabs that you can attach to various memory cards. These pull tabs can make removing memory cards easier.

For reliable operation, 3M recommends using only SanDisk memory cards and SanDisk memory-card readers.

2 – Insert the memory card

1 Grasp the memory card with the label side up.

2 Push the pin-socket end of the memory card into the **memory-card slot** until it is completely inserted.

- Messages (such as loading the database, etc.) appear on the screen.
- If the memory card contains a newer version of 3M software, a dialog box will ask you if you want to install the new version.

Above the memory-card slot is a Secure Digital (SD) card slot that is not used. A small plastic blank blocks the SD slot. If the blank becomes loose, push it back into place.

Database Errors

The handheld may display **No Database** or **Invalid Database** messages.

- These messages are usually the result of corrupted data on the memory card.
- If you see these messages, you may have to reformat the memory card (See **Formatting a memory card** on page 14.)

Data corruption can occur if you remove the memory card from the memory-card drive before a Data Manager export operation is complete. You can also corrupt data if you do not return to the Home screen before you remove the memory card from the handheld.

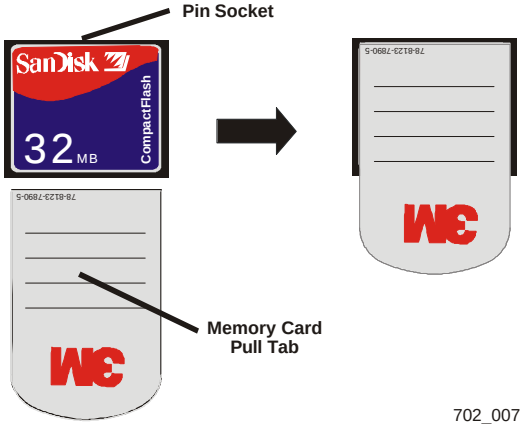


Figure 3: Attach the memory-card pull tab to the memory card.

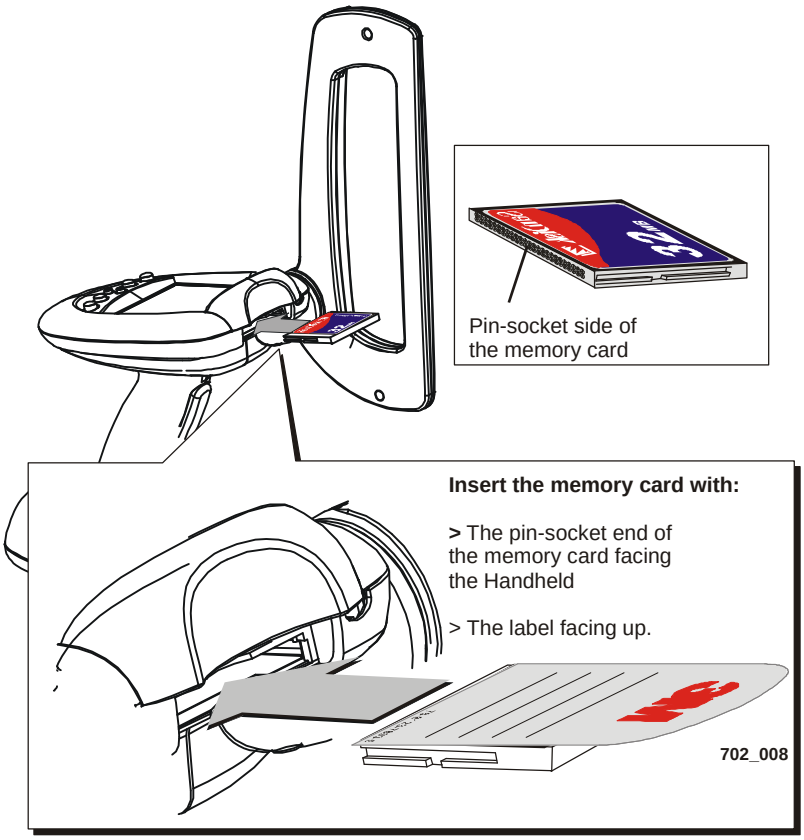


Figure 4: Insert the memory card as shown.

Removing the memory card

IMPORTANT NOTE!

To avoid corrupting data that you collected with the handheld and saved to the memory card, always return to the Home screen before removing the memory card.

Procedure

1 Press **Home** to return to the Home screen.

- This ensures that the handheld finishes any write activities before you attempt to remove the memory card.

2 Grasp the memory card and pull it straight out from the handheld.

- To make it easier to remove a memory card, attach a memory-card pull tab to the memory card.
  See **1 - Install a pull tab** on page 11.

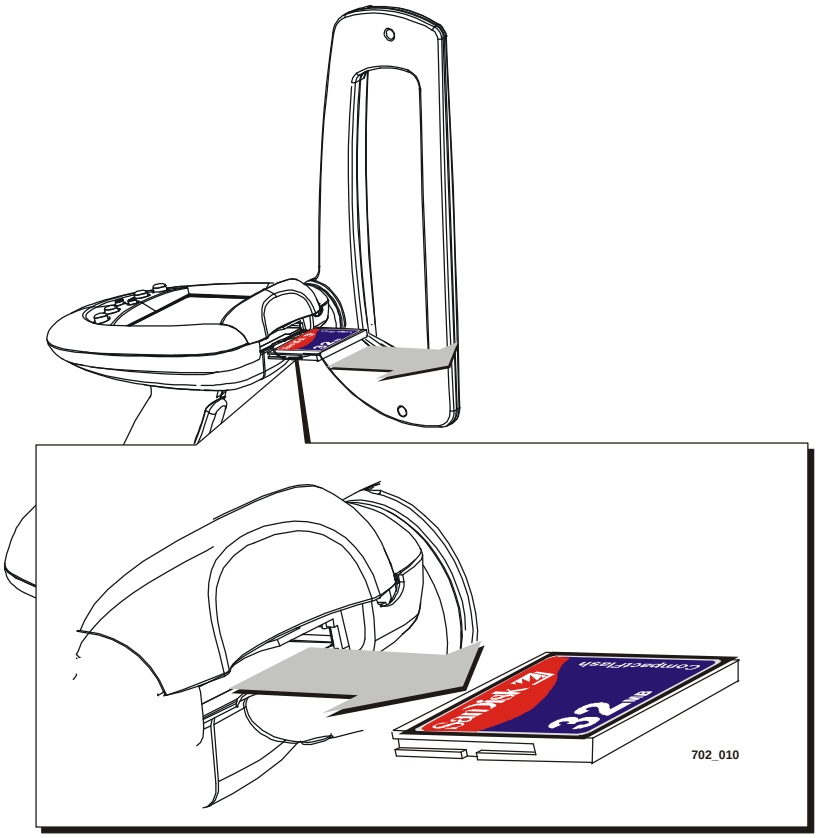


Figure 5: Return to the 3M software Home screen before removing the memory card from the handheld.

Resetting the handheld

If the handheld display locks up or stops working, perform the reset procedure described below.

Symptoms may include:

- The power will not come on (screen remains blank)
- Lines appear on display or the display is distorted.
- A blinking black square appears in the upper left corner of the display.
- Palm startup screen appears on the display and will not go away.

A blank screen may be caused by a fully discharged battery.

To reset the handheld

1 Insert a memory card (with 3M Handheld Software on it) into the handheld.

2 Press and hold the **reset button** for approximately one second.

3 Press the trigger.

a Handheld Software loads.

b The Home screen appears.

If pressing the reset button did not work...

1 Insert a memory card (with 3M Handheld Software on it) into the handheld.

2 Remove the battery for approximately five minutes.

3 Insert a **fully charged** battery.

4 Follow the **Using the Handheld Device for the first time** procedure on page 10.

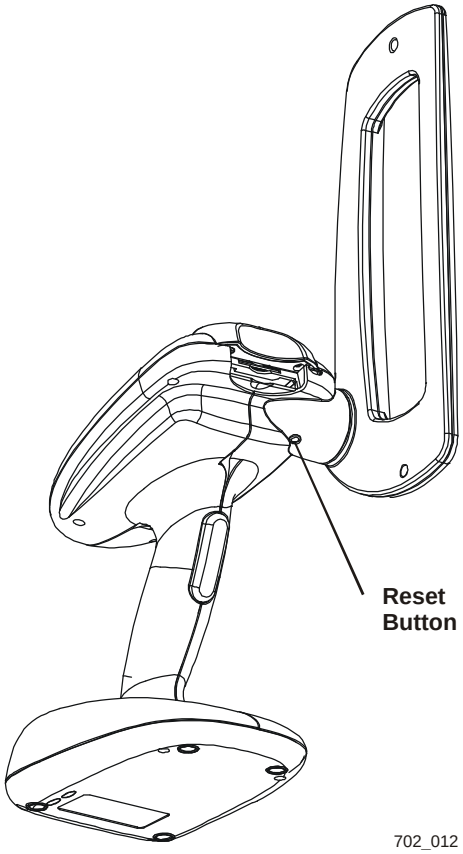


Figure 6: Handheld reset button.

Formatting a memory card

If the Handheld displays database error messages when you insert the memory card, try reformatting the memory card.

If this procedure does not work, call 3M Service. (See **Requesting service** on page 19.)

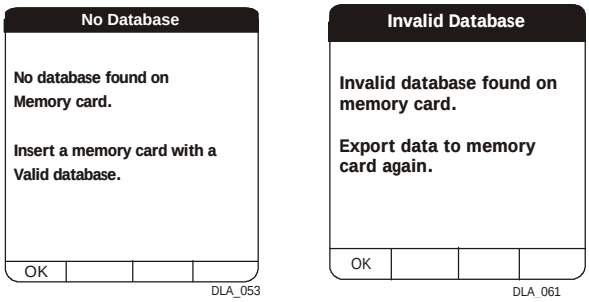


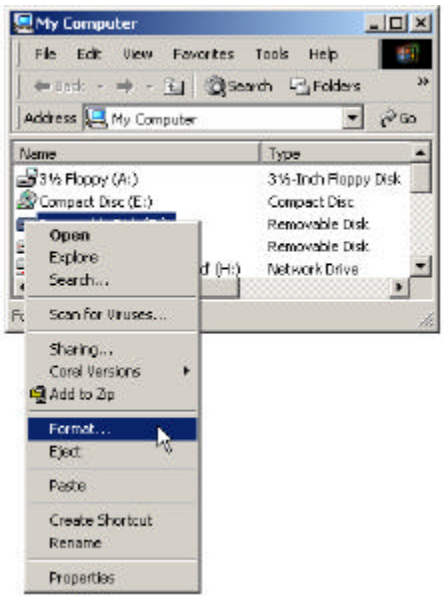
Figure 7: If the Handheld displays database error messages when you insert the memory card, try reformatting the memory card.

Using Windows to format the memory card

1 Double-click the **My Computer** icon on your computer's desktop.

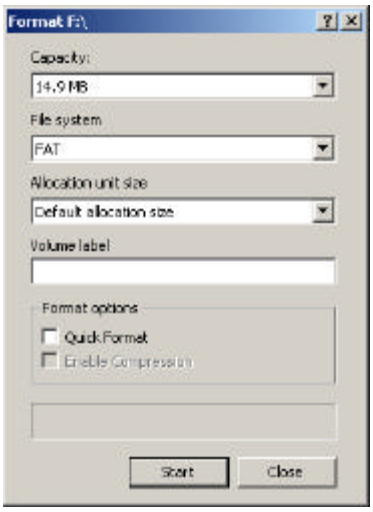
2 Right click on the memory-card icon and select **Format**.

- The **Format** dialog box appears.
- Leave the other settings at their default state.



3 In the **File System** list box, select **FAT**.

4 Click **Start**.



5 Use Data Manager to export lists and/or collection categories to the memory card.

6 Insert the memory card into the Handheld.

- If the Handheld reads the memory card, the formatting was successful.
- If the Handheld displays "No Database" or "Invalid Database" messages, call 3M Service. See **Requesting service** on page 19 for phone numbers.

Adjusting the antenna

If necessary, use the **antenna adjustment tool** provided to carefully adjust the swivel tightness of the handheld antenna.

If the antenna is too loose

- Use the **antenna adjustment tool** to **tighten** (turn clockwise) the antenna adjustment screw slightly until the antenna swivels properly.
- Be careful to only turn the adjustment screw the minimum amount needed to adequately tighten the handheld antenna swivel.

If the antenna is too tight

- Use the **antenna adjustment tool** to **loosen** (turn counterclockwise) the antenna adjustment screw slightly until the antenna swivels properly.

IMPORTANT NOTE!

Do not **over tighten** the antenna adjustment screw. Over tightening the antenna adjustment screw may damage the Handheld.

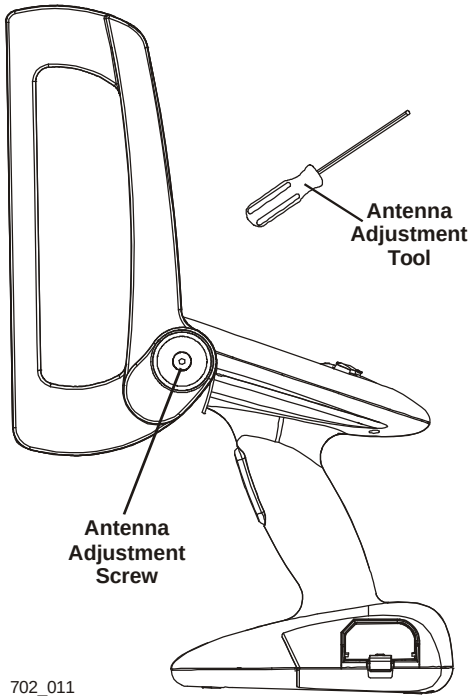


Figure 8: Use the antenna adjustment tool to adjust the antenna.

Cleaning the handheld

The handheld may need occasional cleaning.

- Gently rub the handheld with a soft cloth dampened with a mild cleaning solution. Make sure that no liquids enter the handheld case.
- DO NOT spray cleaning solution directly on the handheld.

Storing the handheld

During storage, the handheld continues to use a small amount of battery power. Over time (approximately one week), the battery can lose its charge, requiring you to perform a reset.

Storing the handheld for less than a week

Install a fully charged battery in the handheld.

- To start using the handheld, press and release the trigger.

Storing the handheld for more than a week

Remove the battery from the handheld when storing it for more than a week.

- After storage, insert a fully charged battery and perform the **Resetting the handheld** procedure on page 13.

Battery Management

The handheld is powered by a rechargeable lithium-ion battery that must be periodically charged.

Battery charging guidelines

- Batteries may be charged overnight or for extended periods.
- Batteries do not have to be discharged before recharging them.
- Batteries may be plugged in for any amount of time to partially recharge the battery.

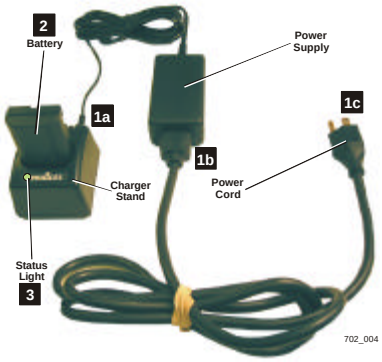


Figure 9: Battery charging system.

Battery use

Typical charge life

A fully charged battery typically provides several hours of use before recharging is needed.

Checking the battery charge

The upper right hand corner of each task screen includes a graphical battery charge indicator (battery gauge).

- The battery gauge shows how much of a charge remains in the battery that is currently being used. (See Figure 10.)
- If the battery gauge shows less than 50% charge remaining, you may want to replace the battery with a fully charged battery and place the other battery in the charger.

Low battery warning messages

- The handheld warns you when battery power is low. You should replace the battery if a “battery low” message appears. (See **Replacing the battery** on page 18.)
- Handheld Software protects you from totally losing power by requiring that the battery be changed or recharged when the charge drops to a very low level.

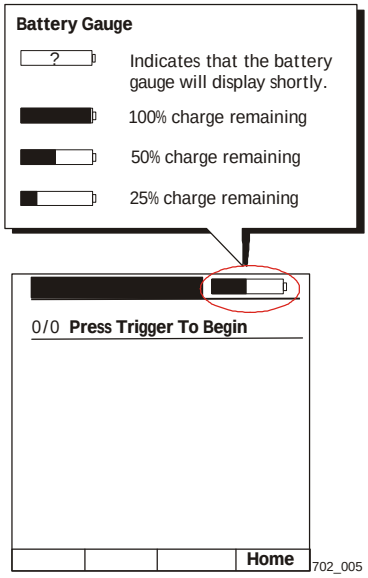


Figure 10: The battery gauge shows how much charge remains in the battery.

Sleep Mode

Once the battery is charged and installed, the handheld is ready to use at all times.

- To conserve battery charge, the handheld will enter **“sleep mode”** after approximately two (2) minutes of no activity. During sleep mode, the screen will go blank.

To bring the handheld out of sleep mode, press the trigger.

- The display will revert to the last function that was used.

Charging the battery

Always keep one of the two batteries fully charged in the battery charger.

- The typical charge time is four hours.

To charge a battery

1 Connect the battery charger.

a Connect the **power supply output** to the charger stand.

b Plug one end of the **power cord** into the power supply.

c Plug the other end of the **power cord** into an AC power source: (100-240 Vac, 1.0A, 50-60 Hz).

- The **status light** is **Green** when no battery is inserted into the charger pocket.

2 Insert a single battery into the battery charger. See the **Installing the battery** procedure on page 18.

- Ensure that the two gold contacts on the battery are placed face down into the charger stand.
- The **status light** will change to **Red** to indicate that the battery is charging.

3 The status light changes from **Red** to **Green** when the battery is fully charged.

Battery Charger Status Light	
Red	indicates that the battery is being charged.
Green	indicates that the battery is charged or that there is no battery inserted in the charger pocket.

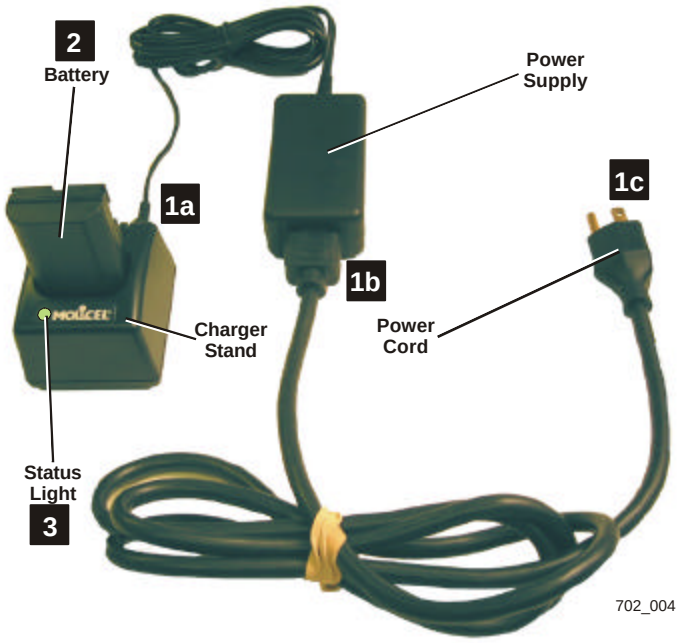


Figure 11: Connect the battery charger as shown.

WARNING

To reduce the risks associated with fire and explosion, which, if not avoided, could result in death or serious injury and/or property damage.

- Do not attempt to use a damaged battery pack, charger, or power supply;
- Do not allow battery packs to come in contact with water;
- Do not disassemble, crush, or incinerate the battery pack — at the end of service life, dispose of the battery pack in accordance to federal, state and local requirements;
- Replace battery with Molicel MCR-1821G/1-H battery only;
- Do not store the battery pack in areas that may exceed temperatures of 100°C/212°F;
- Use the charger with the supplied power supply only.

To reduce the risks associated with hazardous voltage contained within the battery charger, which, if not avoided, could result in death or serious injury:

- Do not use the charger or power supply if the case or cord are damaged;
- Do not use in outdoor or wet environments;
- Do not attempt to service or repair the charger or power supply — no user serviceable parts inside.

Replacing the battery

Battery replacement

Most software options are protected if all power is lost.

If a battery is removed and replaced in approximately one minute, the handheld will continue to function without interruption.

If a battery is removed for more than one minute, you may have to initialize the screen and reset the time, and date parameters.

Removing the battery

1 From the 3M software's **Home** menu, select **Change Battery**.

Important! - If you do not use the **Change Battery** function, you may lose collected data and/or corrupt the memory card. Also, you may have to reset the handheld.

2 When the screen goes blank, it is safe to remove the battery.

3 Push the **battery tab** down, away from the battery.

4 Slide the battery out of the battery holder.

- **If a battery is removed and replaced within approximately one minute,** the handheld will continue to function without interruption.
- If necessary, perform the **Resetting the handheld** procedure on page 13.

Installing the battery

1 Insert the battery into the battery holder as shown.

2 Make sure that the **battery tab** securely holds the battery in place.

WARNING

To reduce the risks associated with fire and explosion, which, if not avoided, could result in death or serious injury and/or property damage.

- Do not attempt to use a damaged battery pack, charger, or power supply;
- Do not allow battery packs to come in contact with water;
- Do not disassemble, crush, or incinerate the battery pack — at the end of service life, dispose of the battery pack in accordance to federal, state and local requirements;
- Replace battery with Molicel MCR-1821G/1-H battery only;
- Do not store the battery pack in areas that may exceed temperatures of 100°C/212°F;
- Use the charger with the supplied power supply only.

To reduce the risks associated with environmental contamination from the potentially hazardous chemicals within the lithium-ion battery pack, which, if not avoided, could result in death or serious injury:

- At the end of service life, dispose of the battery pack in accordance to federal, state and local requirements.

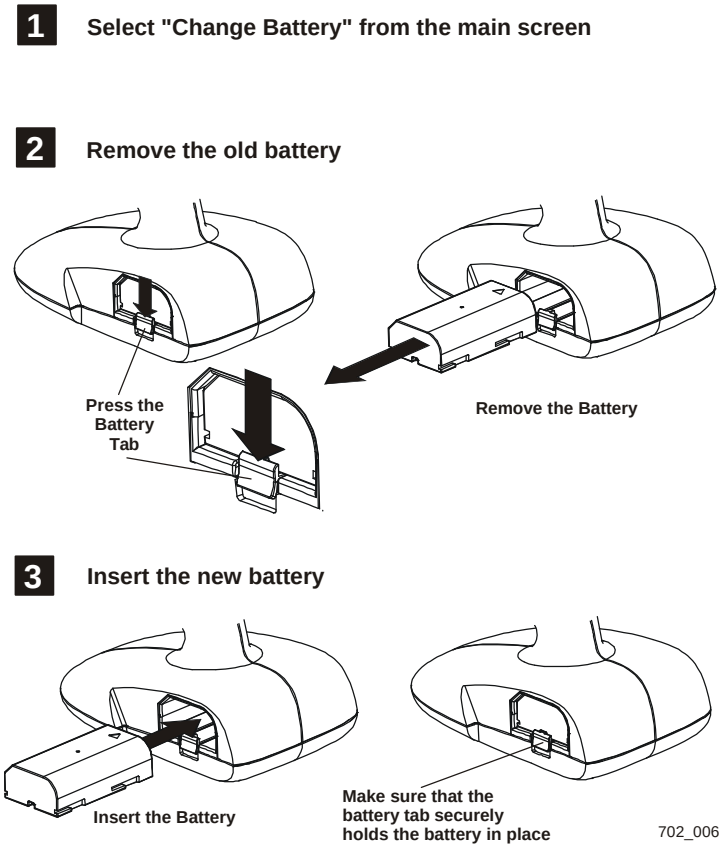


Figure 12: Before removing a battery, select Change Battery.

Requesting service

Before you call

Before you call 3M Service, have the following information available:

- Have the Handheld near the phone.
- Write down the Handheld's serial number (located on the bottom of the Handheld)
- Be ready to describe the problem and any error messages in detail.
- Write down the software version. (From the Handheld's **Home** screen, select **About …** to display the software version number.)

Return for repair

If repairs are necessary, call 3M Service and the 3M-service representative will explain how to package and return the handheld.

- Save all the original handheld packing materials so you can properly pack the unit if you need to return it for repair.

3M Service phone numbers

For any questions regarding handheld or Data Manager software, call one of the following numbers and ask for software support.

In the United States

1-800-328-0067 (Option 1)

In Canada

English 1-800-268-6235

Français 1-800-567-3193

In Other Countries

Call your local 3M office.

Ordering replacement parts

The following consumable parts may be ordered separately:

Stock Number	Description
78-8123-7939-0	Battery
26-1017-0437-2	Battery charger
26-1017-0421-6	Battery charger power supply
26-1005-6476-9	Power supply power cord
26-1014-9577-3	Antenna adjustment tool
78-8123-7890-5	Memory card removal tab
26-1014-9388-5	32MB memory card
26-1014-9616-9	Replacement stylus three pack

To order parts

Call the following phone numbers to order the parts listed above.

In the United States

1-800-328-0067 - Option 3

In Canada

English 1-800-268-6235

Français 1-800-567-3193

In Other Countries

Call your local 3M office.