



MF2351

All in One Mobile Terminal

User's Manual

Safety Information	1
DEVICE STORAGE	2
BATTERY HANDLING PRECAUTIONS	2
FEDERAL COMMUNICATIONS COMMISSION (FCC)	3
DECLARATION OF CONFORMITY	4
COPYRIGHT	4
DISCLAIMER	4
TRADEMARK RECOGNITION	4
SAR Information	4
Federal Communications Commission Statement	5
RF Exposure Information (SAR)	5
WEEE Notice	6
FCC Regulations	7
Chapter 1 - Introduction	8
PRODUCT OVERVIEW	8
FRONT AND BACK	8
LEFT AND RIGHT	9
TOP AND BOTTOM	10
FEATURES	11
PACKAGE CONTENTS	11
LED INDICATORS	12
Chapter 2 - Getting Started	13
INSTALLING THE BATTERY	13
CHARGING THE BATTERY	15
INSTALLING THE MEMORY CARD	15
INSTALLING THE SIM CARD	17
INSTALLING THE SAM CARD(S)	19
ATTACHING THE STYLUS	21
INSTALLING THE PAPER ROLL	22
Chapter 3 - Using the Terminal	24
POWERING THE DEVICE ON/OFF	24
ENABLING BACKUP BATTERY	25
HOT SWAP MAIN BATTERY	25
INITIAL SETUP	26
CALIBRATING THE TOUCH SCREEN	26
SETTING THE DATE AND TIME	27
ADJUSTING THE SCREEN BRIGHTNESS	28
CONFIGURING THE TASKBAR AND START MENU	29
USING THE KEYPAD	30
Chapter 4 - Using the Stylus	32
KEYBOARD MODE	32
TRANSCRIBER MODE	34
OPTIONS BUTTON	35
LETTER SHAPE SELECTOR	37

MINI KEYBOARD	38
RECOGNITION MODE	38
SPACE	39
RETURN	39
LEFT ARROW, RIGHT ARROW, BACKSPACE	40
Chapter 5 - Configuring Utilities Settings	41
MSR	42
PRINTER	45
WLAN	46
BARCODE SCANNER	47
RFID	51
IC CARD READER	52
CAMERA	53
GPS	54
GENERAL SETTING	56
BLUETOOTH	57
GSM	59
GPRS	63
Chapter 6 - SPECIFICATIONS	67
OPTIONAL FEATURES	68

Preface

Copyright

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Bluetooth and the Bluetooth logo are trademarks owned by Bluetooth SIG, Inc.

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Safety Information

Before installing and using the MF2351, take note of the following precautions:

SAR compliance for body-worn operations requires at least 2 cm of separation between the device and the user's body

Request service for damaged products: Turn off the product, unplug it from the electrical outlet, and request service from a service partner under the following conditions:

- The power cord or plug is damaged
- Liquid has been spilled into the product
- An object has fallen into the product
- The product has been exposed to rain or water
- The product has been dropped or damaged
- The product does not operate normally when you follow the operating instructions

Avoid hot areas: The product should be placed away from heat sources such as radiators, heat registers, stoves, and other products (such as amplifiers) that produce heat.

Allow the product to cool: Allow the product to cool before removing covers and touching internal components.

Avoid wet areas: Never use the product in a wet location.

Avoid inserting objects into product: Never insert objects of any kind into slots or other openings in the product.

Clean the product properly: Unplug the product from the wall outlet before cleaning it. Do not use liquid cleaners or aerosol cleaners. Use a soft cloth dampened with water for cleaning exterior components, but NEVER apply water directly to the product or to an LCD screen.

Use the product with approved equipment: Use your product only with the computers and accessories identified as suitable for use with your product.

Adjust the volume: Turn down the volume before using headphones or other audio devices.

DEVICE STORAGE

When device will not be used for a long period of time, please remove the battery, place product in a dry box, and store both device and battery in a cool, dark, and dry place.

Batteries in storage need to be recharged at least once every three months to avoid degradation.

BATTERY HANDLING PRECAUTIONS

Do not attempt to disassemble or reconstruct the packs. The battery has integrated protection circuits and safety functions to avoid danger. If battery is damaged, it may rupture, generate heat, or cause smoke and flame.

Do not short circuit battery. Neither short connect the positive terminal and negative terminal with metals, nor carry or store the battery with metal objects. If the battery is short circuited, excessive large current will flow and generate heat, rupture or flame will occur, and also it will cause heat generation for metals. Please cover the plug with waterproof cap when not using the battery.

Do not incinerate or heat the battery. This will cause the insulator to melt, damage the gas release vent, and cause loss of safety function, or electrolyte ignition. Above mentioned matters will cause battery to rupture, generate heat, or cause smoke and flame.

Do not use near high temperature areas. Do not use or leave battery near fire, stove or heated areas of more than 80°C, to avoid melting of the polymer separator which would cause internal short circuits to occur in individual cells, and cause the battery to rupture, generate heat, or cause smoke and flame.

Do not immerse the battery in water, seawater, or get it wet. This may cause internal short circuits to occur within individual cells, and cause the battery to rupture, generate heat, or cause smoke and flame.

Do not charge battery near fire or under the blazing sun. If the battery protection circuit does not function properly due to high temperature, or it is broken, the battery will be charged at an abnormal current, and abnormal chemical reaction may occur, causing the battery to rupture, generate heat, or cause smoke and flame.

Only use the official product charger and observe the charging requirement. If the battery is charged in unusual conditions, it will cause loss of safety functions, or abnormal chemical reactions, causing the battery to rupture, generate heat, or cause smoke and flame.

Do not try to damage the battery. Do not drive a nail into the battery, strike it with a hammer, or tread on it. The impact will cause leakage, causing the battery to rupture, generate heat, or cause smoke and flame.

Do not attempt to solder anything onto the battery. This will cause the insulator to melt due to heat, or cause the gas release vent to break, causing the battery to rupture, generate heat, or cause smoke and flame.

Do not connect battery to a plug socket or car-cigarette plug. Connecting high voltage to the battery, means excessive current will flow in it, and cause the battery to rupture, generate heat, or cause smoke and flame.

Do not use battery for powering other equipment. If the battery is used for powering other equipment, it will deteriorate its performance and cycle-life. At worst, abnormal current will flow, and cause the battery to rupture, generate heat, or cause smoke and flame.

Do not touch a leaked battery directly. If battery leaks and hands touch leaked electrolyte, wash your hands with soap immediately. If leaked electrolyte gets into your eyes, do not rub them, and wash eyes immediately with fresh water. Consult a doctor immediately.

Do not continue to charge over specified time. If the battery has not finished charging over recommended time, let it stop charging. There is a possibility that the battery might be defective, and continued charging may cause the battery to deform, generate heat, or cause smoke or flame.

Do not insert battery into a microwave or high pressure container. This may cause battery to deform, generate heat, or cause smoke or flame, because of sudden heat, intense pressure, or damage to the sealing condition of the battery.

Do not put leaked battery near fire. If liquid leaks from the battery, or the battery give outs a bad smell, do not leave battery near flammable objects. Otherwise, the electrolyte leaked from battery will catch on fire.

Do not use an abnormal battery. If battery has a bad smell, changes color, deforms, or causes something wrong during usage, remove it from equipment or charger, and do not use. If an abnormal battery is used, it may cause battery to rupture, generate heat, or cause smoke and flame.

FEDERAL COMMUNICATIONS COMMISSION (FCC)

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 the receiver.

- Connect the equipment onto 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.

Shielded interconnect cables and a shielded AC power cable must be employed with this equipment to ensure compliance with the pertinent RF emission limits governing this device. Changes or modifications not expressly approved by the system's manufacturer could void the user's authority to operate the equipment.

DECLARATION OF CONFORMITY

This device complies with part 15 of the FCC rules. Operation is subject to the following conditions:

- This device may not cause harmful interference
- This device must accept any interference received, including interference that may cause undesired operation.

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TRADEMARK RECOGNITION

All product names used in this manual are the properties of their respective owners and are acknowledged.

SAR Information

THIS MOBILE DEVICE MEETS GUIDELINES FOR EXPOSURE TO RADIO WAVES. Your mobile device is a radio transmitter and receiver. It is designed not to exceed the limits for exposure to radio waves recommended by international guidelines. These

guidelines were developed by the independent scientific organization ICNIRP and include safety margins designed to assure the protection of all persons, regardless of age and health.

The exposure guidelines for mobile devices employ a unit of measurement known as the Specific Absorption Rate or SAR. The SAR limit stated in the ICNIRP guidelines is 2.0 W/kg averaged over 10 grams of tissue. Tests for SAR are conducted using standard operating positions with the device transmitting at its highest certified power level in all tested frequency bands. The actual SAR level of an operating device can be below the maximum value because the device is designed to use only the power required to reach the network. That amount changes depending on a number of factors such as how close you are to a network base station. The highest SAR value under the ICNIRP guidelines for use of the device at the body is 0.403 W/kg. Use of device accessories and enhancements may result in different SAR values. SAR values may vary depending on national reporting and testing requirements and the network band. The device could be used with a separation distance of 0 cm to the human body.

Federal Communications Commission Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This device 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 device 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 device does cause harmful interference to radio or television reception, which can be determined by turning the device 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 connected.- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

RF Exposure Information (SAR)

This device meets the government's requirements for exposure to radio waves. This device is designed and manufactured not to exceed the emission limits for exposure to radio frequency (RF) energy set by the Federal Communications Commission of the U.S. Government. The exposure standard employs a unit of measurement known as the Specific Absorption Rate, or SAR. The SAR limit set by the FCC is 1.6W/kg.

Tests for SAR are conducted using standard operating positions accepted by the FCC with the EUT transmitting at the specified power level in different channels.

The highest SAR value for the device as reported to the FCC is 0.75 W/kg when placed next to the body.

The FCC has granted an Equipment Authorization for this device with all reported SAR levels evaluated as in compliance with the FCC RF exposure guidelines. SAR information on this device is on file with the FCC and can be found under the Display Grant section of www.fcc.gov/oet/ea/fccid after searching on FCC ID: NDPEM-70B.

This device is compliance with SAR for general population /uncontrolled exposure limits in ANSI/IEEE C95.1-1999 and had been tested in accordance with the measurement methods and procedures specified in OET Bulletin 65 Supplement C.

WEEE Notice

The WEEE logo on the product or on its box indicates that this product must not be disposed of or dumped with your other household waste. You are liable to dispose of all your electronic or electrical waste equipment by relocating over to the specified collection point for recycling of such hazardous waste. Isolated collection and proper recovery of your electronic and electrical waste equipment at the time of disposal will allow us to help conserve natural resources. Moreover, proper recycling of the electronic and electrical waste equipment will ensure safety of human health and environment. For more information about electronic and electrical waste equipment disposal, recovery, and collection points, please contact your local city center, household waste disposal service, shop from where you purchased the equipment, or manufacturer of the equipment.



FCC Regulations

15.19(a)(3):

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.

15.105(b):

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

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

About this Manual

The content in this manual is as accurate as possible. However, due to continuous product improvements, some contents and specifications may have been changed since this manual was written. In this case, take the actual device as basis.

No part of this user manual may be reproduced, transmitted, stored in a retrieval system, or translated into any language, in any form or by any means, without a written permission from the manufacturer.

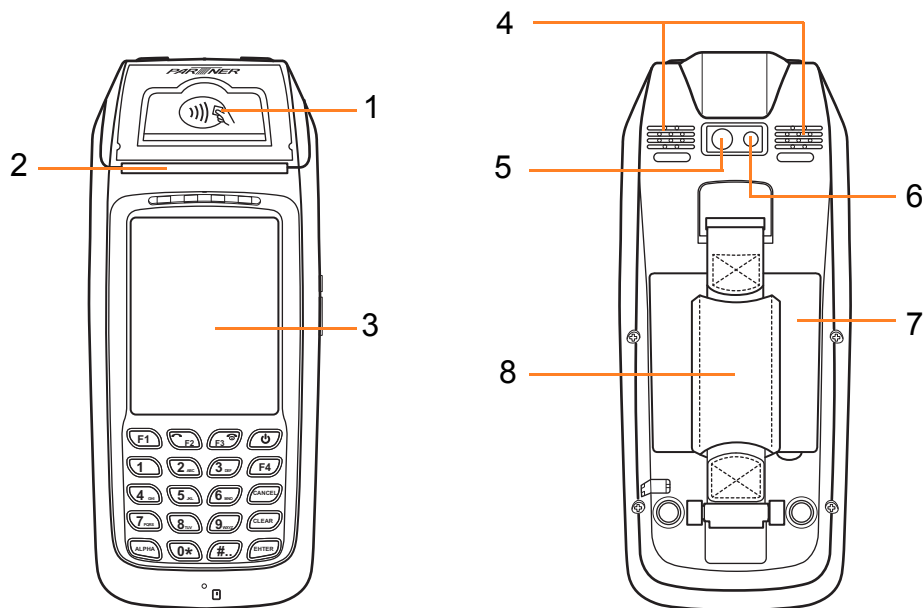
Information is subject to change without prior notice.

Chapter 1 - Introduction

MF-2351 is a handheld mobile terminal, offering high performance in a compact and slim full functional body. It includes a 2" thermal printer, wireless 802.11b/g, and many optional functions such as MSR (ISO7811 Track 1, 2, 3), barcode scanner, RFID, GPS, and Telecom standards (GPRS/WCDMA/CDMA2000).

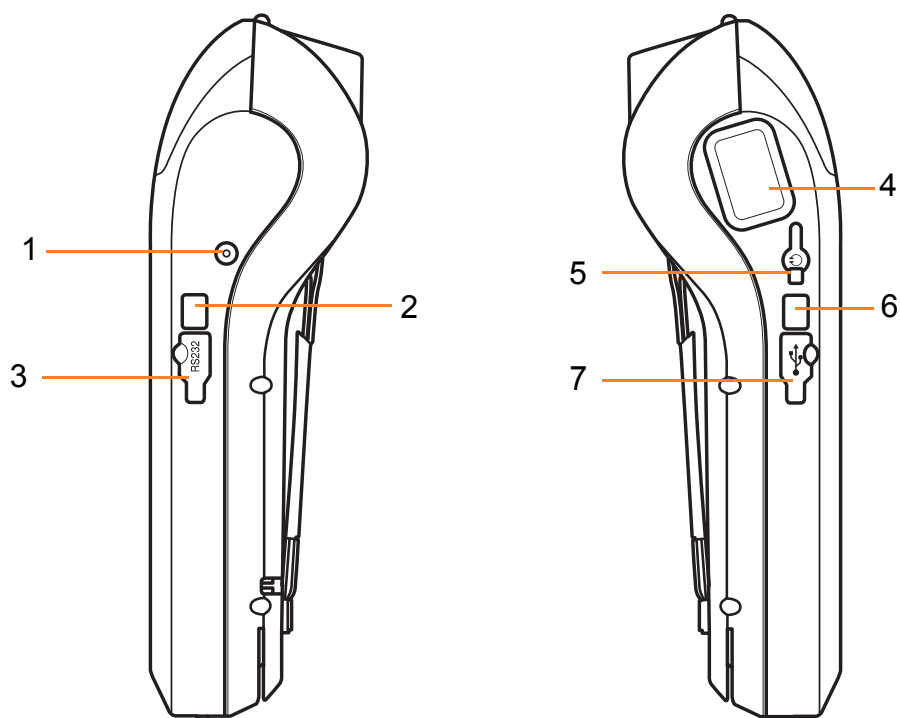
PRODUCT OVERVIEW

FRONT AND BACK



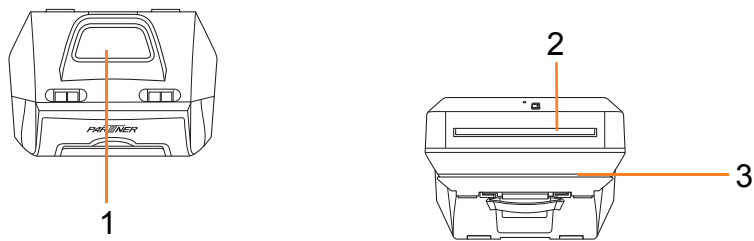
No.	Item	Description
1	RFID reader	RFID reader module.
2	Thermal printer	Thermal printer module for printing purposes.
3	3.5 LCD screen	Mobil terminal main screen.
4	Speaker	Speaker units.
5	Camera	3.0 megapixel digital camera module.
6	LED light	LED light for the digital camera module.
7	Battery	Main battery compartment.
8	Handstrap	The strap adds ease of use functionality.

LEFT AND RIGHT



No.	Item	Description
1	DC jack	Connects to the power adaptor.
2, 6	Function keys	Software programmable function keys.
3	RS232 connector	Connects to a RS232 cable for data transfer purposes.
4	Fingerprint sensor	Fingerprint sensor module to scan fingerprints.
5	Earphone jack	Connects to an earphone.
7	USB port	Connects to a mini USB cable for data transfer purposes.

TOP AND BOTTOM



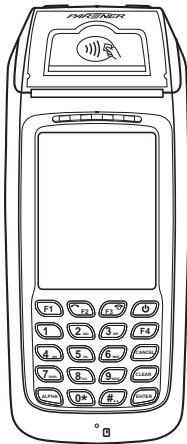
No.	Item	Description
1	Barcode scanner window	Aim this scanner window to read barcodes.
2	IC Card	IC Card module reads data from smartcards.
3	MSR	MSR module reads data from magnetic cards.

FEATURES

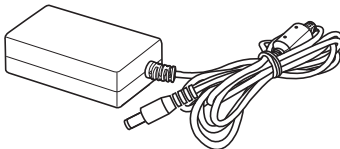
MF-2351 mobile terminal includes the following features.

Standard Features	Optional Features
2" thermal printer	Barcode scanner 1D/2D
MSR ISO7811 Track 1, 2, 3 bidirectional	RFID ISO 14443 A/B
WLAN 802.11 b/g	GPRS/WCDMA/CDMA2000
microSD card reader read/write	GPS
ISO7816-EMV2000 Level 1,2 IC card reader	Fingerprint sensor
3.0 megapixels autofocus camera	
DC jack, earphone+microphone jack, speaker, integrated microphone, vibrator motor, reset button	

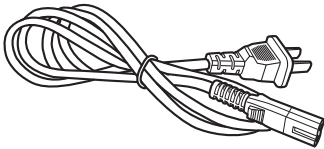
PACKAGE CONTENTS



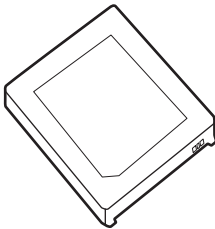
MF-2351 mobile terminal



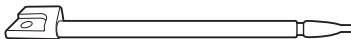
AC adaptor



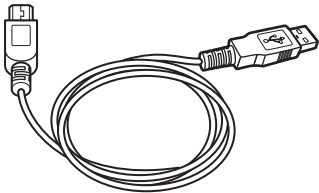
Power cord



Battery



Stylus and strap



USB cable

LED INDICATORS

MF-2351 has 4 LED indicators located across the top of the display.

The first LED is the charging indicator. The light will blink during charging, and lit when the battery is full.

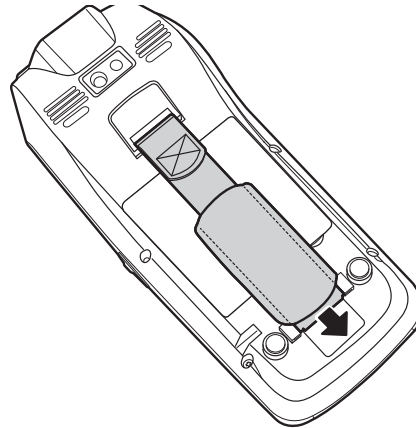
The last three are software programmable.



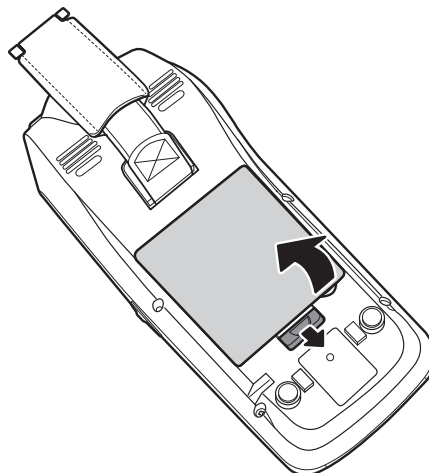
Chapter 2 - Getting Started

INSTALLING THE BATTERY

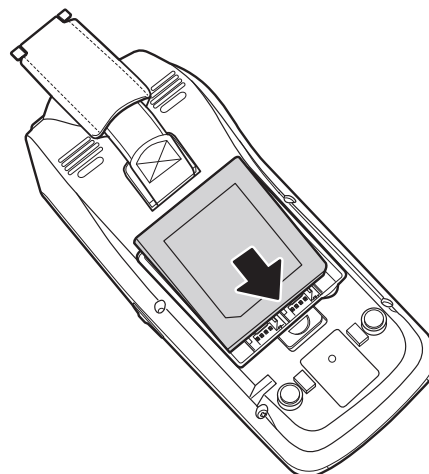
1. Release the strap. Pull the lower-end of the strap downward.



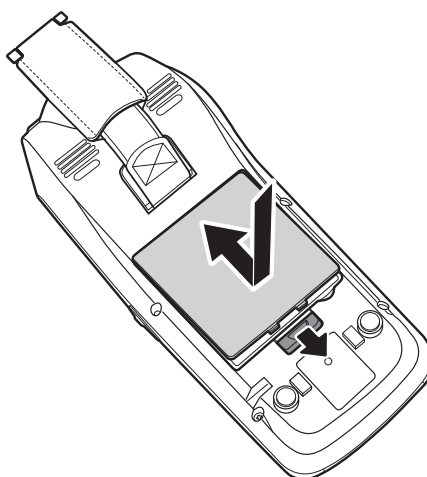
2. Pull down the battery latch and open the cover.



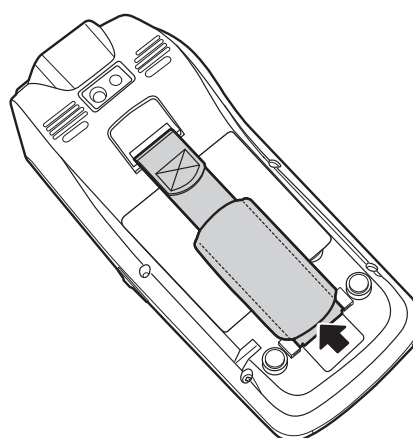
3. Insert the battery. Re-orient the battery contact side to the bottom. Push the battery down until it clicks into place.



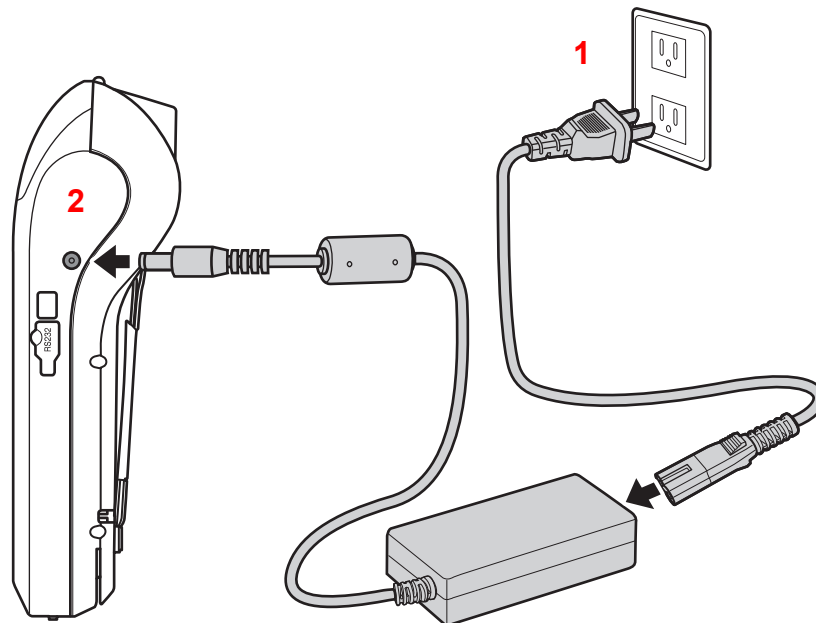
4. Replace the cover while pulling down the battery latch.



5. Replace the hand strap.



CHARGING THE BATTERY



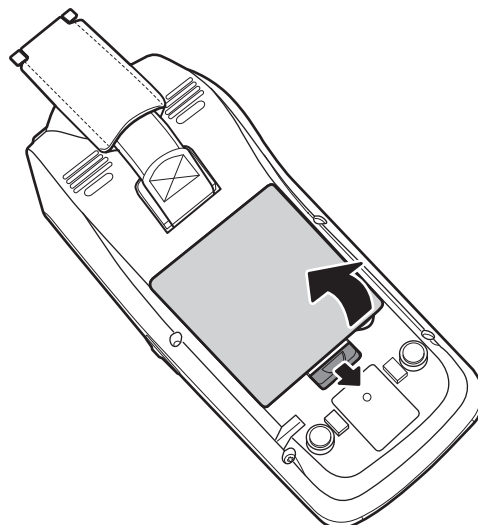
1. Plug the power cord to a power outlet.
2. Plug the adapter into the DC jack, located at the right side of the device.

The leftmost LED light will blink during charging, and lit red when the battery is full.

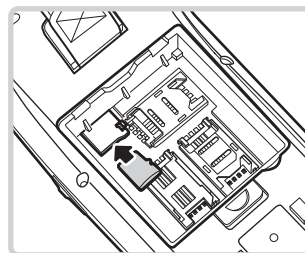
INSTALLING THE MEMORY CARD

The mobile terminal's internal space storage can be used to store user files such as snapshots from the camera module and various applications. This storage can be expanded with a microSD memory card sized up to 64GB.

1. Open the battery compartment cover and remove the battery.



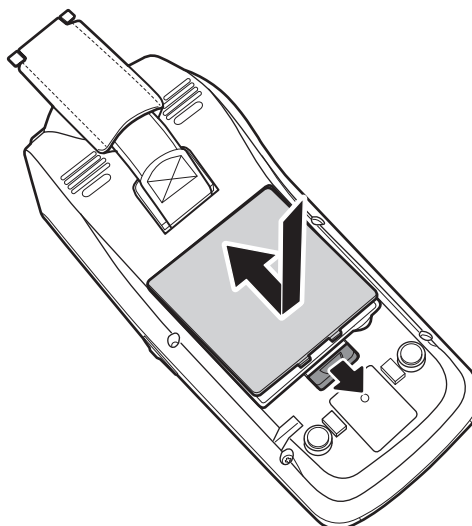
2. Insert the card into the memory card slot with contact side facing down, push it until it clicks into place.



3. Insert the battery. Re-orient the battery contact side to the bottom. Push the battery down until it clicks into place.



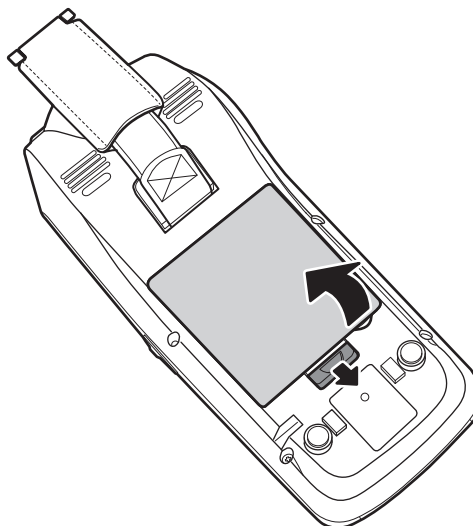
4. Replace the cover while pulling down the battery latch.



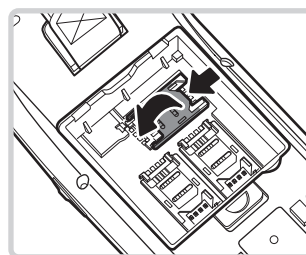
INSTALLING THE SIM CARD

The mobile terminal features a SIM card slot. SIM card is required for internet access.

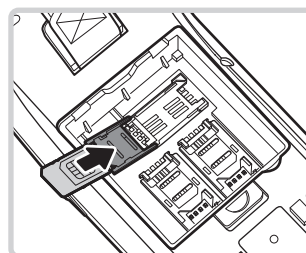
1. Open the battery compartment cover and remove the battery.



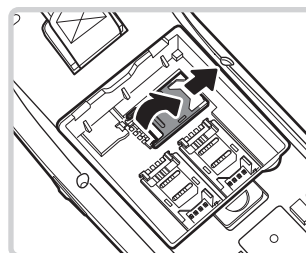
2. Release the card slot by pulling it left and upward.



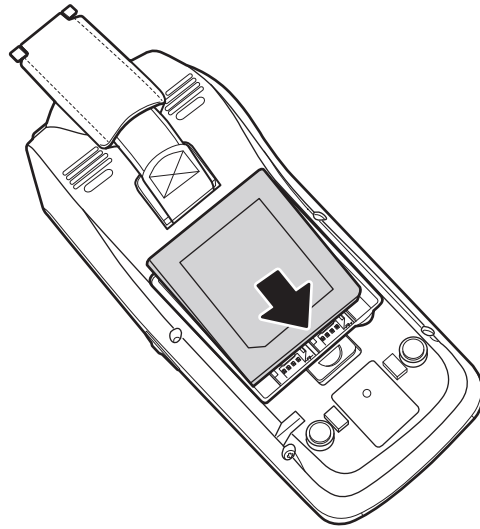
3. Slide the SIM card into the slot.



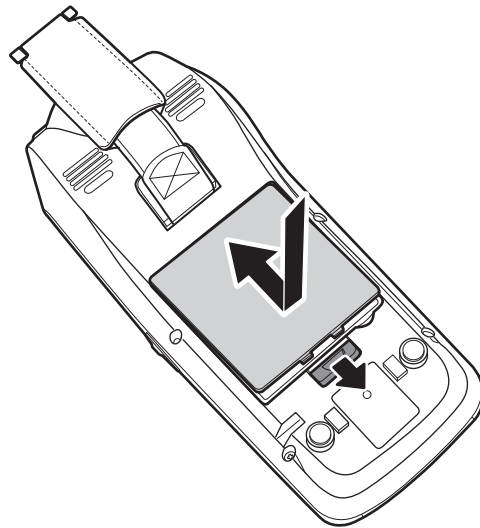
4. Close it back and push toward right.



5. Insert the battery. Re-orient the battery contact side to the bottom. Push the battery down until it clicks into place.



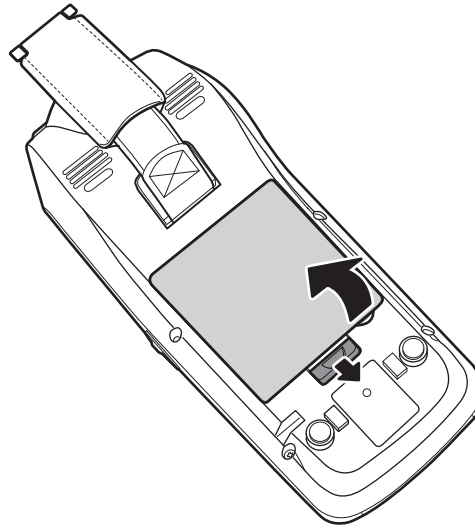
6. Replace the cover while pulling down the battery latch.



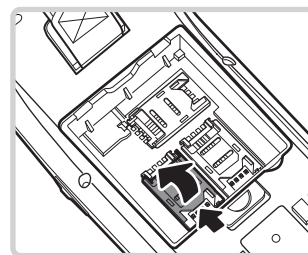
INSTALLING THE SAM CARD(S)

Secure Access Module card is used for authentication purposes. It is commonly needed by devices performing secure transactions and payment applications.

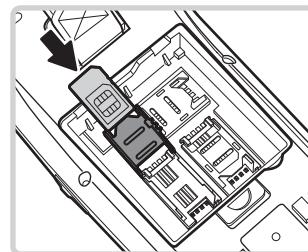
1. Open the battery compartment cover and remove the battery.



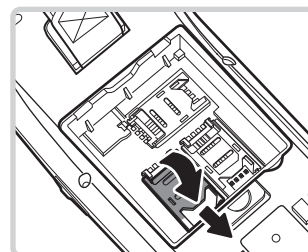
2. Release the slot by pulling to the top and upward.



3. Slide the SAM card into the slot.



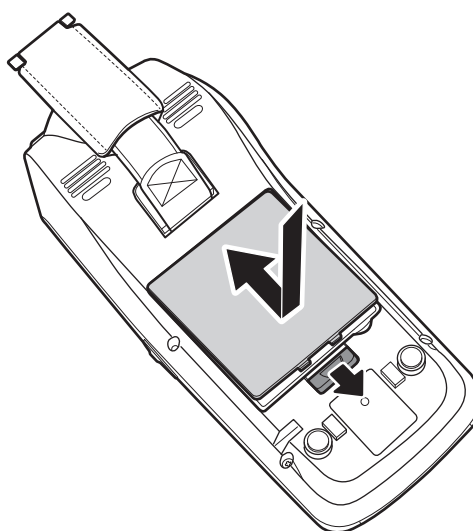
4. Close it back and push toward bottom.



5. Insert the battery. Re-orient the battery contact side to the bottom. Push the battery down until it clicks into place.



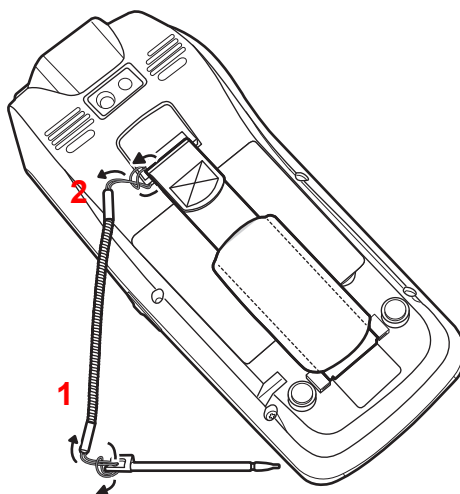
6. Replace the cover while pulling down the battery latch.



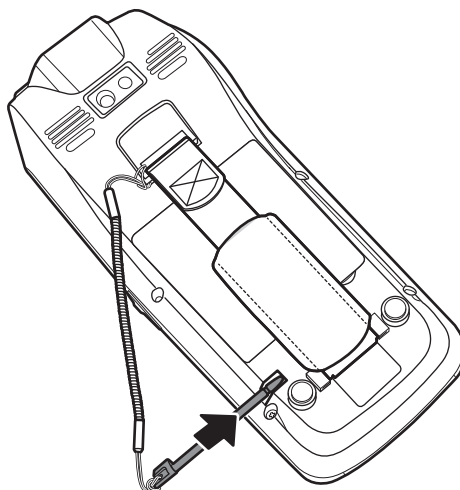
ATTACHING THE STYLUS

The stylus is the standard input tool to interact with the terminal's touch screen..

1. Fasten one end of the stylus strap to the stylus.
2. Fasten the other end of the stylus strap to the terminal's backside.



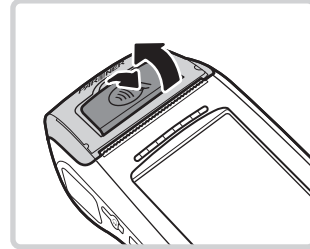
3. Insert the stylus into its slot when not in use.



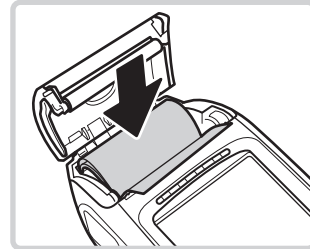
INSTALLING THE PAPER ROLL

The thermal printer module provides a means to print out data from payment applications.

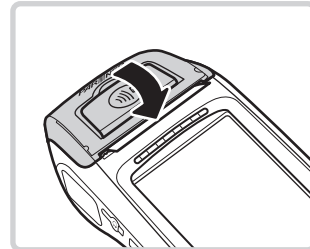
1. Pull up the lever located at the top of the device to eject the printer cover.



2. Insert the paper roll into place. Refer to the illustration for the correct positioning of the paper roll.



3. Close the cover firmly.



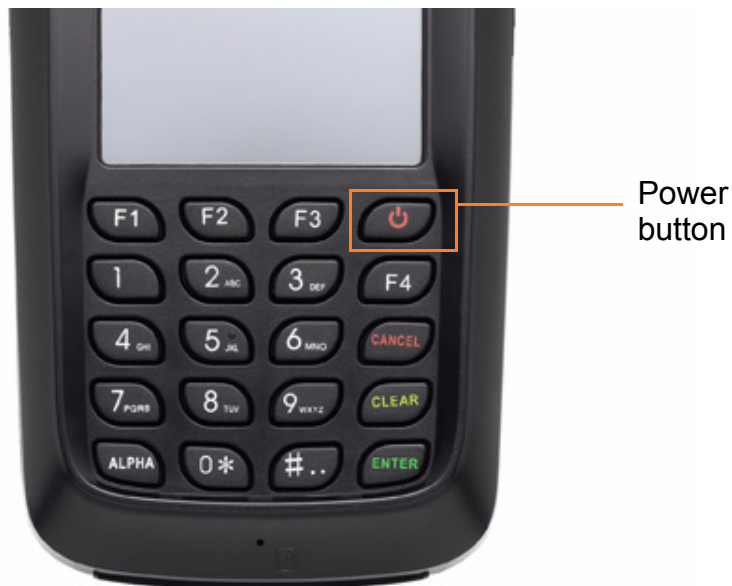
Chapter 3 - Using the Terminal

POWERING THE DEVICE ON/OFF

The device has three different power states: Off, Standby, and On.

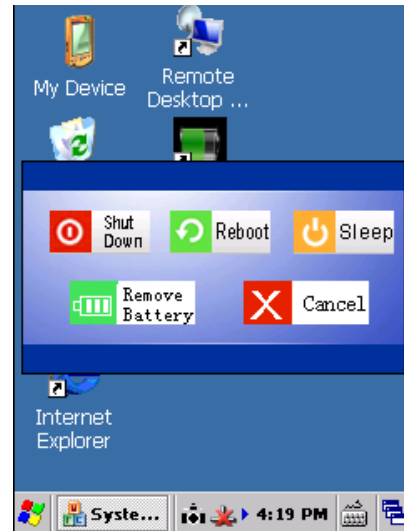
Below table shows how to power on/off, enter Standby mode, and wake-up from Standby mode.

Power state	Procedure
Off → On	Press and hold Power button.
On → Off	Press and hold Power button, tap Shutdown on the screen.
On → Standby	Press Power button.
Standby → On	Press Power button.



Press and hold **Power** button to show these options: **Shutdown**, **Reboot**, **Sleep**, **Remove Battery**, and **Cancel**.

- **Shutdown** will power down the terminal.
- **Reboot** will restart the operating system and clear the memory.
- **Sleep** will power down the terminal into hibernate mode and keep the memory state intact. The next power up will be faster compared to a reboot.
- **Remove Battery** is used when the main battery power is critically low and needs to be changed. The terminal will be put into hibernate mode and user can put in a fully charged battery to continue operation.
- **Cancel** will close the dialog box and return to normal operation.



ENABLING BACKUP BATTERY

Backup battery is used to maintain Standby mode data when main battery is empty or removed.

Backup battery can keep the information for 3 minutes.

Charging of the backup battery is automatically done via AC adaptor, or when main battery is present.

To enable/disable the backup battery:

1. Remove main battery.
2. At the bottom left of the battery slot, there is a switch. Put switch towards the right side to disable backup battery. Put switch towards the left to enable backup battery.

HOT SWAP MAIN BATTERY

When backup battery is enabled, hot swap of the main battery is possible.

To perform the hotswap procedure:

1. Press and hold **Power** button, then tap **Remove Battery** on the screen, or

2. Tap **Remove Battery** icon  directly on the desktop.

INITIAL SETUP

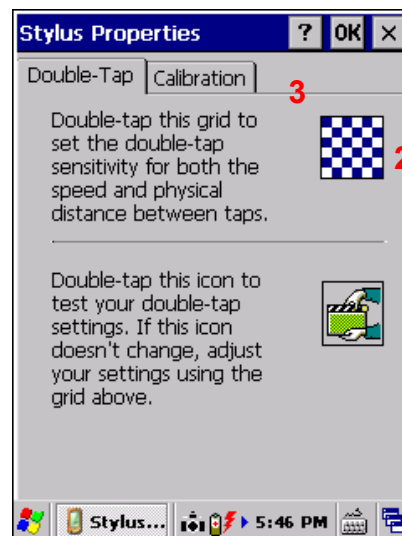
CALIBRATING THE TOUCH SCREEN

For first time use, the touch screen needs a calibration to match its input sensor with a particular stylus or any other tapping tool. It can be repeated many times as necessary whenever the tapping is becoming inaccurate.

3. From **Start Menu > Settings > Control Panel**, double-tap **Stylus**.



4. Double-tap on the grid to calibrate the taps.
5. Select the **Calibration** tab to calibrate the tap zone.
6. The device will show a plus sign at several different places.
7. Tap the stylus point at the plus sign to complete the procedure.

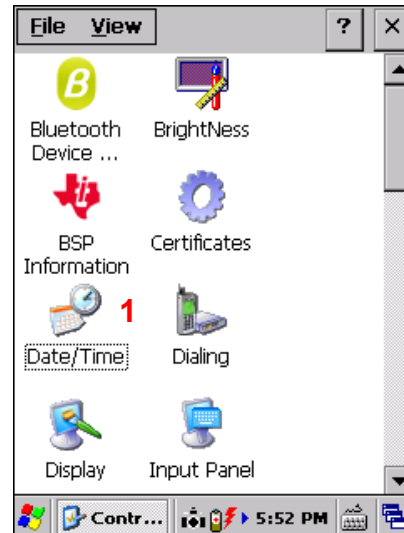


SETTING THE DATE AND TIME

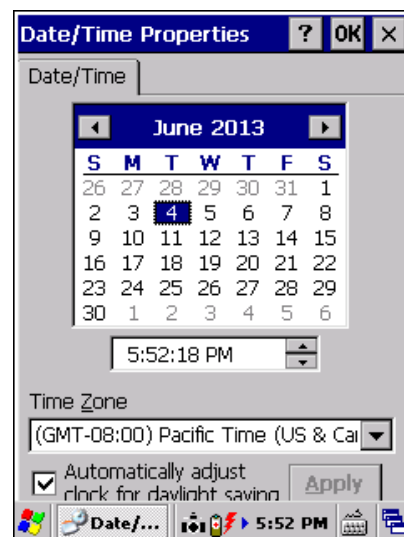
Adjust the date and time of the terminal to provide accurate operation. The time zone can be also set accordingly.

To set the date and time:

1. Open the **Start Menu > Settings > Control Panel**.
2. Double-tap the **Date/Time**.



3. Set the date and time accordingly.

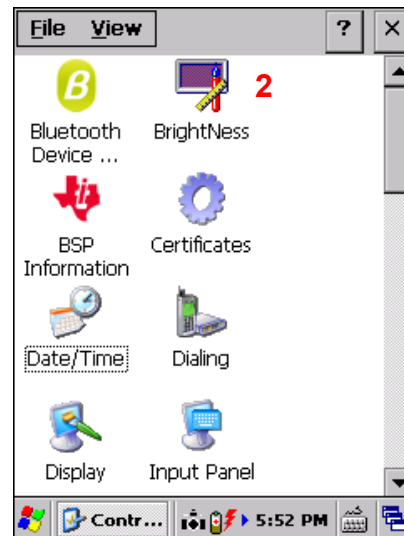


ADJUSTING THE SCREEN BRIGHTNESS

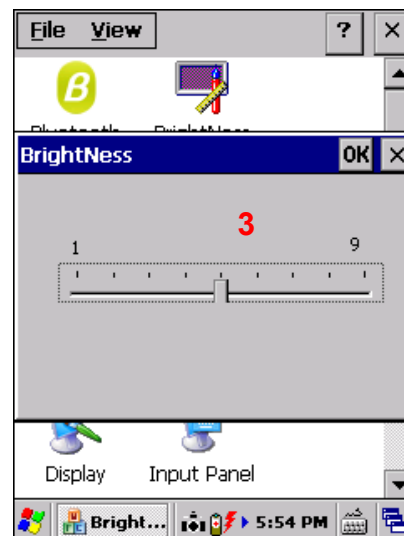
The terminal screen's brightness can be adjusted to suit the environment.

To adjust the screen brightness:

1. Open the **Start Menu > Settings > Control Panel**.
2. Double-tap the **Brightness**.



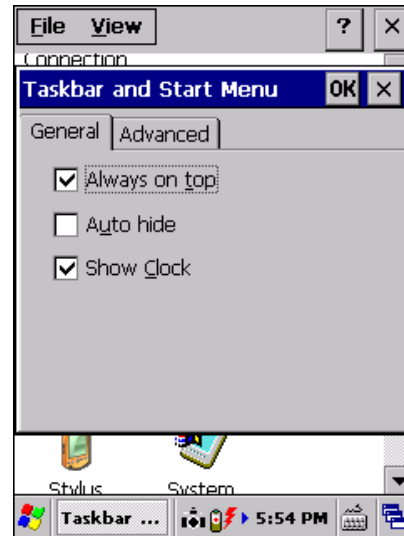
3. Set the value anywhere between 1 (dimpest) and 9 (brightest).



CONFIGURING THE TASKBAR AND START MENU

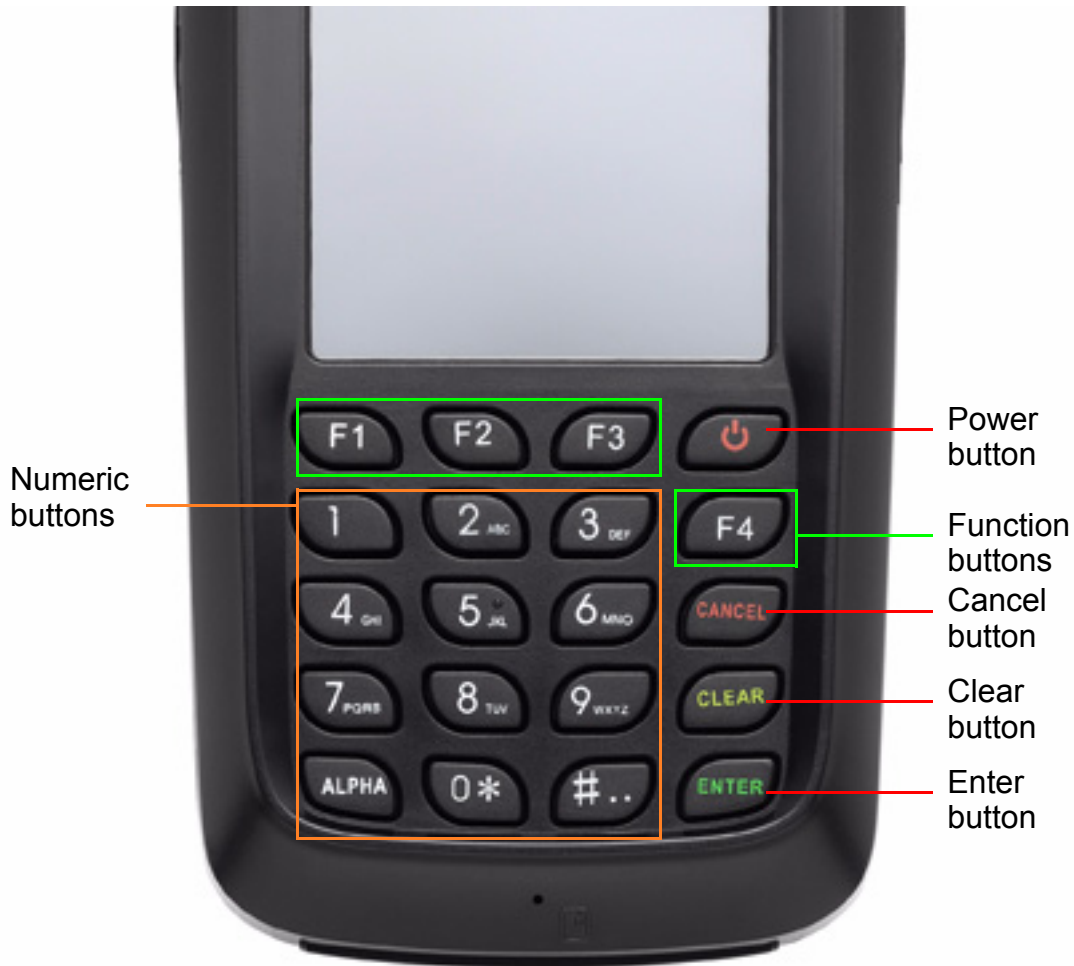
Set the visual response and setting of the **Taskbar**.

1. Select **Start Menu > Settings**.
2. Select **Taskbar and Start Menu**.
3. Options available for Taskbar are '**Always on top**', '**Auto hide**', and '**Show Clock**'.
 - **Always on top** means the Taskbar will be displayed all the time. If disabled, running an application may block the Taskbar.
 - **Show Clock** will display the clock at the lower right corner when enabled.



USING THE KEYPAD

The keypad consists of numeric buttons 0-9, four function keys, Cancel, Clear, Alpha, #, and Enter button.



- **Power button:** powering up/down mobile terminal.
- **Function buttons:** programmable through applications.
- **Cancel button:** cancel current input.
- **Clear button:** move the cursor left one character and erase any text.
- **Enter button:** confirm and submit current input.
- **Numeric buttons:** input numbers. Press **ALPHA** once to input the alphabets. Press **ALPHA** again to input the alphabets in capital.

Chapter 4 - Using the Stylus

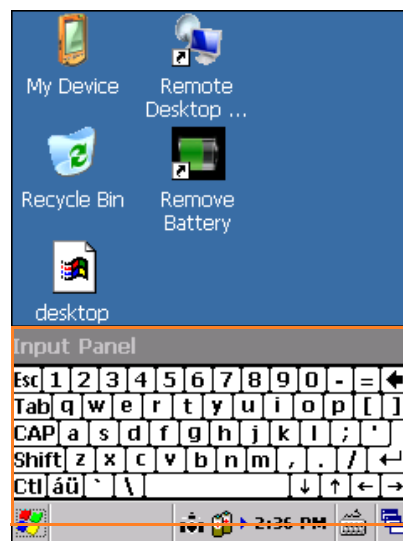
You can tap and double-tap anywhere on the display with the stylus.

Right click is emulated by holding the stylus tip, indicated by a dotted circle on the screen. Hold it until the circle is completed.


There are two modes of operation for the stylus: Keyboard and Transcriber.

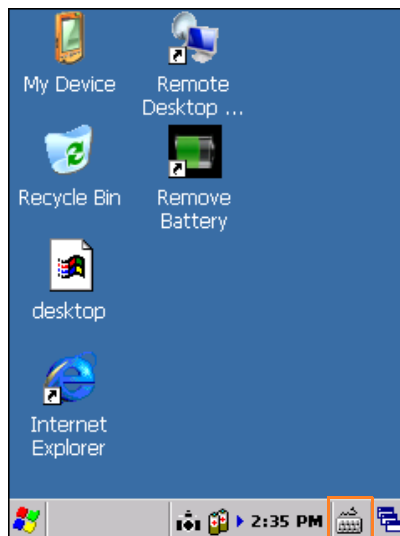
KEYBOARD MODE

When in Keyboard mode, a mini keyboard will be displayed at the bottom of the screen. Typing is simply done by tapping the character on the mini keyboard.




To activate this mode:

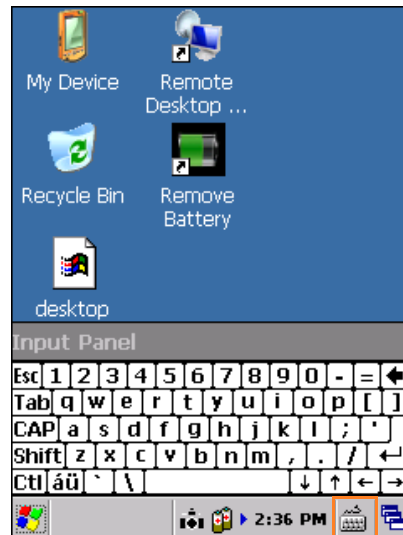
1. Tap the **Keyboard** icon  at the right side of Taskbar.
2. Select **Keyboard**.



Hide the input panel to return to normal operation and maximize the screen estate.

To hide the input panel:

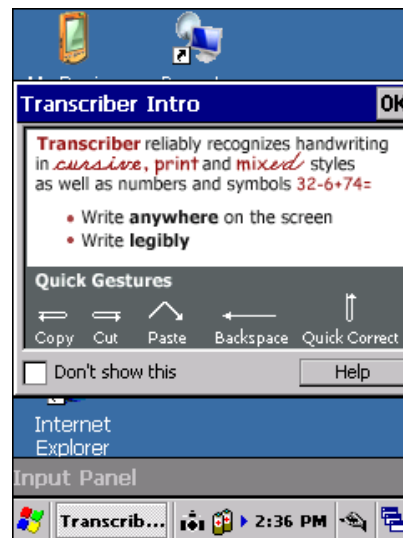
1. Tap the **Keyboard** icon  on the right-side of Taskbar.
2. Select **Hide Input Panel**.




TRANSCRIBER MODE

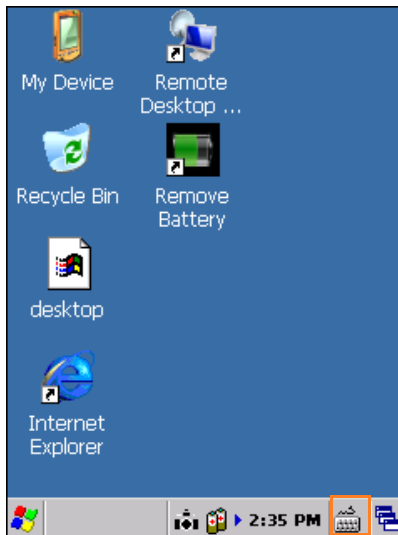
The other mode is Transcriber, a free-form writing mode.

In this form user can use the stylus to gesture handwriting directly on the screen.

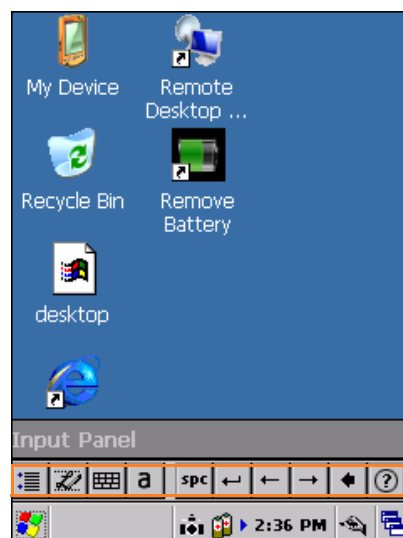


To activate this mode:

1. Tap the **Keyboard** icon  at the right side of the Taskbar.
2. Select **Transcriber**.



3. A row of icons will appear at the bottom side of the screen.







OPTIONS BUTTON

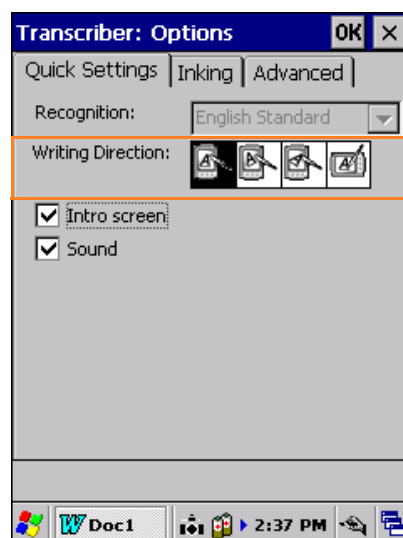
Configures the writing direction, inking, and shorthand.



Writing Direction

Select a direction that represents the angle in the recognition process.

- The first option  is the default.
- The second option  is used for writing that slants up to the right.
- The third option  is used for writing that slants down to the left.
- The last option  changes the screen orientation for recognition between portrait and landscape.

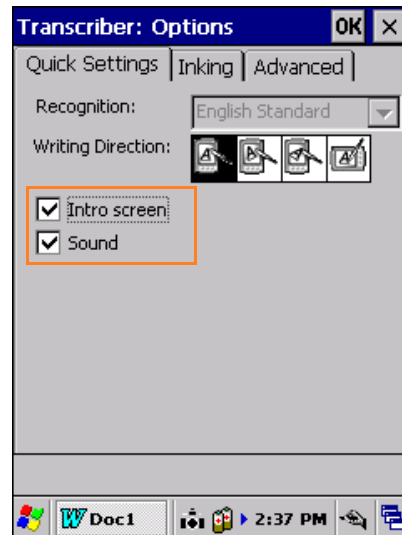


Intro Screen

If selected the intro screen will be displayed every time the Transcriber mode is activated.

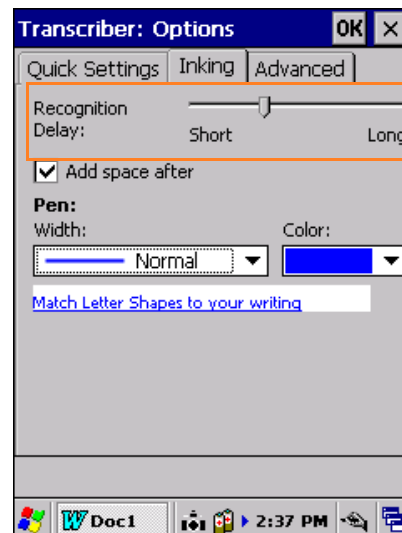
Sound

If selected sound cue will be played as feedback.



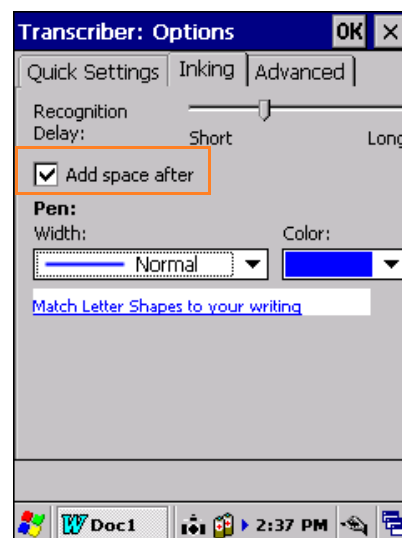
Recognition Delay

- Set the delay to shorten or lengthen the delay for handwriting recognition.
- Center position is about a second worth of delay.



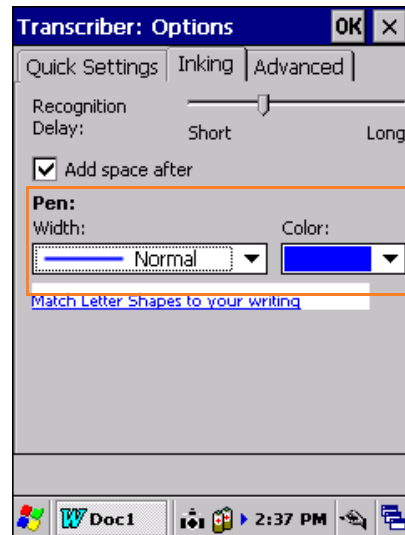
Add Space After

Automatically add a space after recognition.



Pen

Set the width and color of ink to be displayed on the screen during handwriting input.

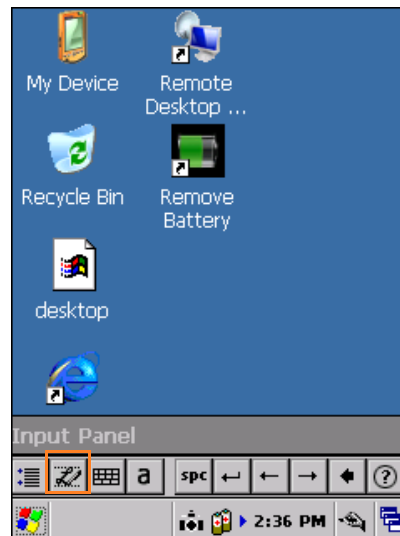


LETTER SHAPE SELECTOR

In this menu the recognition can be fine-tuned to match a certain handwriting style and shorten the recognition process.

Tap the **LSS** to open this menu.

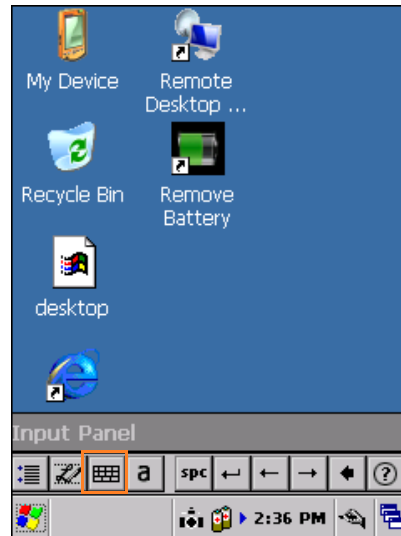
- **File > Open** to import the .LSS file.
- **File > Save** to save the configured .LSS file for future use or for other terminals.



MINI KEYBOARD

Allow quick input of numbers, punctuation, and other symbols. The keyboard appears at the bottom of the screen.

Tap the **Keyboard** to display the mini keyboard.



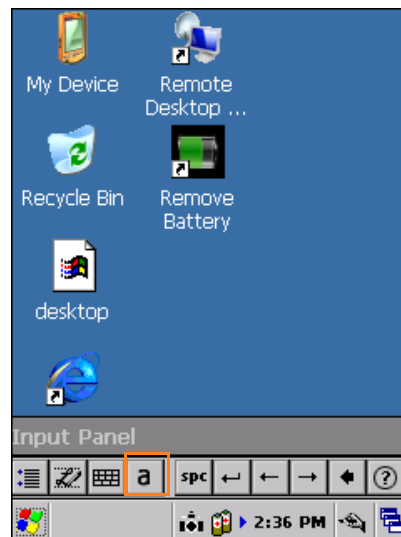
RECOGNITION MODE

Freeform handwriting input method can be used as an alternative to the usual keyboard tapping. The terminal will recognize any character written with the stylus directly on the touch screen.

Tap **Recognition** to switch between modes. Available modes are:

- a - alpha mode. The default mode and the optimum method for handwriting recognition.
- 123 - numeric mode. Numerals and some letters allowed in this mode.
- A - uppercase mode. Automatically capitalizes all letters from recognition.

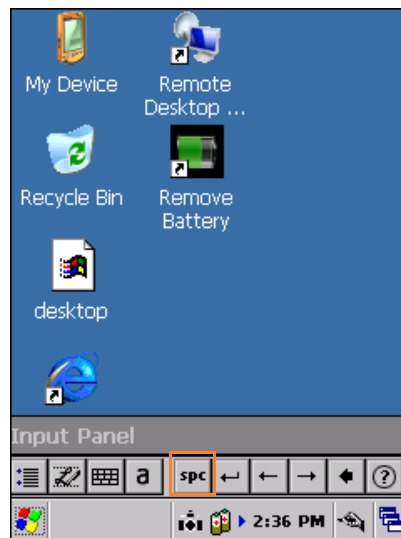
The stylus will revert to default alpha mode once the pen is lifted.



SPACE

Insert a space at the cursor position.

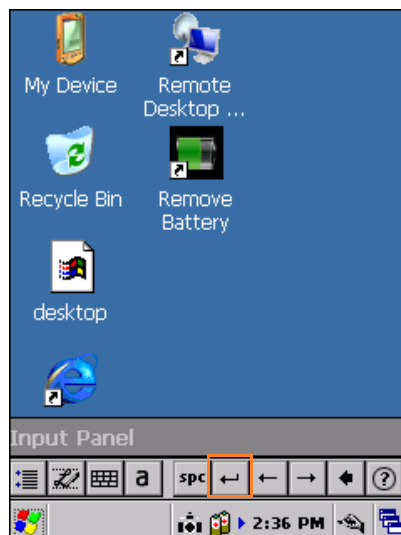
- Tap **spc** to insert a space.



RETURN

Insert a return character at the cursor position.

- Tap **Return** to insert a Return character.

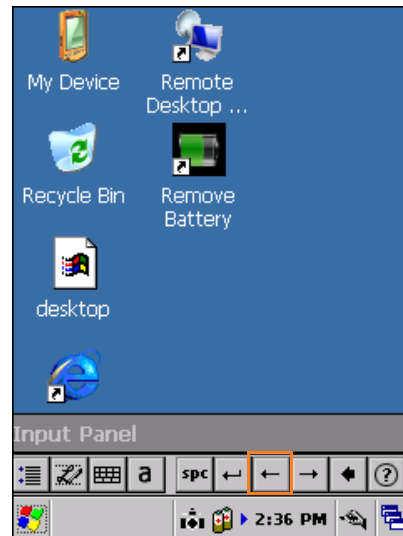


LEFT ARROW, RIGHT ARROW, BACKSPACE

Left Arrow

Move the cursor one space to the left of the cursor position.

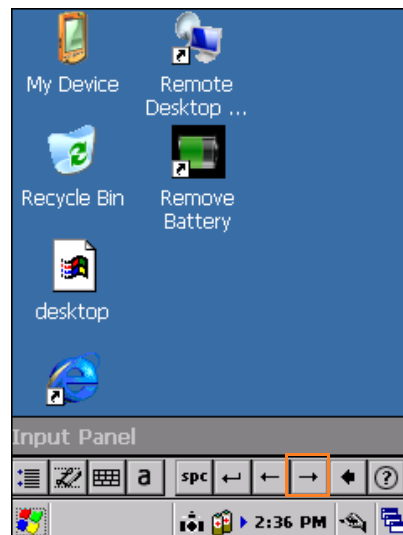
- Tap **Left** to move the cursor left.



Right Arrow

Move the cursor one space to the right of the cursor position.

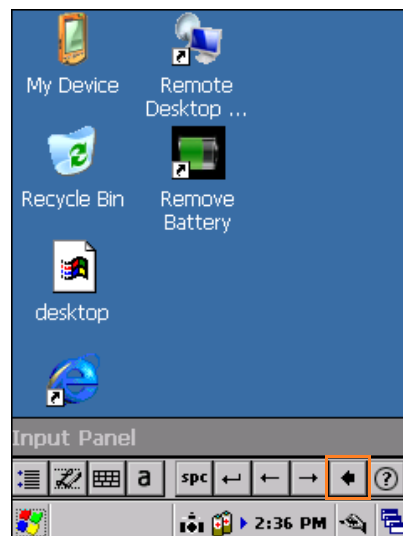
- Tap **Right** to move the cursor right.



Backspace

Move the cursor one space back and erase any text.

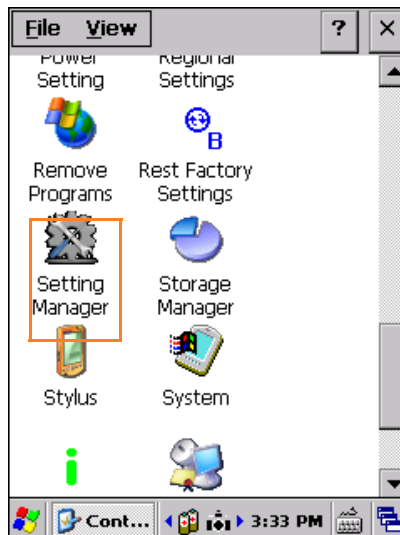
- Tap **Backspace** to move the cursor back and erase any text.



Chapter 5 - Configuring Utilities Settings

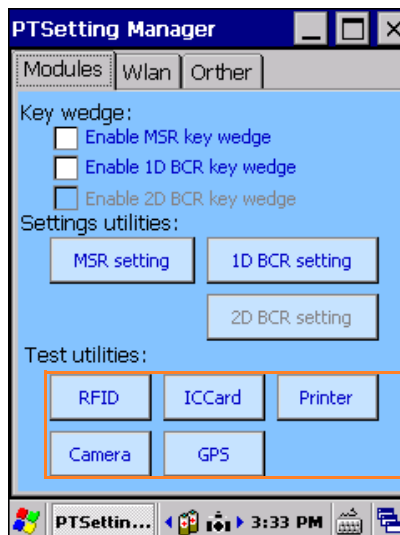
MF-2351 comes with a utility to configure the terminal's settings.

To access this utility, tap **Start Menu > Control Panel > Setting Manager**.



There are five buttons under the Test Utilities.

- **RFID**: wireless tag reader module test utility.
- **ICCard**: smartcard reader module test utility.
- **Printer**: thermal printer module test utility.
- **Camera**: digital camera module test utility.
- **GPS**: Global Positioning System module test utility.



MSR

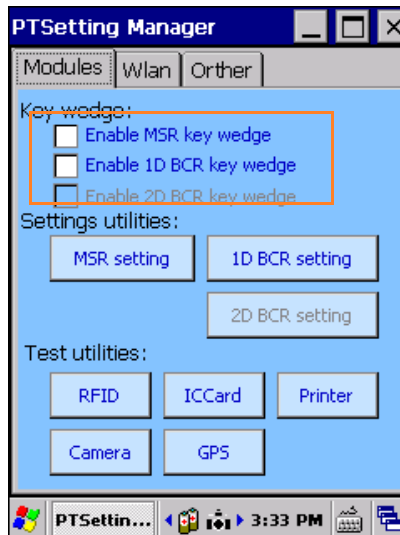
Magnetic Stripe Reader module is located at the bottom of MF-2351.

The module supports track 1, 2, and 3 covering all possible recording methods currently in use.

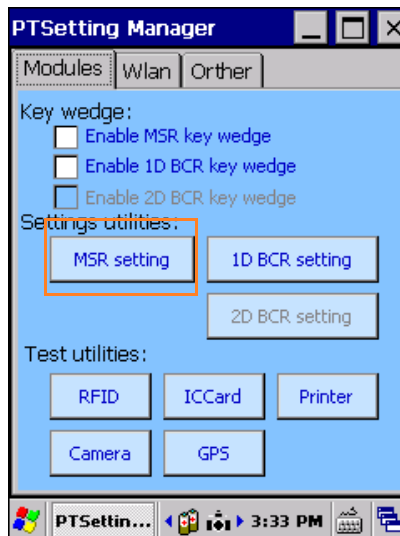
This is the default tab when you open Setting Manager.

Under Key Wedge:

- **Enable MSR key wedge** will send the reading result from MSR module to the currently active application.
- **Enable 1D BCR key wedge** will send the reading result from barcode module to the currently active application.

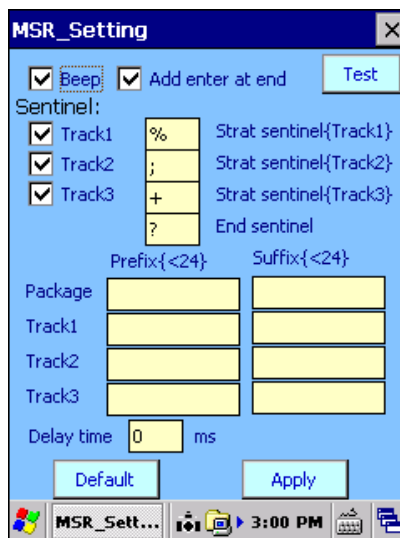


Tap **MSR Setting** to open MSR setting window.



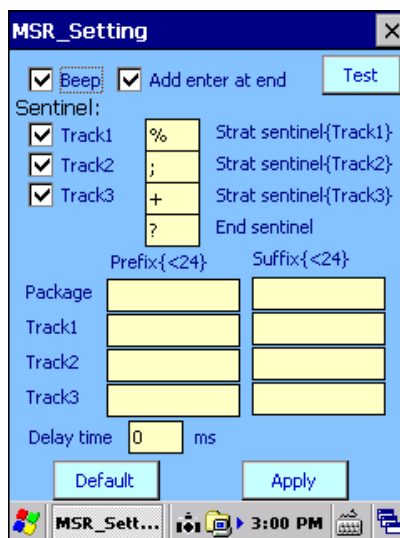
Configuring MSR module.

- Tap **Test** to start the MSR testing procedure, with the currently displayed configurations.
- Type a symbol to mark the start sentinel for each track and the end sentinel. The default values are set to the ISO standard:
 - track 1: %
 - track 2: ;
 - track 3: +
 - end sentinel: ?
- Input the **Prefix/Suffix** to add beginning/ending for package and each tracks accordingly.
- Tap **Default** to reset the configurations back to the factory default.
- Tap **Apply** to save the current configurations for the MSR module.



Test read a magnetic card.

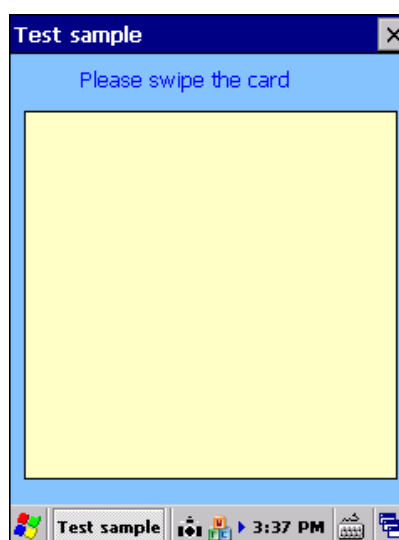
1. Tap **Test** to open the test window.



2. Swipe the card through the MSR module.



3. Data will appear in the window for a successful read.



PRINTER

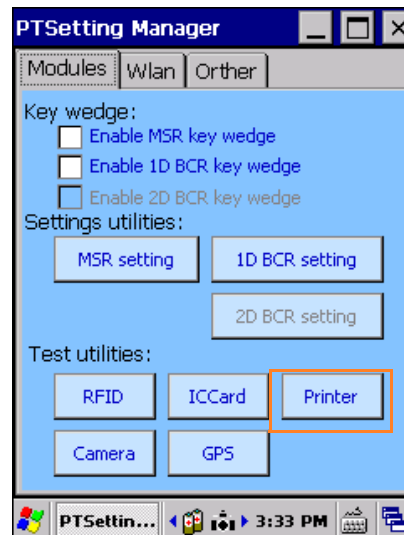
The thermal printer module is located at the top of MF-2351.



Printer sample window controls the thermal printer module and provides testing procedures for it. Be sure to install a paper roll before starting any print testing procedure.

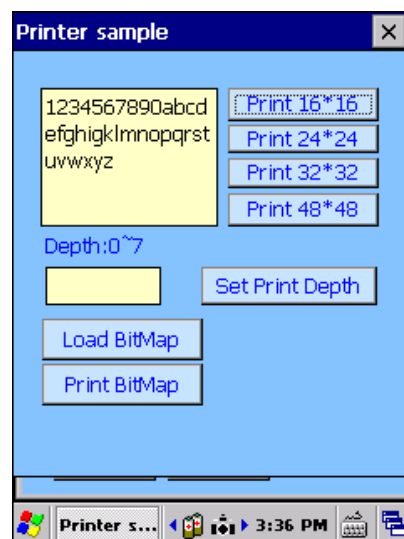
Please refer to the 'Installing the Paper Roll' how to install one.

Tap **Printer** to open Printer setting window.



Configuring Printer module.

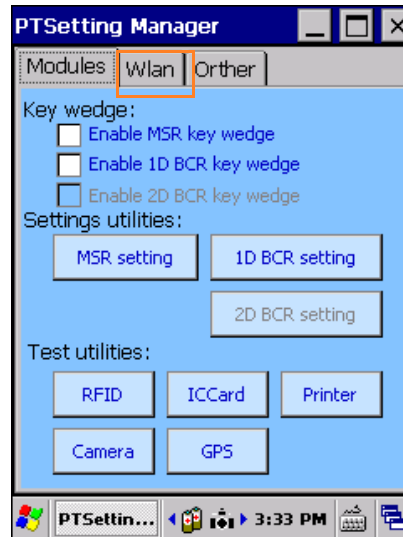
- **Print 16x16, 24x24, 32x32, 48x48:** Set the printout density. 16x16 is the coarsest, while 48x48 is the densest.
- Type in the desired print-head depth in the field, then tap **Set Print Depth**. This will affect the printout saturation.
- **Load Bitmap:** prepare a bitmap file.
- **Print Bitmap:** print a bitmap file.



WLAN

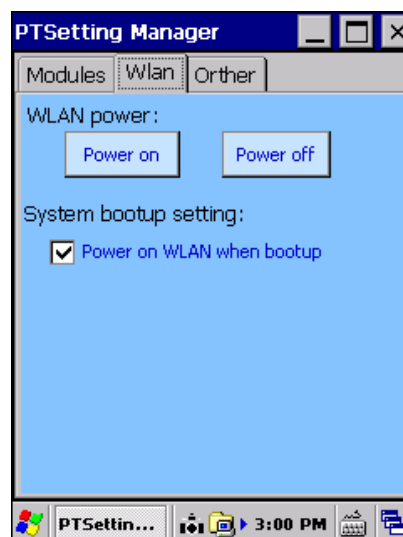
WLAN stands for Wireless LAN, providing connection wirelessly and lets user roam freely within the coverage of the wireless local network. This module complies to the 802.11b/g standard.

Tap the **WLAN** tab on the Setting Manager to open WLAN setting window.



Configuring WLAN module.

- Tap **Power On** to power up the WLAN module.
- Tap **Power Off** to power it down.
- **Power on WLAN when bootup:** the terminal will automatically power up the WLAN module during boot-up, otherwise it will need to be manually activated.

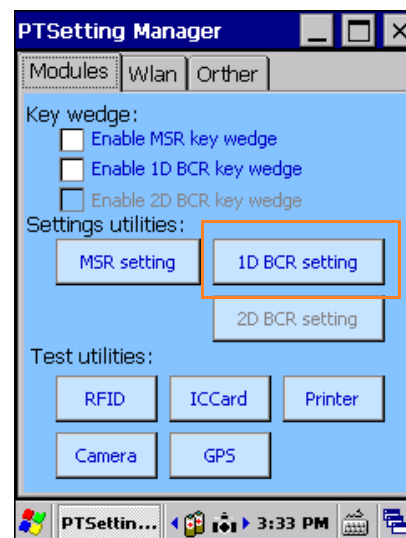


BARCODE SCANNER

Located at the topside of MF-2351, the barcode scanner module supports many of the popular barcode formats currently used worldwide.

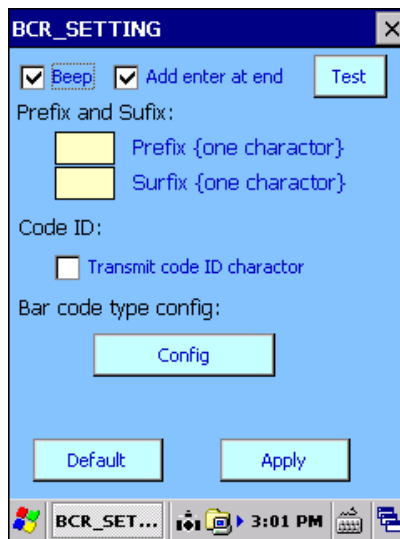


Tap **1D BCR setting** on the Modules tab to open the barcode setting window.



Configuring Barcode module.

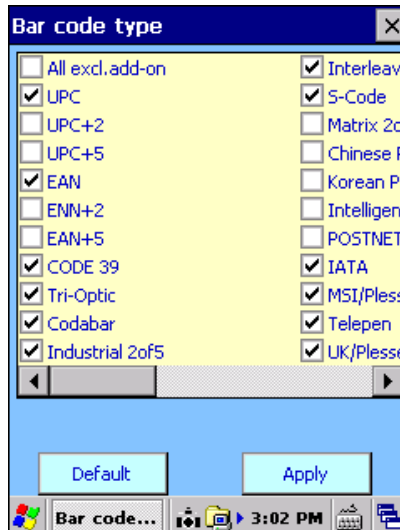
- Tap **Test** to start the test procedure.
- **Beep**: play a sound read a barcode.
- **Add enter at end**: automatically to go the next line after a read.
- **Prefix**: add a prefix at the beginning of a barcode.
- **Suffix**: add a suffix at the end of a barcode.
- **Code ID**: determine whether to transmit the code ID or not.
- Tap **Config** to open the recognition setting for various barcode types supported by MF2351.
- Tap **Default** to reset the configuration to factory setting.
- Tap **Apply** to save the current configuration.



Barcode configuration.

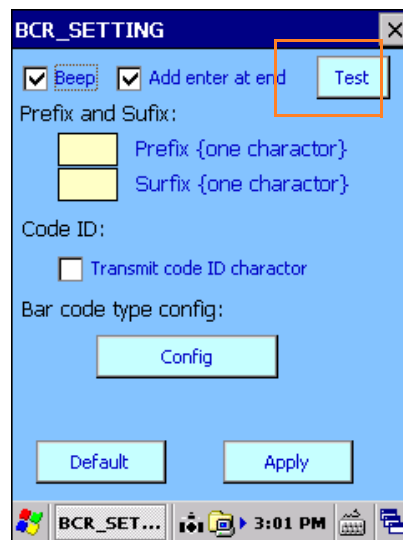
Select the appropriate barcode types. The selected items are marked with "✓" icon.

- Tap **Default** to reset the configuration to factory setting.
- Tap **Apply** to save the current setting.



Test read a barcode.

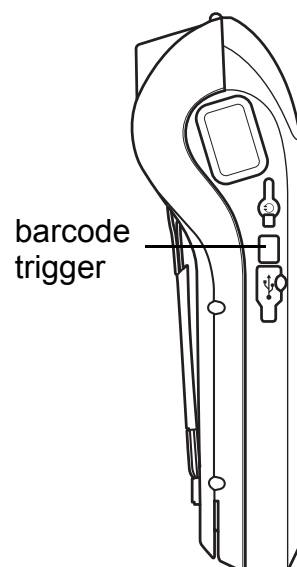
1. Tap **Test** to open the test window.



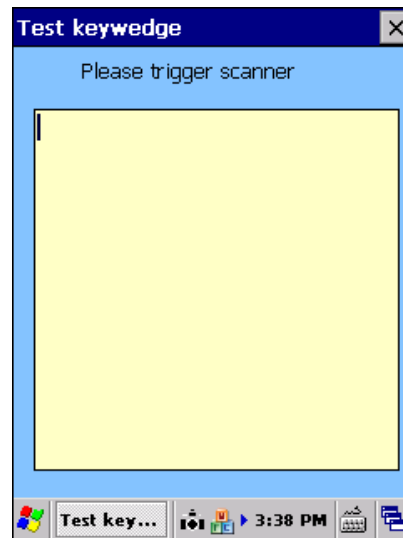
2. Aim the barcode reader window at a barcode.



3. Press the **Barcode Trigger** button.



4. Data will appear in the window for a successful read.

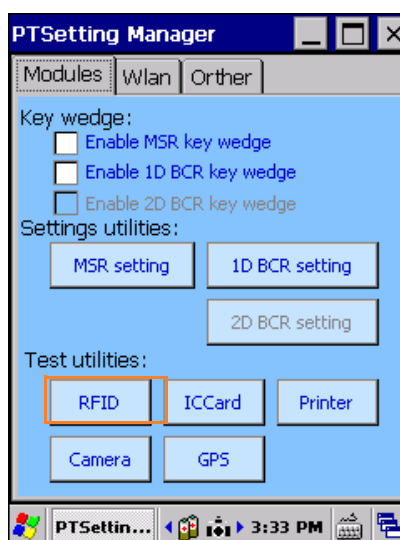


RFID

The RFID (Radio Frequency Identification) Reader module is located at the front side top of MF-2351. This module complies with the ISO 14443 A/B standard.

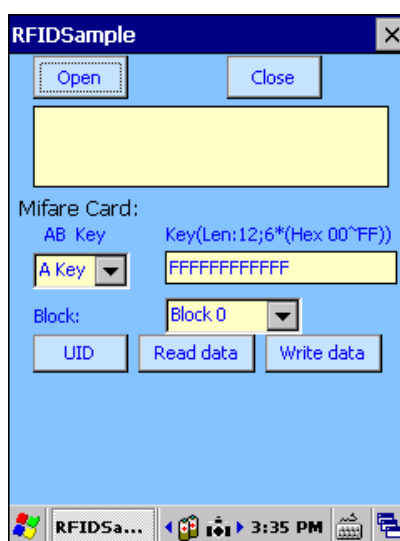


Tap the **RFID** to open RFID setting window.



Configuring the RFID module.

- **Open:** start the RFID reader.
- **Close:** shutdown the RFID reader.
- **AB Key:** choose the type of key to access between A and B for Mifare card.
- **Key:** define the key value. Enter the value in hex.
- **Block:** select the block to access.
- **UID:** scan the RFID tag identification.
- **Read data:** fetch data from the RFID tag.
- **Write data:** send data to the RFID tag.

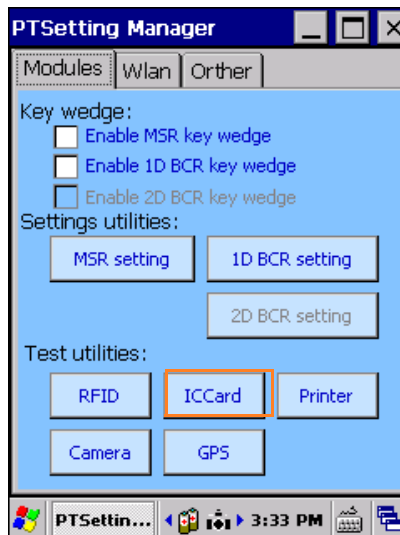


IC CARD READER

The IC Card Reader module is located at the bottom side of MF-2351. The module complies with the ISO7816-EMV2000 Level 1 and 2.

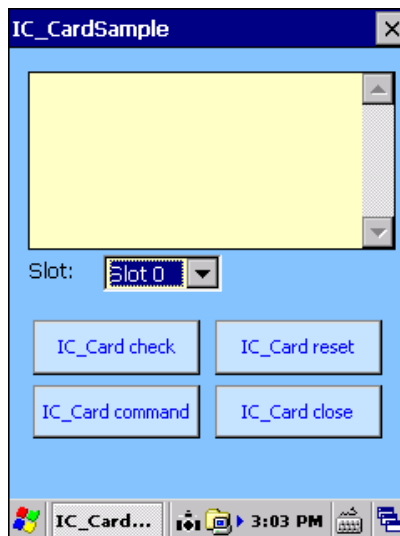


Tap the **ICCard** on the Modules tab to open the IC Card setting window.



Configuring IC Card module.

- **Slot:** choose the slot to access.
- **IC Card check:** check the selected IC card. The result will be displayed on the dialog box.
- **IC Card reset:** reset the selected IC card.
- **IC Card command:** send command to IC card for various tasks specific to the selected IC card. The results will be displayed on the dialog box.
- **IC Card close:** close the access to the currently selected IC card.

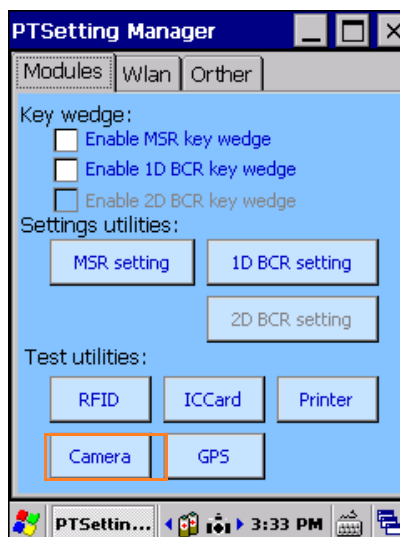


CAMERA

The camera module is located at the back of MF-2351. Equipped with light and autofocus, the 3.0 Megapixels camera can perform equally during day and night time.

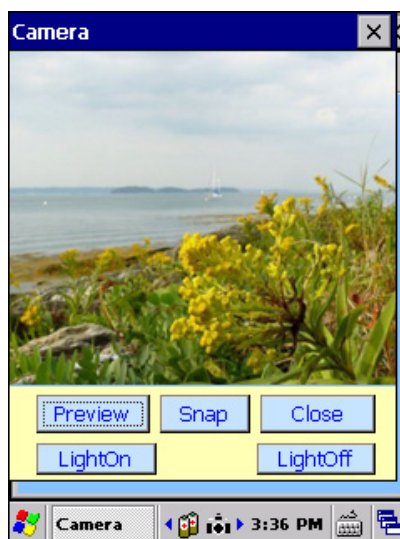


Tap **Camera** on the Modules tab to open Camera setting window.



Configuring Camera module.

- **Preview:** display the viewport on screen for preview purpose.
- **Snap:** take a snapshot.
- **Close:** close the camera window and return to the Setting Manager.
- **LightOn:** turn on the camera light to help in darker ambience.
- **LightOff:** turn off the camera light.

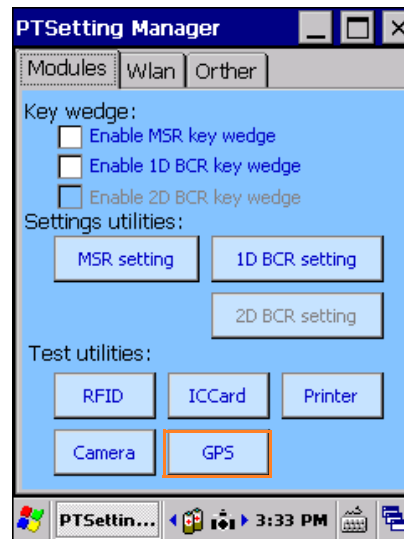


GPS

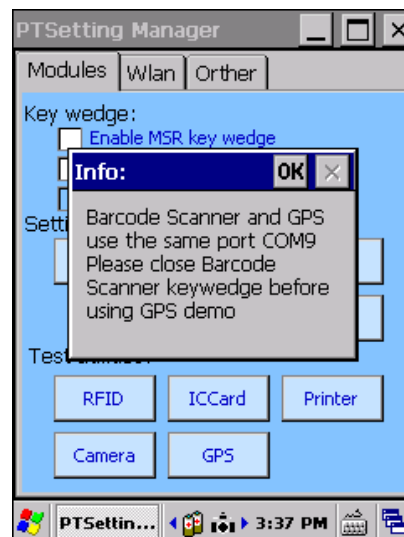
GPS (Global Positioning System) module shows the current location of MF-2351.

Configuring GPS module.

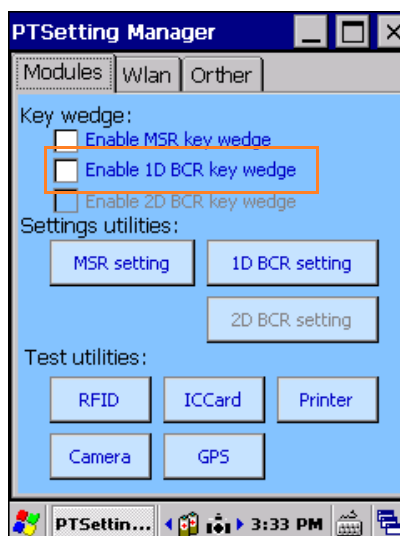
1. Tap **GPS** to open the GPS setting window.



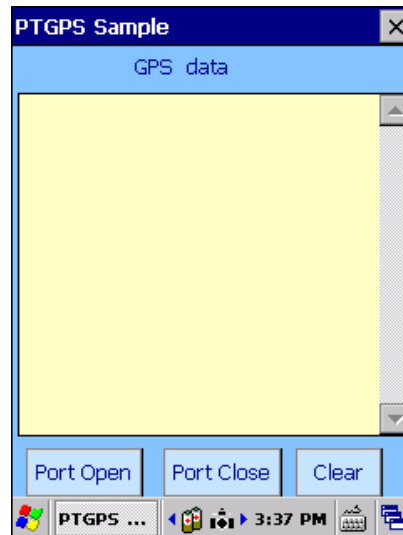
2. Notice a message will appear when barcode scanner module is active. Skip to step 4 if this message does not appear.



3. Turn off **Enable 1D BCR key wedge** to use the GPS test utility.



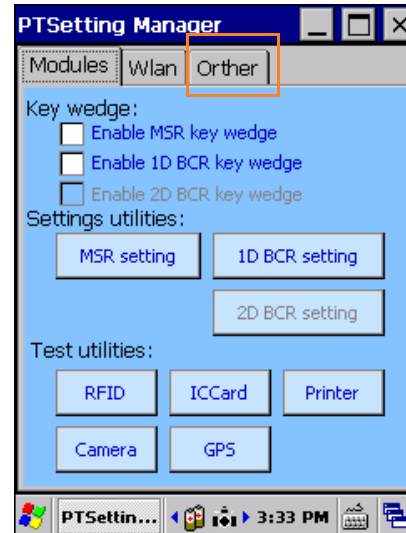
4. Dialog box will appear to show results from GPS module.
- **Port Open:** start the GPS module.
 - **Port Close:** shutdown the GPS module.
 - **Clear:** empty the dialog box.



GENERAL SETTING

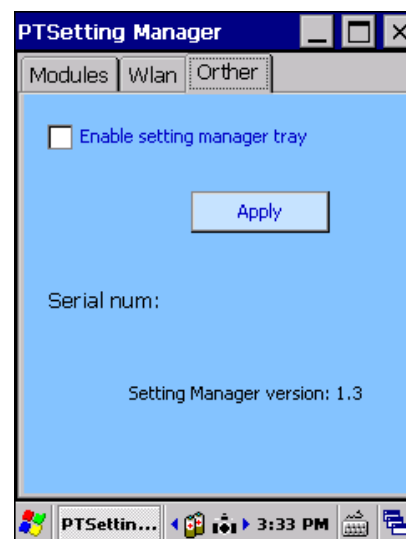
This window displays the general setting and display additional information such as OS version and serial number.

To open it tap **Other** tab on the Setting Manager.



Configuring general setting.

- **Enable setting manager tray:** display the Setting Manager icon on the Taskbar for easy access.
- **Apply:** save the changes.

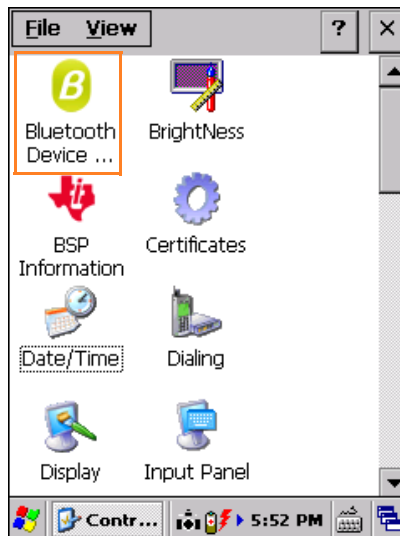


BLUETOOTH

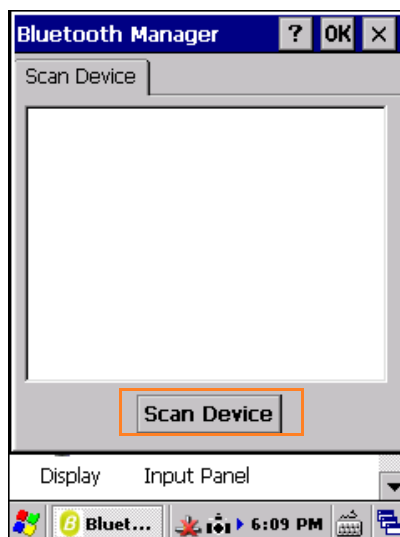
Mobile terminal can connect to other devices through Bluetooth connection.

Configuring Bluetooth.

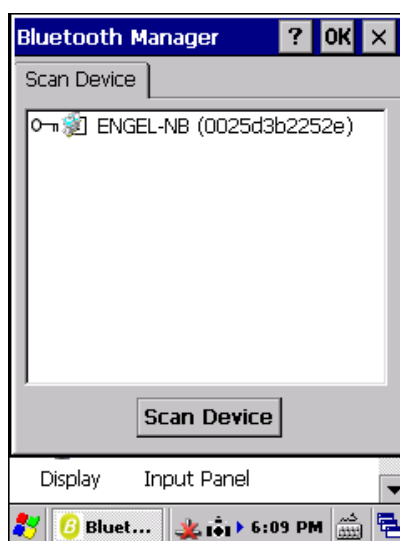
1. Tap **Bluetooth** from the **Start > Control Panel**.



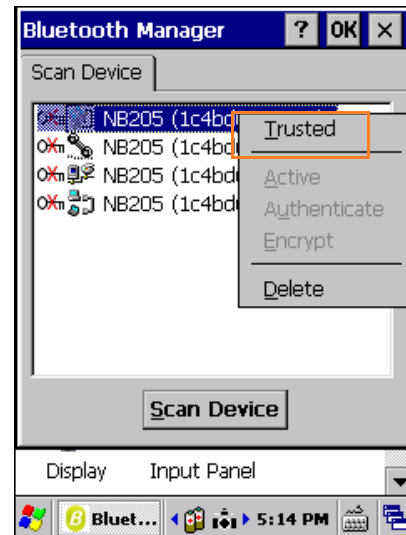
2. Tap **Scan Device** to start discovering nearby Bluetooth connection.



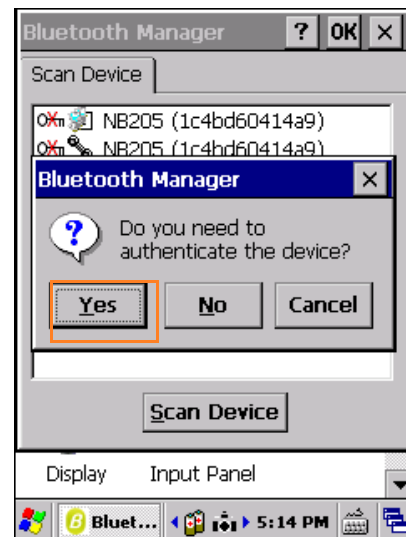
3. Available Bluetooth connection(s) will appear.



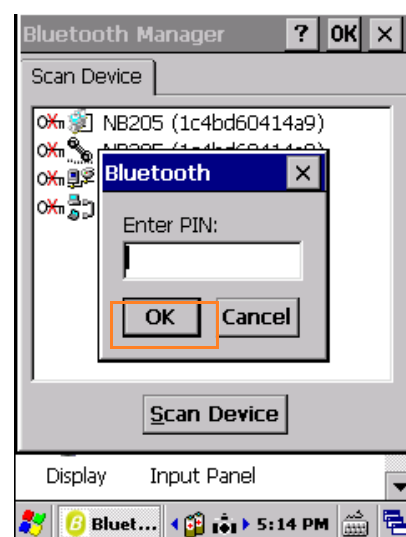
4. Right tap to establish a connection, and tap **Trusted**.



5. Tap **Yes** to connect with a password protected connection.



6. Input the PIN and tap **OK**.

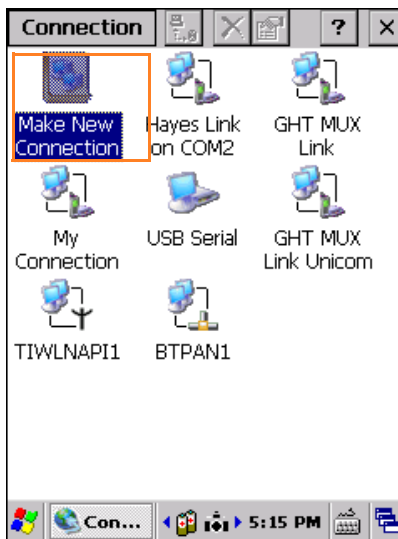


GSM

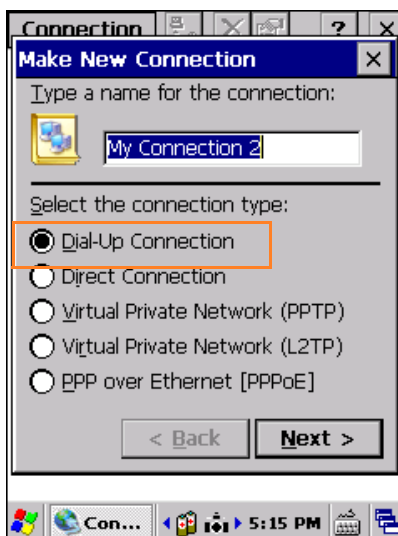
The mobile terminal can establish an internet connection through a GSM (Global System for Mobile) device.

To create an internet connection using GSM device:

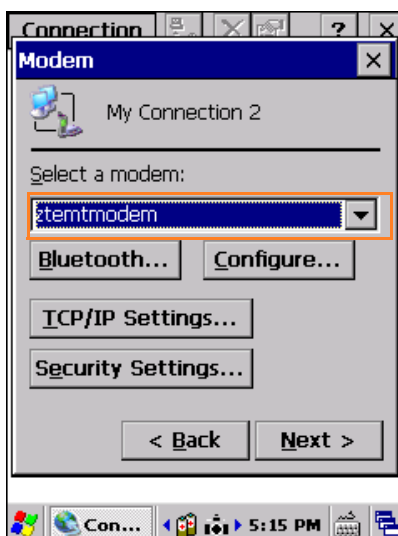
1. Tap **Start > Setting > Network and Dial-up Connections**.
2. Double tap **Make New Connection**.



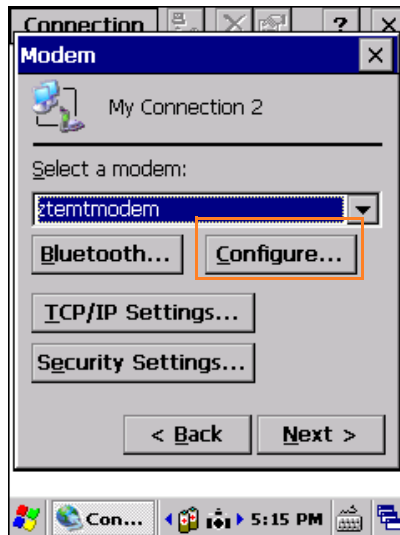
3. Type in the name for the connection, and select **Dial-Up Connection**. Tap **Next** to continue.



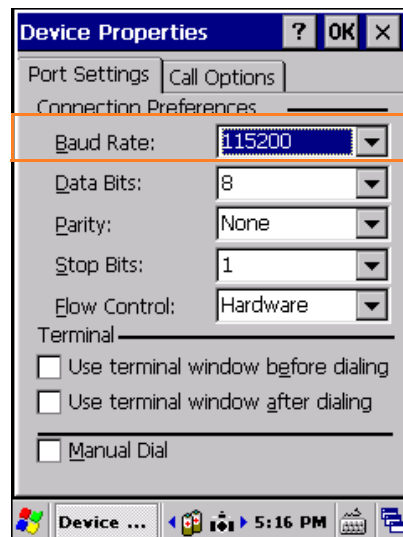
4. Select **ztemtmodem**.



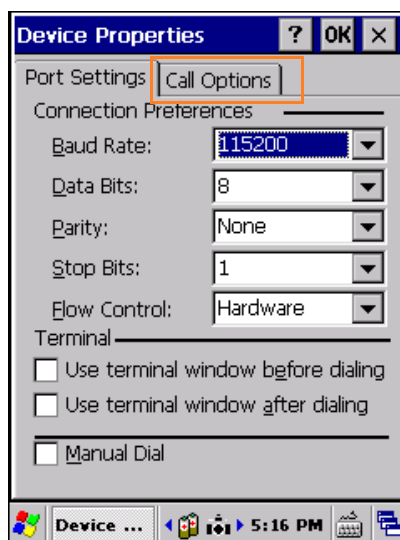
5. Tap **Configure**.



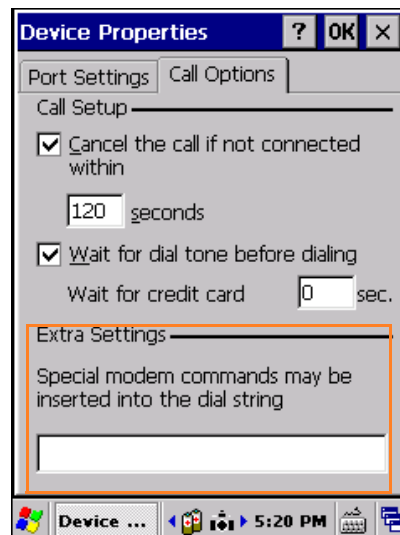
6. Set **Baud Rate** to 115200.



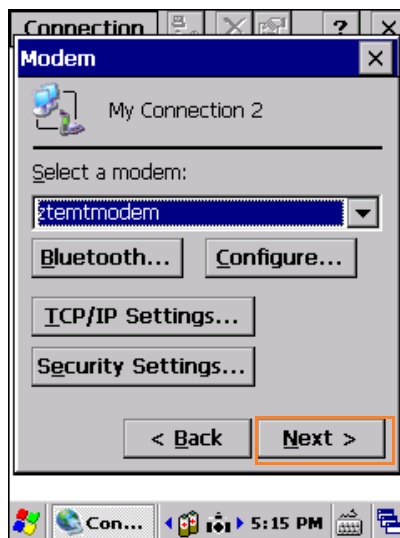
7. Tap **Call Options**.



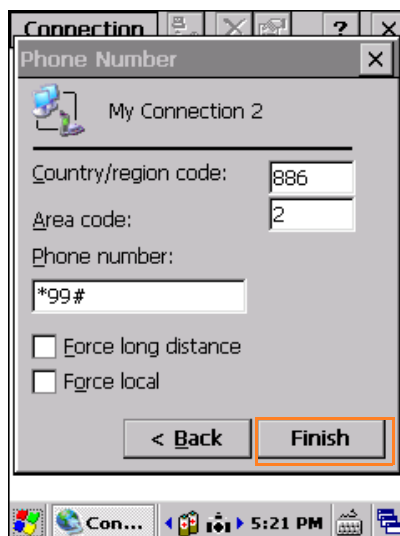
8. On **Extra Settings** insert this command:
+cdgcont=1,"ip","internet"
9. Tap **OK** to complete the configure step.



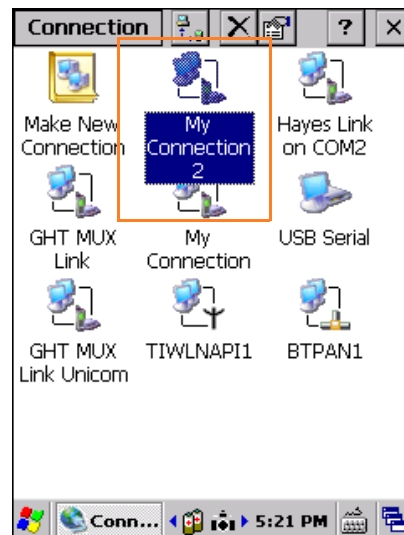
10. Tap **Next** to continue.



11. Set these settings:
 - **Country:** 886
 - **Area code:** 2
 - **Phone number:** *99#
12. Tap **Finish**.



13. Double tap on the newly created connection.



14. Type in the login information then tap **Connect**.

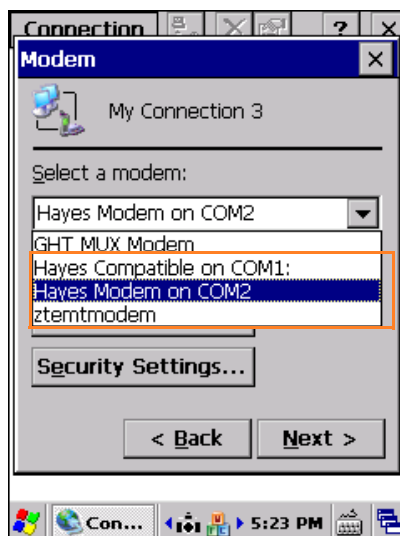
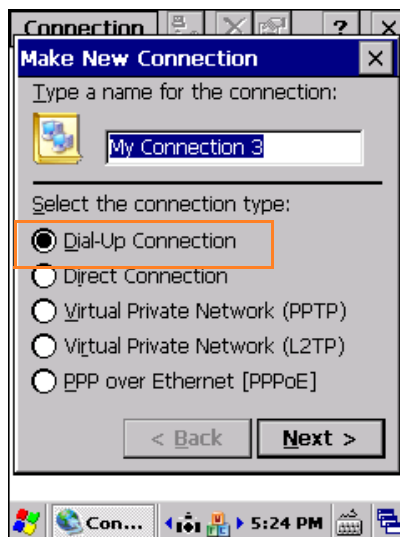
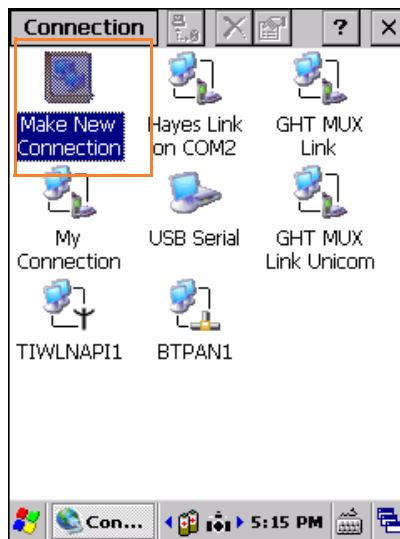


GPRS

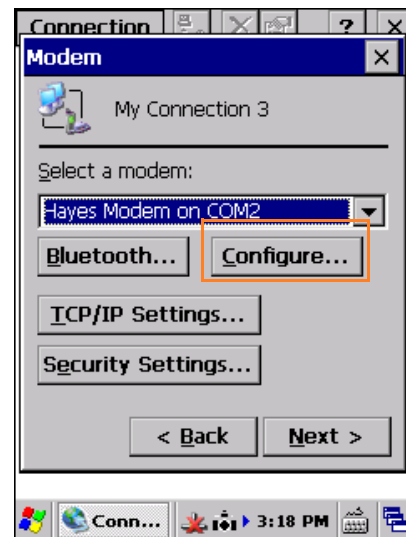
The mobile terminal can establish an internet connection through a GPRS (General Packet Radio Service) device.

To create an internet connection using GPRS device:

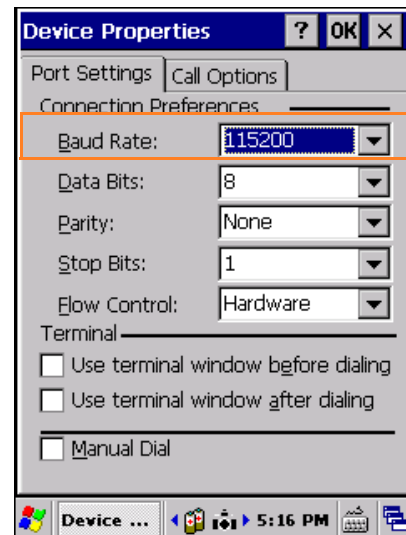
1. Tap **Start > Setting > Network and Dial-up Connections**.
2. Double tap **Make New Connection**.
3. Type in the name for the connection, and select **Dial-Up Connection**. Tap **Next** to continue.
4. Select **Hayes Modem on COM2**.



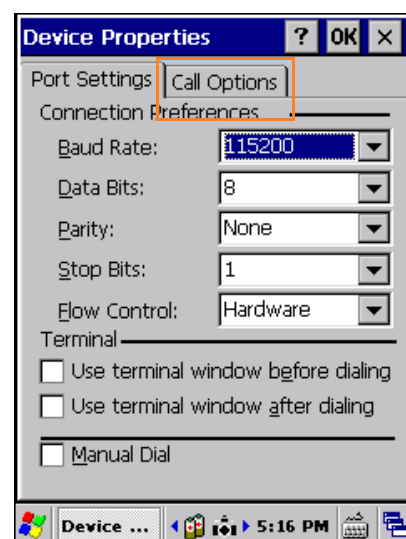
5. Tap **Configure**.



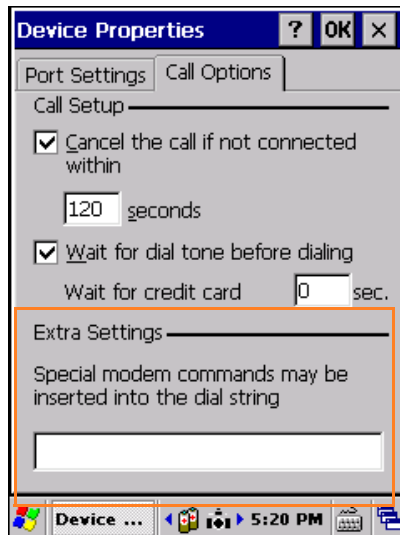
6. Set **Baud Rate** to **115200**.



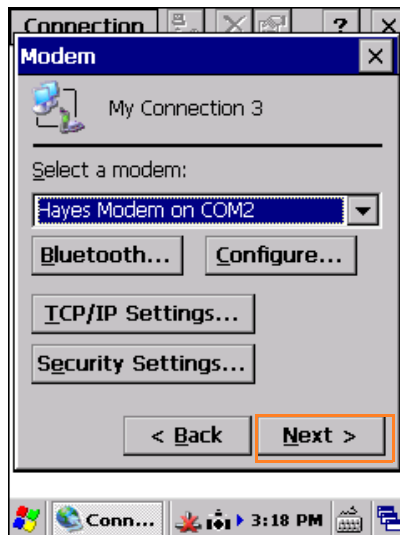
7. Tap **Call Options**.



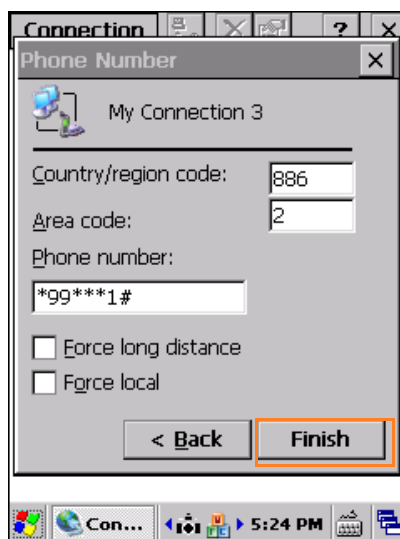
8. On **Extra Settings** insert this command:
+cdgcont=1,ip,internet
9. Tap **OK** to complete the configure step.



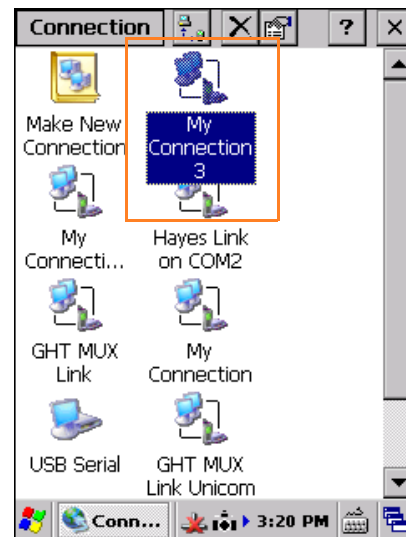
10. Tap **Next** to continue the setting.



11. Set these settings:
 - **Country:** 886
 - **Area code:** 2
 - **Phone number:** *99***1#
12. Tap **Finish**.



13. Double tap on the newly created connection.



14. Type in the login information then tap **Connect**.



Chapter 6 - SPECIFICATIONS

Item	Specification
CPU	TI OMAP 3715 1GHz Cortex A8
Operating System	Windows CE 6.0
Display	3.5" TFT LCD with resistive touch screen 240 x 320
Memory	DDR 256 MB SDRAM / Flash 512 MB
Communication	WLAN 802.11 b/g
Printer	2" thermal printer roll Ø30
Extension Slot	microSD card support read/write operation
Interface	USB 2.0 OTG (Client & Host) x1 RS-232 x1 SIM Card x1 SAM Card x2
Keypad	Alphanumeric
IC Card	ISO7816-EMV2000 Level 1,2 certified
Camera	3.0 Megapixels autofocus with light
Other	DC jack earphone and microphone jack speaker integrated microphone vibrator motor reset button
Battery	Main: rechargeable li-ion battery 7.4V 2000mAh Hotswap: rechargeable polymer battery 3.7V 100mAh
Environmental	Operating temperature 0 to 40°C Storage temperature -20 to 70°C
Dimensions	85.5 mm (H) x 208 mm (W) x 38mm (D)
Weight	Full feature model including battery 500g
Accessories	Hand strap Stylus Leather carrying case with shoulder strap (optional)
Certification	PCI 3.0, EMV2000 Level 1 & 2 CE, FCC, CCC, BSMI, VCCI

OPTIONAL FEATURES

Item	Specifications
Barcode	1D / 2D
RFID	ISO 14443 A/B
Telecom Standards	GPRS / WCDMA / CDMA2000
GPS	Channels: 50 Frequency: L1 Signals: GPS C/A Code
Fingerprint Sensor	Image sensor 256 x 360 sensors array format 508 DPI

Specification subject to change without prior notice.

PARTNER