DENSO

BHT-1100 Series

User's Manual

Barcode Handy Terminal

BHT-1170BWB-CE

BHT-1171BWB-CE

Preface

Thank you for using the BHT-1100BWB-CE / BHT-1171BWB-CE DENSO WAVE Barcode Handy Terminal.

Please read this manual thoroughly prior to operation to ensure full use of the product's functionality, and store safely in a convenient location for quick reference even after reading.

If the BHT is left with the battery discharged or with the battery removed, or if the battery is replaced incorrectly, data including files and settings stored in the RAM may be lost. When performing full reset (refer to "Chapter 2 BHT Preparation" – "2.6 Resetting and Full Resetting"), all data including files and settings stored in the RAM will also be lost and the RAM will revert to the factory default. It is recommended that any important data be backed up to the "FLASH" folder or to the computer before full reset. When the BHT turns ON after the data in the RAM is deleted, the BHT starts from the "Initial Setup" (refer to "Chapter 2 BHT Preparation" – "2.4 Initial Setup").

Some of the pixels on the LCD touch screen may not illuminate or stay permanently illuminated. Furthermore, there may also be inconsistencies in color and brightness. None of these aspects represent an LCD defect.

A thin Newton's ring (rainbow-like patterns) may appear on the touch panel.
This does not necessarily indicate a problem with the touch panel.

Liability Limitations

- DENSO WAVE INCORPORATED does not assume any product liability (including damages for lost profits, interruption of operations, or the loss of business-related information) arising out of, or in connection with, the use of, or inability to use the BHT system software or related manuals.
- DENSO WAVE INCORPORATED ("DENSO WAVE") takes reasonable precautions to ensure its products do not infringe upon any patents or other intellectual property rights of other(s), however, DENSO WAVE cannot be responsible for any patent or other intellectual property right infringement(s) or violation(s) arising from any of the following.
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    2) The use of DENSO WAVE's products in a manner for which they were not intended nor designed.
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- If it is judged by DENSO WAVE INCORPORATED that malfunction of the product is due to the product having been dropped or subjected to impact, repairs will be made at a reasonable charge even within the warranty period.

Customer Registration and Inquiries

Customer Registration

To allow us to provide our customers with comprehensive service and support, we request that all customers complete a Member Registration Form. Registered members will be offered the following privileges.

- The latest upgrade information
- Free exhibition and event information for new products
- Free Web-information service "QBdirect".

QBdirect Service Contents

Information search service (FAQ)	Offers detailed information on each product.
Download service	Offers downloads of repair modules for the latest BHT Series systems or software, and sample programs.
E-mail inquiries	Product related queries can be sent in by e-mail.

* Please note that these privileges may be subject to change without prior notice.

− How to Register

Access the URL below and follow the instructions provided.

http://www.qbdirect.net/

Inquiries

− Technical Inquiries (QBdirect)

- BHT product programming method
- Product setup method, usage
- Other technical questions

Inquires relating to the above can be made at our exclusive Web site for registered users (QBdirect). Access the link below to log on or register.

About this Manual

- Due to improvements and so on, the content of this manual may be subject to change without prior notice.
- The reproduction or duplication of the whole or part of this manual is strictly prohibited without prior consent.
- Every attempt has been made to ensure that the content of this manual is thorough and up to date; however, we kindly ask that any questionable content, mistakes, or omissions be reported to DENSO WAVE.
- The copyright for this User's Manual belongs to DENSO WAVE INCORPORATED.
- Lettering in the screens in this User's Manual is a little different from that in the actual screens. File names used are only for description purposes, and will therefore not display if files have not been set with the same names.

Manual Composition

This manual is made up of the following 9 chapters.

Chapter 1 Outline

Describes the BHT system and provides an overall outline of the BHT.

Chapter 2 BHT Preparation

Describes information required by the user and procedures that must be performed prior to commencing operation.

Chapter 3 Basic Operation

Describes how to scan barcodes using the BHT, the backlight function, how to use the keypad, and BHT data transmission.

Chapter 4 System Operation

Describes how to operate the desktop, Start menu and System Menu, and how to make wireless network settings.

Chapter 5 Communication

Describes technical information on BHT Ethernet communication, Bluetooth® communication, and wireless communication, and provides details of Microsoft ActiveSync.

Chapter 6 Maintenance

Describes battery replacement, and daily procedures for taking care of the BHT and CU.

Chapter 7 Error Messages

Describes causes and countermeasures for error messages that display during BHT use.

Chapter 8 Specifications

Describes specifications for hardware, readable barcodes, and interfaces.

Chapter 9 Appendices

Describes the CU-1100 Series.

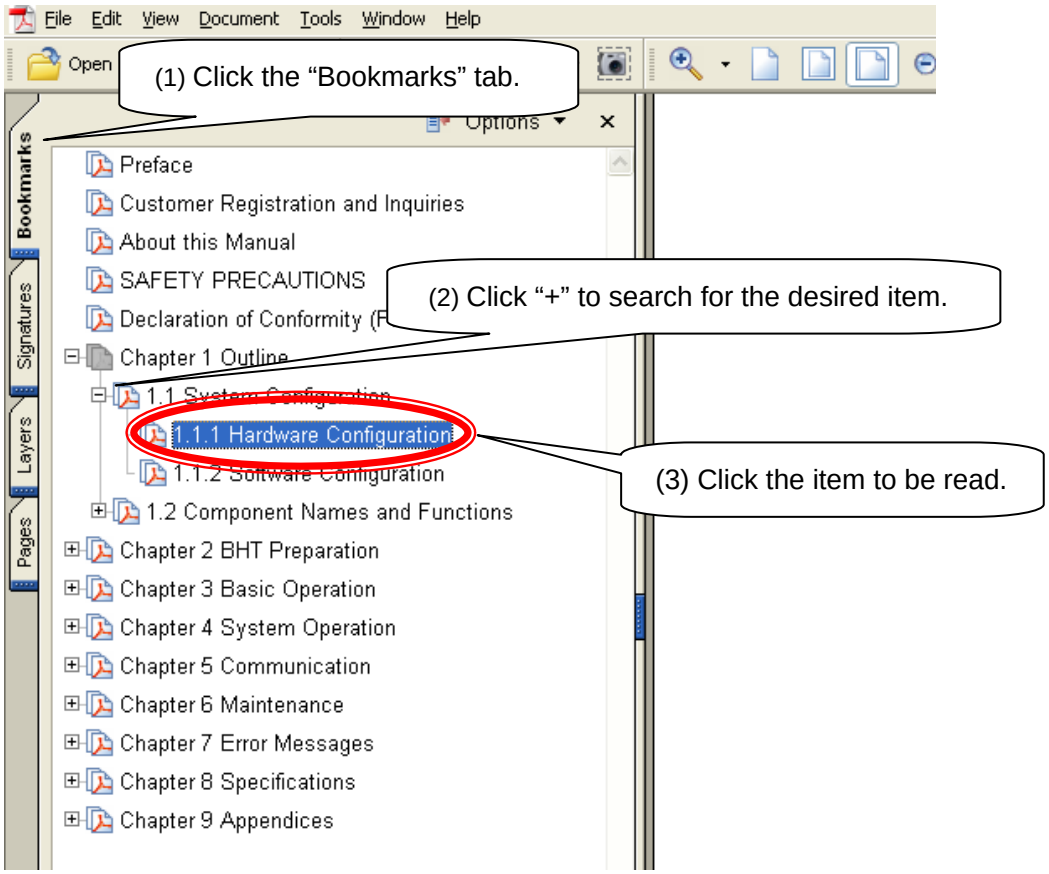
Viewing this Manual

− About the Bookmark

The PDF Bookmark function can be used to jump to the Contents page.

<Procedure>

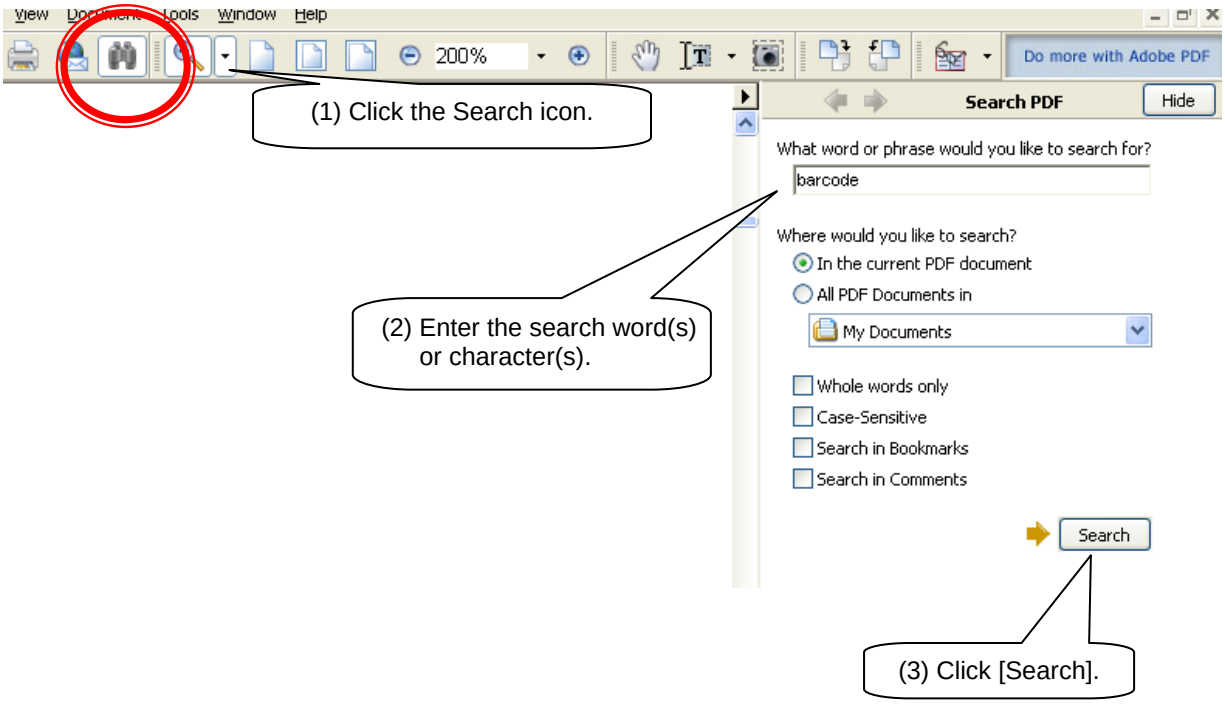
(1) Click the “Bookmark” tab.
(2) Click to search for the desired item.
(3) Click the item to be read.



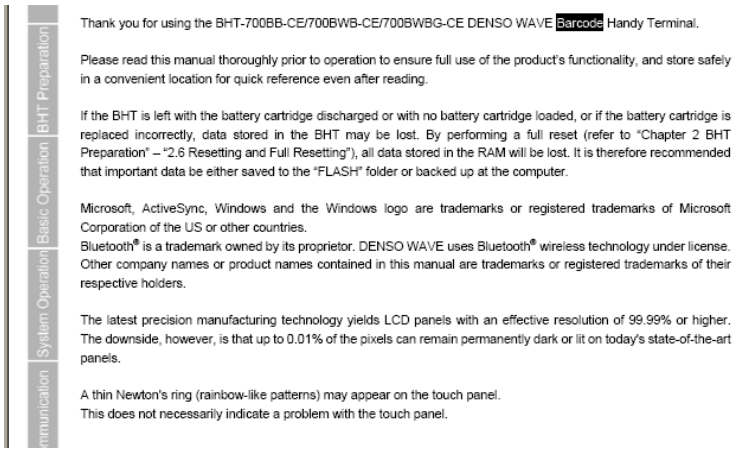
− Searching by Word

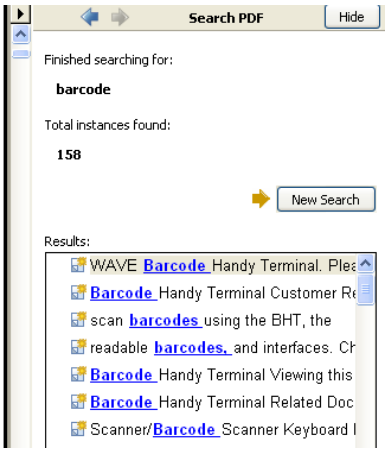
The PDF search function can be used to jump to the target page by entering words or characters related to the item being searched.

(1) Click the Search icon. (Or select “Edit” – “Search”.)
(2) Enter the word(s) or character(s) to be searched for.
(3) Click [Search].



<Search Results Example>





Related Documentation

- BHT API Reference Manual
- BHT Class Library Reference Manual

SAFETY PRECAUTIONS

Be sure to observe all these safety precautions.

- Please READ through this manual carefully. It will enable you to use the BHT and CU correctly.
- Always keep this manual nearby for speedy reference.

Strict observance of these warnings and cautions is a MUST for preventing accidents that could result in bodily injury and substantial property damage. Make sure you fully understand all definitions of these terms and symbols given below before you proceed to the text itself.

⚠ **WARNING**	Alerts you to those conditions that could cause serious bodily injury or death if the instructions are not followed correctly.
⚠ **CAUTION**	Alerts you to those conditions that could cause minor bodily injury or substantial property damage if the instructions are not followed correctly.

Meaning of Symbols

	A triangle (△) with a picture inside alerts you to a warning of danger. Here you see the warning for electrical shock.
	A diagonal line through a circle (⃠) warns you of something you should not do; it may or may not have a picture inside. Here you see a screwdriver inside the circle, meaning that you should not disassemble.
	A black circle (●) with a picture inside alerts you to something you MUST do. This example shows that you MUST unplug the power cord.

⚠ WARNING

Handling the battery

	• Never disassemble or heat the battery, nor put it into fire or water; doing so could cause battery-rupture or leakage of battery fluid, resulting in a fire or bodily injury. • Do not carry or store the battery together with metallic ball-point pens, necklaces, coins, hairpins, etc. Doing so could short-circuit the terminal pins, causing the batteries to rupture or the battery fluid to leak, resulting in a fire or bodily injury. • Never put the battery into a microwave oven or high-pressure container. Doing so could cause the batteries to break, generate heat, rupture or burn. • Avoid dropping the battery or letting it undergo any shock or impact. Doing so could cause the batteries to break, generate heat, rupture or burn. • Never charge the rechargeable battery where any inflammable gases may be emitted; doing so could cause fire.
	• Only use the dedicated charger for charging the rechargeable battery. Using a different type of charger could cause battery-rupture or leakage of battery fluid and result in a fire, bodily injury, or serious damage to property.

Handling the BHT

	• Never put the BHT into a microwave oven or high-pressure container. Doing so could cause the BHT to break, generate heat, rupture or burn. • Do not poke at the eyes with the stylus that comes with the BHT.

⚠ WARNING

Handling the CU

<table>
<tr>
<td>  </td>
<td>
• If smoke, abnormal odors or noises come from the CU, immediately unplug the AC adapter from the wall socket or CU and contact your nearest dealer.
Failure to do so could cause fire or electrical shock.
• If foreign material or water gets into the CU, immediately unplug the AC adapter from the wall socket or CU and contact your nearest dealer.
Failure to do so could cause fire or electrical shock.
• If you drop the CU so as to damage its housing, immediately unplug the AC adapter from the wall socket or CU and contact your nearest dealer.
Failure to do so could cause fire or electrical shock.
</td>
</tr>
<tr>
<td>  </td>
<td>
• Never use the CU for charging anything other than the specified batteries.
Doing so could cause heat, battery-rupture, or fire.
• Never bring any metals into contact with the output terminals.
Doing so could produce a large current through the CU, resulting in heat or fire, as well as damage to the CU.
• Never use the CU on the line voltage other than the specified level.
Doing so could cause the CU to break or burn.
</td>
</tr>
<tr>
<td>  </td>
<td>
• Use the dedicated AC adapter only.
Failure to do so could result in fire.
• If the power cord of the AC adapter is damaged (e.g., exposed or broken lead wires), stop using it and contact your nearest dealer.
Failure to do so could result in a fire or electrical shock.
</td>
</tr>
</table>

⚠ CAUTION

To System Designers:

- When introducing BHTs in those systems that could affect human lives (e.g., medicines management system), develop applications carefully through redundancy and safety design which avoids the feasibility of affecting human lives even if a data error occurs.

Handling the battery

- Never charge a wet or damp rechargeable battery.
  Doing so could cause the batteries to break, generate heat, rupture or burn.

Handling the BHT

- If smoke, abnormal odors or noises come from the BHT, immediately turn off the power, pull out the battery, and contact your nearest dealer.
  Failure to do so could cause smoke or fire.
- If foreign material or water gets into the BHT, immediately turn off the power, pull out the battery, and contact your nearest dealer.
  Failure to do so could cause smoke or fire.
- If you drop the BHT so as to damage its housing, immediately turn off the power, pull out the battery, and contact your nearest dealer.
  Failure to do so could cause smoke or fire.
- Do not use batteries or power sources other than the specified ones; doing so could generate heat or cause malfunction.
- When using the hand belt, exercise due care to avoid getting them caught in other objects or entangled in rotating machinery.
  Failure to do so could result in accident or injury.


Never dis-assemble

- Never disassemble or modify the BHT; doing so could result in an accident such as break or fire.

- Never put the BHT in places where there are excessively high temperatures, such as inside closed-up automobiles, or in places exposed to direct sunlight.
  Doing so could affect the housing or parts, resulting in a fire.
- Avoid using the BHT in extremely humid or dusty areas, or where there are drastic temperature changes.
  Moisture or dust will get into the BHT, resulting in malfunction, fire or electrical shock.
- In environments where static electricity can build into significant charges (e.g., if you wipe off the plastic plate with a dry cloth), do not operate the BHT. Doing so will result in malfunction or machine failure.
- Do not apply excessive force when inserting or removing the rechargeable battery.
  Doing so will result in damage.
- Tap the LCD only with the stylus that comes with the BHT.
  Using the tip of a pen or any pointed object will result in a damaged or broken LCD.
- Put your palm of the hand through the hand belt.
  If you put your arm through the hand belt, it can be broken.

⚠ CAUTION

Handling the CU

	• Never disassemble or modify the CU; doing so could result in an accident such as fire or malfunction.
	• Never put the CU in places where there are excessively high temperatures, such as inside closed-up automobiles, or in places exposed to direct sunlight. Doing so could affect the housing or parts, resulting in a fire. • Avoid using the CU in extremely humid or dusty areas, or where there are drastic temperature changes. Moisture or dust will get into the CU, resulting in malfunction, fire or electrical shock. • Never cover or wrap up the CU or AC adapter in a cloth or blanket. Doing so could cause the unit to heat up inside, deforming its housing, resulting in a fire. Always use the CU and AC adapter in a well-ventilated area. • Do not place the CU anyplace where it may be subjected to oily smoke or steam, e.g., near a cooking range or humidifier. Doing so could result in a fire or electrical shock. • Keep the power cord away from any heating equipment. Failure to do so could melt the sheathing, resulting in a fire or electrical shock. • Do not insert or drop foreign materials such as metals or anything inflammable through the openings or vents into the CU. Doing so could result in a fire or electrical shock.
	• If you are not using the CU for a long time, be sure to unplug the AC adapter from the wall socket for safety. Failure to do so could result in a fire. • When caring for the CU, unplug the AC adapter from the wall socket for safety. Failure to do so could result in an electrical shock.

Chapter 1
Outline

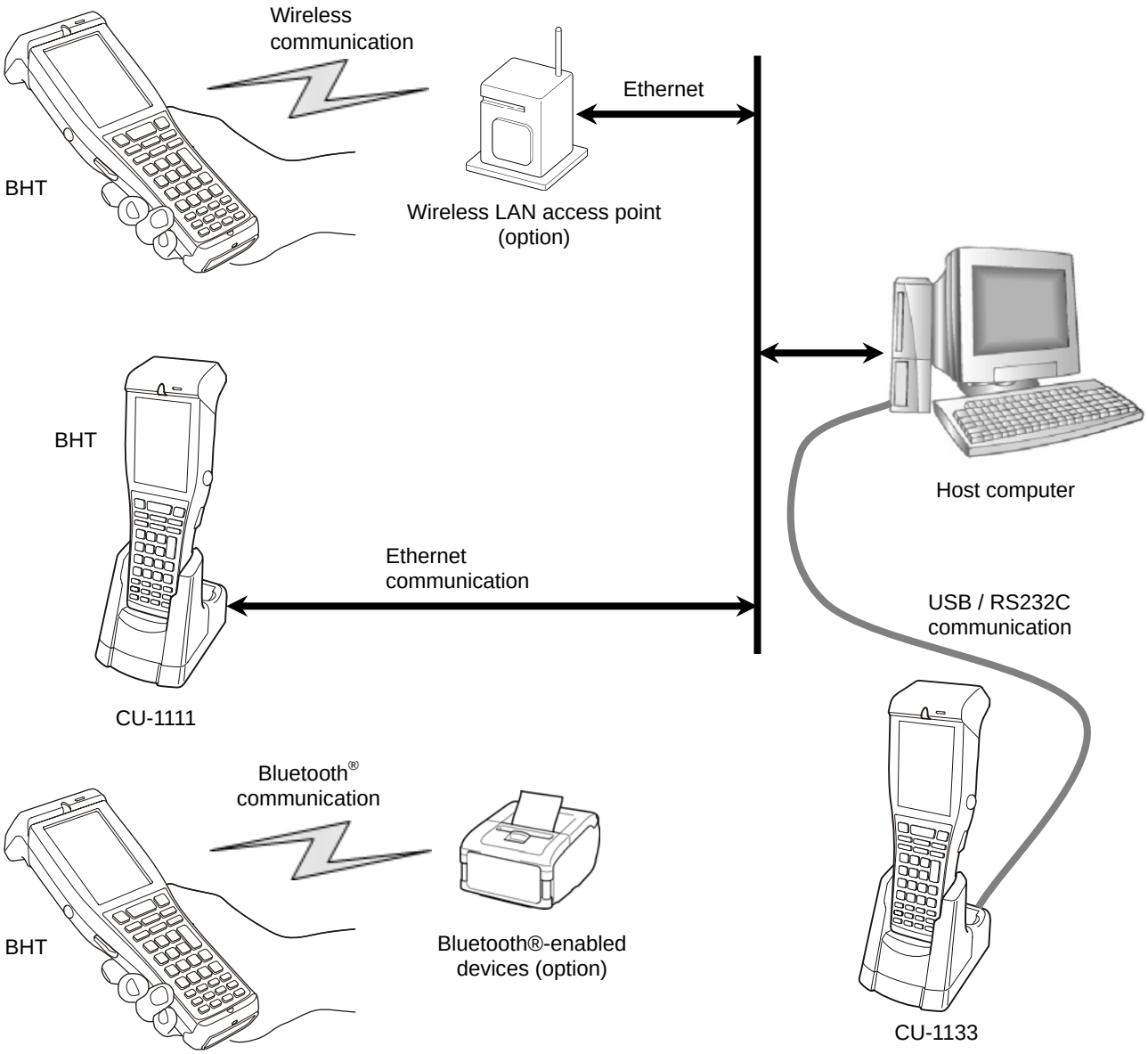
This chapter describes the BHT system and provides an overall outline of the BHT.

1.1 System Configuration

This section describes the hardware required for the barcode data collection system used by the BHT and the BHT software.

1.1.1 Hardware Configuration

In addition to the BHT, the following hardware is required for the barcode data collection system used by the BHT.
Please note that certain components of the required hardware will differ depending on the type of communication used.



1.1.2 Software Configuration

[1] BHT Operating System (OS)

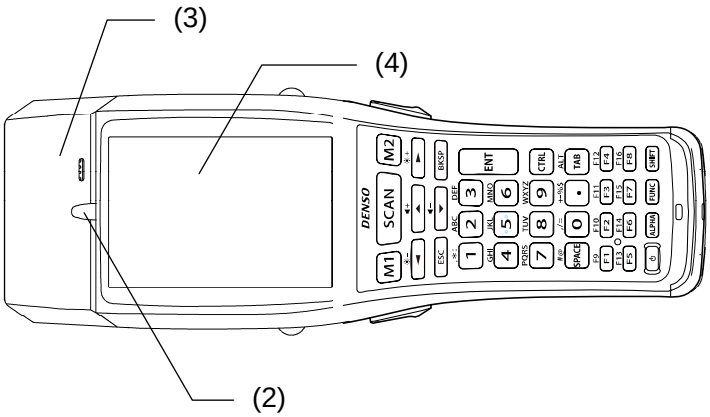
Microsoft Windows Embedded CE 6.0 R3

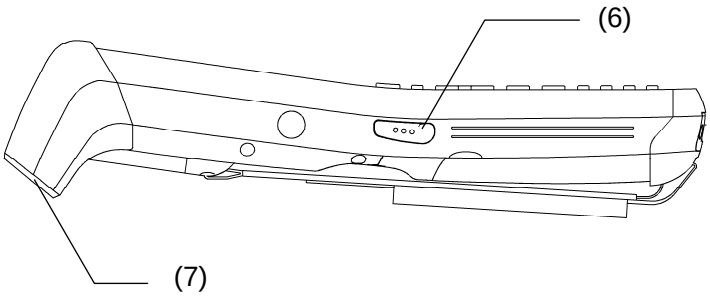
[2] Application Program Development Environment

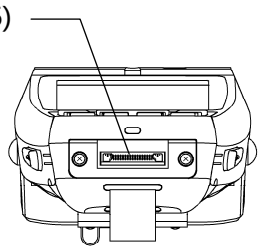
Refer to "BHT API Reference Manual".
"BHT Class Library Reference Manual"

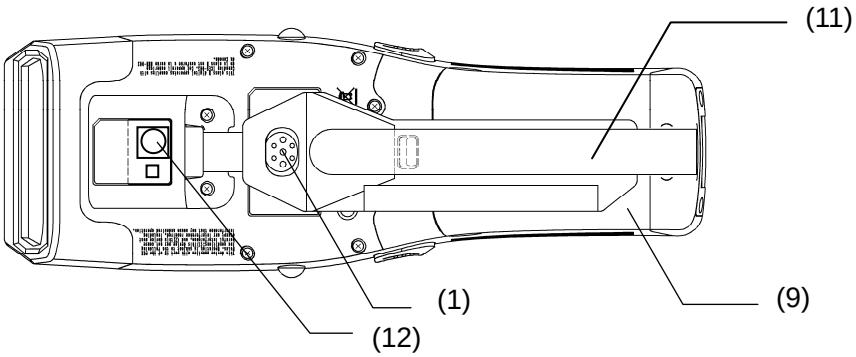
1.2 Component Names and Functions

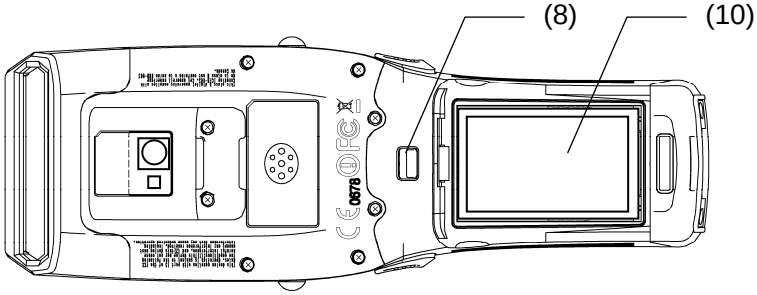
1.2.1 BHT Front / Rear







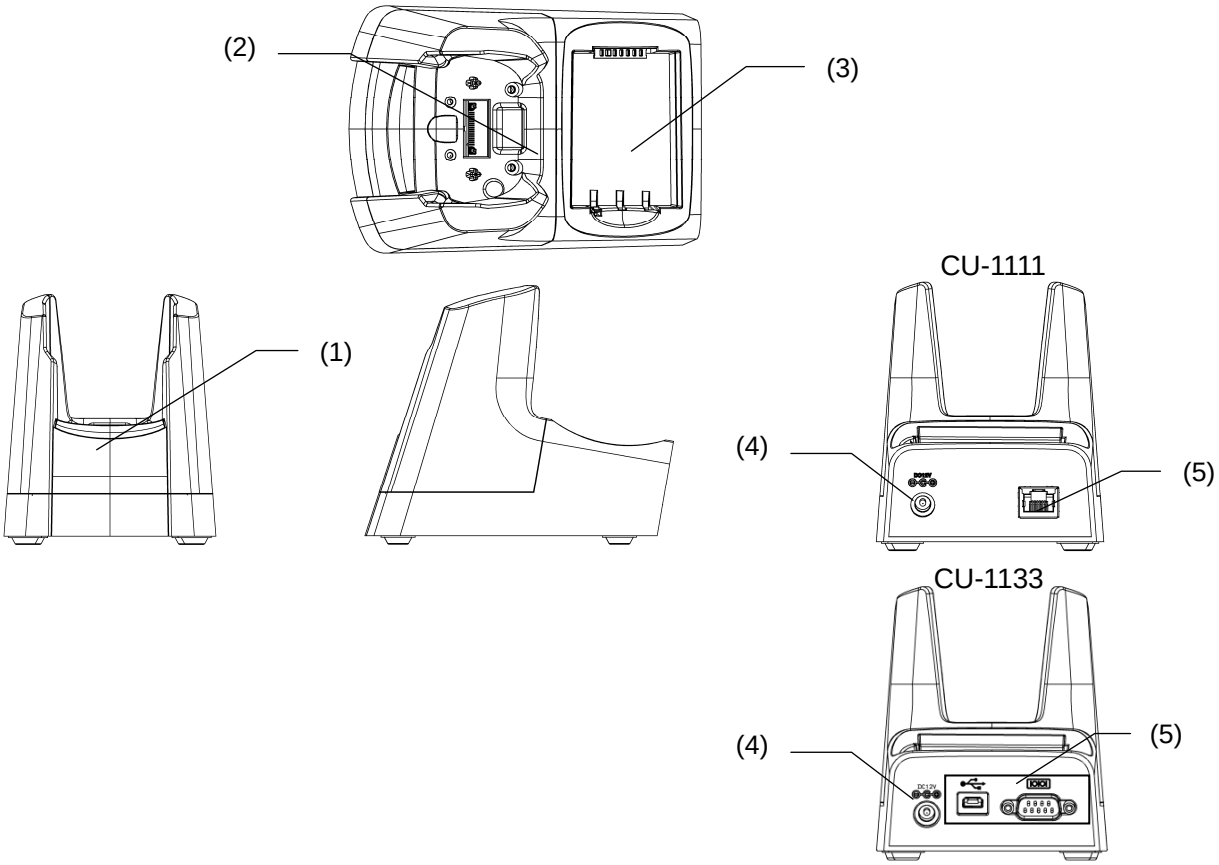




No.	Name	Function and Description
(1)	Speaker	Emits sound
(2)	Indicator LED	Illuminates in red during charging and turns green upon completion of charging. Indicates the barcode read status. Illuminates in blue when the BHT has successfully read a barcode.
(3)	IEEE802.11b/g/n built-in antenna Bluetooth® built-in antenna	Used to communicate with the wireless LAN access point. Do not cover this antenna section with metal-evaporated tape or by hand. Doing so may result in communication failures. Used to communicate with other Bluetooth®-enabled devices. Do not cover this antenna section with metal-evaporated tape or by hand. Doing so may result in communication failures.
(4)	LCD (with Touch panel)	Displays the characters and graphic patterns. Data may be entered by tapping the screen directly with the stylus.
(5)	Interface port	BHT charge terminals and interface port
(6)	Trigger key	Press when scanning a barcode. (This key performs the same function as the Scan key.)
(7)	Reading window	Align the reading window with barcodes to perform barcode scanning.
(8)	Battery cover lock	Use this to lock or unlock the battery cover.
(9)	Battery cover	Remove this cover to replace the battery.
(10)	Battery	Main BHT power source
(11)	Hand belt	Always put your hand through this belt to prevent the BHT from being dropped accidentally.
(12)	Camera(BHT-1171 only)	Use this to take pictures.

1.2.2 CU Front / Rear

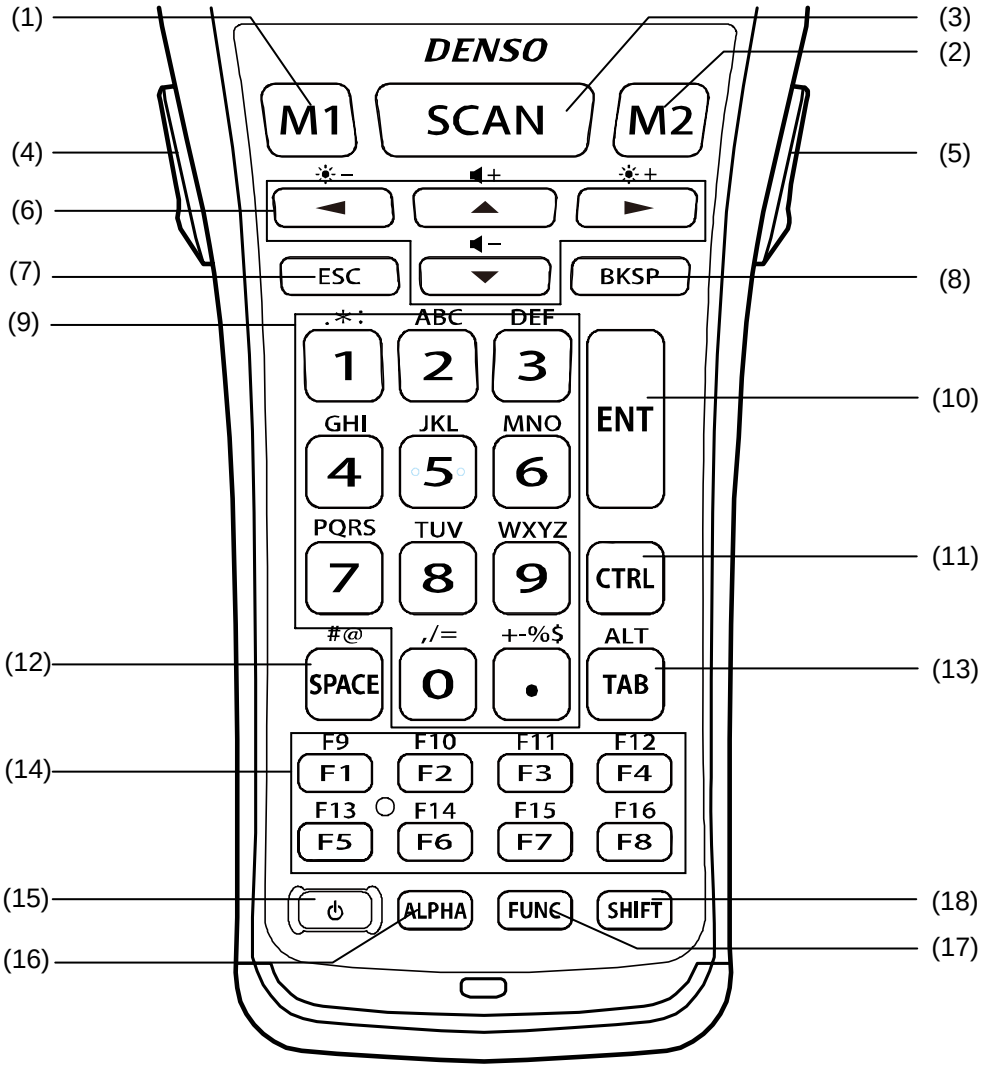
CU is a battery charger with communication function and represents CU-1111 and CU-1133.
Both of these units are referred to collectively as CU in this manual, and unless otherwise indicated, this represents the CU-1111, CU-1133.

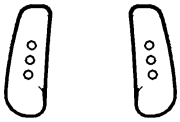
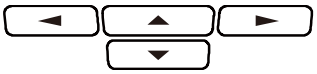
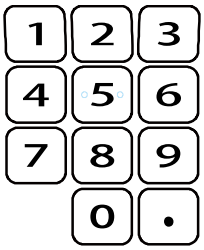


NO.	Name	Function and Description
(1)	LED Panel	Power communication LED Lights green when the power is applied to the CU. The green is blanking during communication. Spare battery charge LED Illuminates red during battery charge and turns green upon completion of charging. Power communication LED Spare battery charge LED 
(2)	BHT charge terminals and interface terminals	BHT charge terminals Do not stain these terminals; doing so could result in a lower charging efficiency. Clean these terminals periodically Interface terminals Used to exchange data with the BHT.
(3)	Spare battery charging slot	Do not stain these terminals; doing so could result in a lower charging efficiency. Clean these terminals periodically
(4)	Power inlet connector	DC12V : Using dedicated AC adapter
(5)	Interface connector	Used to exchange data with the host computer or communication station. The CU-1111 has an Ethernet port (100Base-T). The CU-1133 has an RS-232C port and a USB port.

1.2.3 Keypad

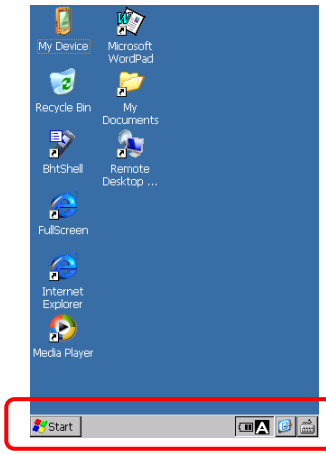
The BHT key functions can be set at user programs.
The diagram below shows an example of settings for each key function.



No.	Key	Name	Function and Description
(1)		Magic Key 1	The Shift Key and Enter key functions can be assigned to these magic keys by making settings at the SYSTEM MENU. Character strings can be assigned at user programs.
(2)		Magic Key 2	
(3)		Scan key	Press to scan barcodes. (This key performs the same function as a Trigger key.)
(4) (5)		Trigger keys	Press to scan barcodes. (This key performs the same function as the Scan key.)
(6)		Cursor keys	Used to move the cursor and select menus.
(7)		Escape keys	Cancels the operation.
(8)		Backspace key	Moves back one character.
(9)		Numerical keys	Used to enter data.
(10)		Enter key	Press to finalize entered data or execute operations.
(11)		Control key	Used to modify the function of the next key pressed.
(12)		Space key	Used to enter a space character.
(13)		Tab key	Used to enter a tab character.
(14)		Function keys	Used to select functions.
(15)		Power key	Turns the BHT power ON and OFF.
(16)		Alphabetical mode key	Switches to alphabet entry mode.
(17)		Function mode key	Switches to Function mode.
(18)		Shift key	Used in combination with other keys such as the numerical keys or power key for special input procedures.

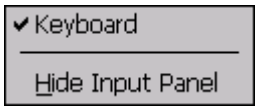
1.2.4 BHT Screen

Depending on user settings and so on, the Windows desktop in the screens in this Operator's Guide may differ a little from that in the actual BHT screen.



Note: The taskbar may also be a little different from that in the actual screens.

	Indicates the current battery power level.
	Indicates the wired LAN with the HTT Station connection status. : The BHT is connected to a wired network. : The BHT is disconnected to a wired network.
	Indicates the wireless device open status and radio field intensity. : Displays when the wireless is disconnected or failed to authenticate → → → : Indicates the radio field intensity by the number of bars. Strong → Weak
	Indicates the Bluetooth® power status. : Appears when the Bluetooth® device is powered on. (Blue) : Appears when the Bluetooth® device is powered off. (Grey) (This icon does not dislay by default, but can be displayed by changing the setting at the System Menu or user programs.)
SF	Displays when the SF key is pressed and the keys are in the shift status.
F	Displays when the FN key is pressed and the keys are in the function status.
	Displays when the BHT is communicating with the computer via Microsoft ActiveSync.
ALP	Displays when in alphabet entry mode. (The entry mode can be changed by pressing the Alpha key.) Refer to the BHT Class Library Reference Manual "Chapter 9 Keyboard" for the input character details while in the ALP mode.
	Tap this icon while an application is running to display the desktop. Tap again to return the original application execution screen.

	Indicates the software keyboard status. (Tap this icon to display/hide the software keyboard, or switch the keyboard status ON/OFF.) : Displays when ON.  : Displays when OFF.
	Displays when the CPU switches to standby. (This icon does not dislay when standby status by default, but can be displayed by changing the setting at the System Menu or user programs.)
	Displays when Caps Lock is pressed at the software keyboard.
	Tap this icon to display/hide the software keyboard menu.  Keyboard : Tap the "Keyboard" item to display the software keyboard. Hide Input Panel : Tap the "Hide Input Panel" item to hide the software keyboard. This item is enabled if software keyboad is displayed.

– Note – To minimize power consumption, the BHT automatically switches to standby mode after it has not been operated for a specified period*.

In standby mode, the touch screen is not refreshed, and as a result, icons in the taskbar may not be displayed or refreshed, and the calendar clock may not display the correct date or time.

* This time can be set by the user, with the default setting being one second. The time until the BHT switches to standby mode can be updated at the System Menu (Refer to “Chapter 4 System Operation”.) or by creating user programs. Refer to the "BHT API Reference Manual" or "BHT Class Library Reference Manual” for details of the user program creation method.

Chapter 2
BHT Preparation

Describes information required by the user and procedures that must be performed prior to commencing operation.

2.1 “BHT Preparation” Procedure

Follow the steps below to prepare the BHT.

2.2 Loading and Charging the Battery **(Page 14)**
First load and charge the battery.

↓

2.3 Attaching the Stylus **(Page 19)**
Attach the stylus to prevent it from being lost.

↓

2.4 Initial Setup **(Page 21)**
Calibrate the touch screen and set the calendar clock when the power is turned ON for the first time.

2.2 Loading and Charging the Battery

The battery is not charged when purchased and should therefore be charged prior to use.
The chargers that can be use with the BHT are the CU.

The charge time is approximately 3 hours (standard rechargeable battery) or 4.5 hours (large-capacity rechargeable battery).

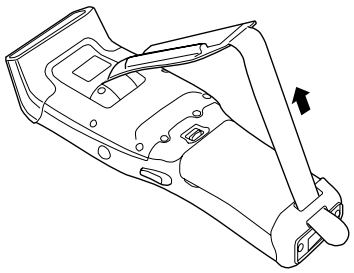
An only slightly discharged battery should take less time to become fully charged.

Charging Precautions

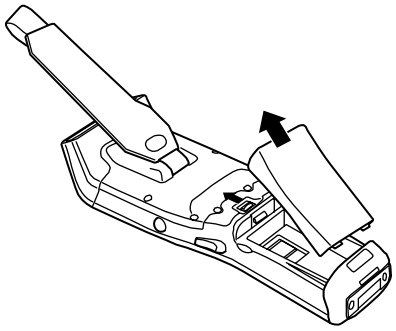
- Do not touch the BHT, battery, or charger terminals by hand or stain them. Doing so could result in a contact failure or prevent charging.
- Never charge the battery near fire or in a high-temperature environment.
  High-temperatures may activate the charger’s protective device, preventing charging, and lead to protective device damage, overheating, blowout or combustion.
- Terminate charging if not completed even after the specified time has elapsed.

2.2.1 Loading and Charging the Battery

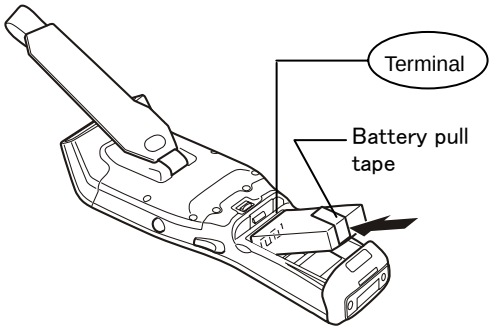
1. Loosen the hand belt.



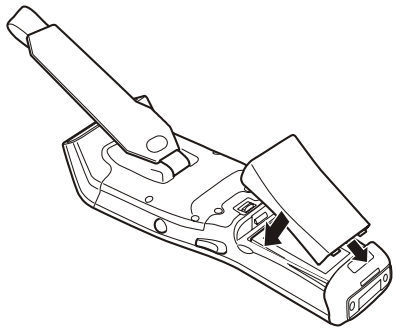
2. Slide the battery cover lock and remove the battery cover.



3. Load the battery in the direction shown by the arrow.

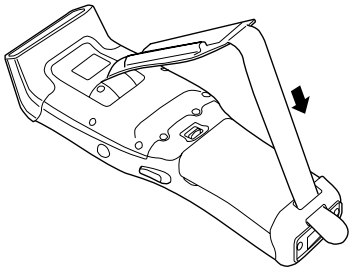


4. Close the battery cover and return the battery cover lock to the original position.



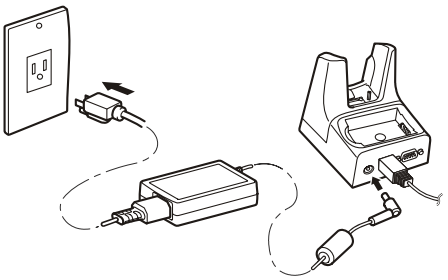
– Point –	The end of the battery pull tape must not come out of the edge under the battery cover.

5. Return the hand belt to its original position.

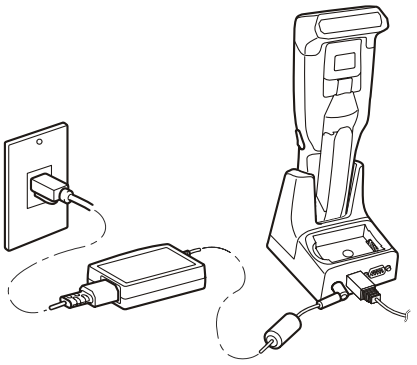


6. Connect the dedicated AC adapter to the DC input connector on the charger and plug the adapter into the wall socket.

The Power Communication LED (green) of CU turns ON.

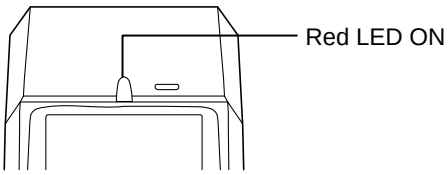


7. Place the BHT on the charger.

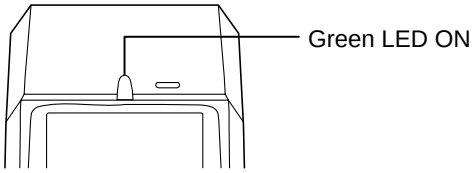


8. The beep sounds, and the indication LED turns red on, and charging begins.

– Point – After placing the BHT on the charger when using the BHT for the first time or when left unused for long periods of time, do not remove from the charger for approximately 3 hours (standard rechargeable battery) or 4.5 hours (large-capacity rechargeable battery).



9. The BHT indicator LED will change to green when charging is complete.



– Point –

- Charging takes approximately 3 hours (standard rechargeable battery) or 4.5 hours (large-capacity rechargeable battery).
- An only slightly discharged battery should take this time to become fully charged.
- The indicator LED flashing in red indicates the following causes. The proper action stated below must be taken.

・Abnormal temperature of the battery is detected.
  ・Charge the battery under the proper temperature (0℃~40℃)
  ・Avoid places where there are objects generating heat nearby or exposed to direct sunlight.
  ・Terminate charging and replace the battery if there are no objects generating heat nearby.

・The charge terminals contact failure
  ・Wipe any dirt or dust from the charge terminals as described in “Chapter 6 Maintenance” – “6.4 Daily Maintenance”.

・Charging is not completed even after the specified time has elapsed.
  ・Terminate charging and use a dedicated AC adapter to charge the battery.

・The battery is broken or the battery life has ended.
  ・Replace the battery.

– Note – The BHT is equipped with a backup battery used to backup the internal memory and calendar clock. The internal backup battery is charged first when charging is commenced.

Do not remove the BHT from the charger for at least 2 days when using the BHT for the first time or when using after long periods of time.

⚠ WARNING

Mishandling of the charger may result in charger overheating, smoke generation, blowout or combustion. Please read the following items prior to use.

- Never disassemble or modify the battery.
- Never connect the battery (+) and (-) terminals with a metal object such as a piece of wire.
- Never carry or store the battery together with metallic necklaces, hairpins and so on.
- Never expose the battery to fire or apply heat.
- Never use or leave the battery in the vicinity of high-temperature locations (60° C or higher) such as a fire or stove.
- Never place the battery into or soak it in water or seawater.
- Never charge the battery in the vicinity of fire or under a scorching sun.
- Never hammer nails into the battery, hit it with a hammer, or trample on it.
- Never apply strong impact to or throw the battery.
- Never use significantly damaged or deformed batteries.
- Never apply solder directly to the battery.
- If battery fluid leaked from the battery gets into the eyes or comes into contact with the skin, wash thoroughly with clean water such as tap water without rubbing, and obtain medical treatment immediately. Failure to do so will result in eye or skin injuries.

⚠ CAUTION

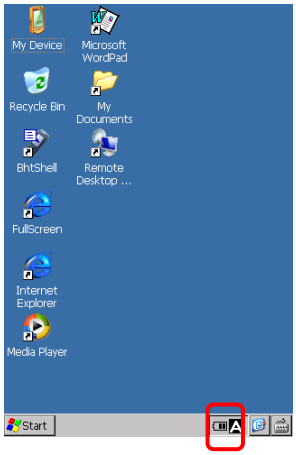
Mishandling of the charger may result in charger overheating, smoke generation, blowout or combustion. Please read the following item prior to use.

- Terminate charging if not completed even after the specified time has elapsed.

– Note –

- The BHT is equipped with a backup battery used to backup the internal memory and calendar clock when the battery is removed or the battery voltage falls below the stipulated level.
  It is therefore necessary to charge the internal backup battery when using the BHT for the first time or when left unused for long periods of time.
  The backup battery is charged automatically when a fully-charged battery is loaded.
  To ensure that the backup battery is fully charged, do not remove the battery for at least 2 days when using the BHT for the first time or when using after long periods of time.
- Refer to “Chapter 6 Maintenance” – “6.3 Using the BHT after Long Periods” for details of handling the BHT after long periods of time.
- Avoid storing the battery in high-temperature locations. The battery capacity may decrease.
- Do not touch the BHT, battery, or charger terminals by hand or stain them. Doing so may result in a BHT operation defect or battery charging failure. It is recommended that dirt on the battery terminals or BHT battery terminals be periodically wiped with a soft, dry cloth.

2.2.2 Battery Power Level Indicator



The battery power level can be checked at the icon that displays in the taskbar. The battery power displays in four levels.

The battery power level indicator is a guideline to notify the operator to charge the battery promptly when discharged.

: Sufficient battery power remains.

: The battery power is partially depleted. Charge promptly.

: The battery power is almost fully depleted and should be charged immediately.

: The battery power is fully depleted. Charge immediately or replace with a fully charged battery.

Note: There are times when the taskbar display differs from the display on the BHT LCD screen.

About the Battery Level

- The battery power level indicator does not accurately reflect the battery residual power and should only be used as a guideline.
- The battery power level will fluctuate due to BHT operation, and therefore disparities may occur between the actual battery voltage and the display indicator.
- Ensure to charge the battery as soon as possible before the battery power is depleted.

2.2.3 Battery Voltage Drop

If the battery voltage drops to a level that requires charging or battery replacement while using the BHT, the screen on the right displays only once for approximately 2 seconds and the beeper sounds three times when a key is pressed or tap the touch screen. The BHT then returns to its normal operational status. The screen on the right indicates that the battery will soon need charged and should be promptly charged or replaced. If the BHT is left with the battery discharged, data including files and settings stored in the RAM may be lost.

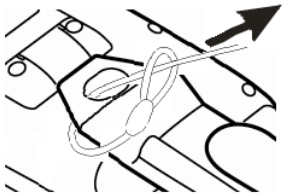
If use of the BHT is continued without charging or replacing the battery after the above message displays and the battery voltage drops to a level that prevents BHT operation, the screen on the right displays, the beeper sounds five times, and the power automatically turns OFF. Depending on the battery level, this message may not display or the beeper may not sound five times. When this message displays, replace or charge the battery immediately. If the BHT is left with the battery discharged, data including files and settings stored in the RAM may be lost.

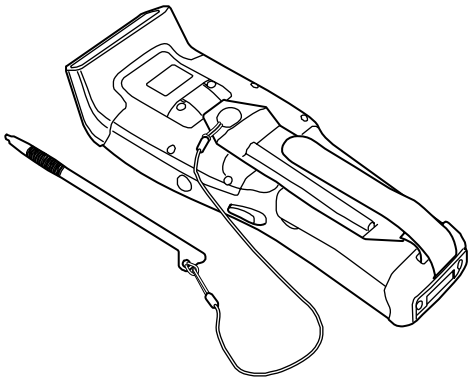
2.3 Attaching the Stylus

Attach the stylus to the hand belt to prevent it from being lost.

2.3.1 Attaching the Stylus

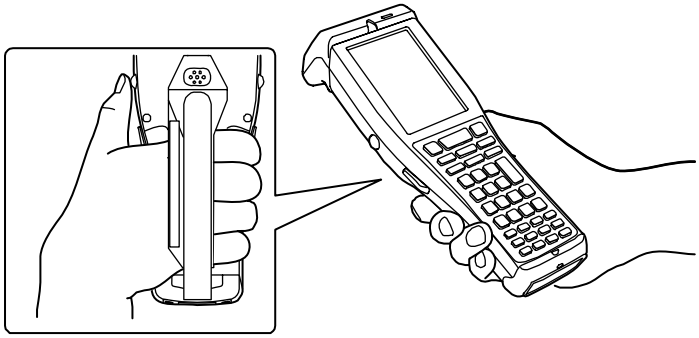
Attach the stylus as shown below.





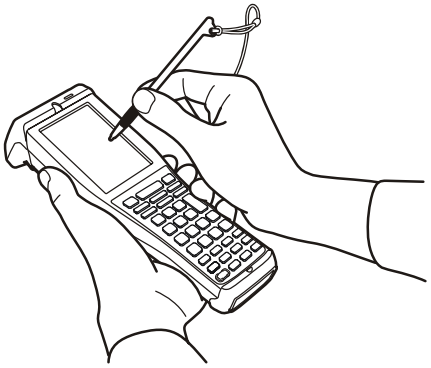
2.3.2 Holding the BHT

Insert your hand into the hand belt and hold the BHT as shown below.



2.3.3 Using the Stylus

The BHT liquid crystal display (LCD) is a touch screen. Buttons, menus and so displayed on the screen can be selected using the stylus provided.
Always perform touch screen calibration before operating the touch screen.
(Refer to “Chapter 2 BHT Preparation” – “2.4 Initial Setup”.)



2.3.4 Touch Screen Operation

Select the LCD touch screen buttons and menus and so on using the stylus provided.

Action	Description
Tap	This involves tapping the touch screen once. This function is the equivalent of a “click” with a mouse on a computer.
Double-tap	This involves tapping the touch screen twice in quick succession. This function is the equivalent of a “double-click” with a mouse on a computer.
Drag	This involves moving the stylus to an object while pressing the touch screen. This function is the equivalent of “dragging” with the mouse on a computer.
Long-tap / Hold	This involves tapping the touch screen for several seconds. This function is the equivalent of a "right-click" with the mouse on a computer.

- Always use the stylus provided to operate the touch screen. Never use fingernails or any pointed or hard objects, or apply strong pressure or impact to the touch screen. This may result in damage or a malfunction.
- If dirty, clean the touch screen and stylus tip prior to operation. Failure to observe this may result in scratches to the LCD screen or hinder smooth movement of the stylus.

2.4 Initial Setup

Press the **power** key to turn ON the BHT power.

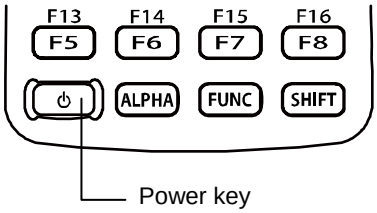
When turning ON the BHT power for the first time or when using after long periods of time, if the dialog box does not display, first perform a “full reset”.
Refer to “Chapter 2 BHT Preparation” – “2.6 Resetting and Full Resetting” for details of the full reset method.

Press the **power** key to turn ON the BHT power.

– Point – It may take time to display the screen after pressing the power key, but it is not malfunction of the BHT.

Therefore, do not keep pressing the power key more than needed or press it hard.

Doing so may cause breakage or malfunction of the power key.



2.5 Turning OFF the Power

Use one of the following three methods to turn OFF the BHT power.

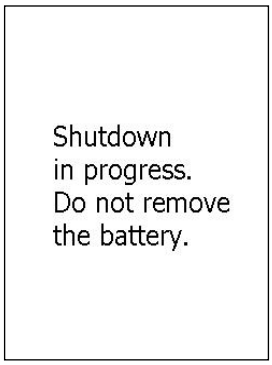
Normal power OFF	→ Press the **power** key.
Turning the power OFF after registry backup	→ Hold down the **CTRL** key and press the **power** key for 3 seconds or more.
Auto power OFF	→ The power turns OFF automatically when the BHT is not used for a set length of time.

– Point – The power does not be turned OFF for 10 seconds once the power turns ON.

2.5.1 Normal Power OFF

Press the **power** key.

The BHT power turns OFF after the screen on the right displays.



– Point – Do not remove the battery while the message on the right is displayed.
Failure to observe this may result in data stored in the BHT being lost.

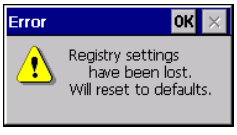
2.5.2 Turning the Power OFF after Registry Back-up

Hold down the **CTRL** key and press the **power** key.

The message on the right displays and registry backup is commenced.
The power turns OFF automatically when the backup is complete.

– Point – Do not remove the battery while the message on the right is displayed. Failure to observe this may result in data stored in the BHT being lost.

The Registry is an area in which settings information required for BHT operation is recorded.
If the Registry is lost, it is automatically restored by the OS.
The error message on the right displays if the OS fails to restore the Registry (because the Registry has not been backed up).
Refer to “Chapter 4 System Operation” – "4.4.3 System Properties [3] File System" for details of how to return the Registry to its default status.



2.5.3 Auto Power OFF

The power turns OFF automatically when the BHT is not used for the length of time set at the user program.
The default time is set to 3 minutes when the BHT is shipped from the factory.
* Refer to “Chapter 4 System Operation” for details of auto power OFF.

– Point – Do not remove the battery while Auto Power OFF is processing.
Failure to observe this may result in data stored in the BHT being lost.

2.6 Resetting and Full Resetting

2.6.1 Reset

Reset the BHT in the following cases.

- The BHT makes no response to entry from the touch screen or keys.
- Programs in the BHT malfunction for some unknown reason.

2.6.2 Reset Method

With the BHT power ON, press the reset key combination (**M1** + **Right Trigger** + **Power**). Then release all keys.

– Point – Data stored as a file will not be lost even after resetting. However, any data currently being edited will be lost.

2.6.3 Full Reset

Perform a full reset if the problem persists even after resetting.

2.6.4 Full Reset Method

With the BHT power ON, press the full reset key combination (**M1** + **M2** + **Left Trigger** + **Power**) more than 1 sec. Then release all keys.

– Point – When performing full reset, all data including files and settings stored in the RAM will also be lost and the RAM will revert to the factory default. It is recommended that any important data be backed up to the “FLASH” folder or to the computer before full reset. When the BHT turns ON after the data in the RAM is deleted, the BHT starts from the “Initial Setup”.

2.6.5 Memory Contents after Reset/Full Reset

	Reset	Full Reset
Data in the “FLASH” folder (on-board FLASH memory)	Data retained	Data retained
Data in the "Storage Card" folder (SD Card)	Data retained	Data retained
Data in other folders	Data retained	Data erased
Contents of the Registry	Data retained	Data erased (Note)
Data being edited	Data erased	Data erased

(Note) If the Registry has been backed up (Refer to “Chapter 2 BHT Preparation” – “2.5 Turning OFF the Power”.), the backed up Registry will be used.

2.6.6 Reinstall/Recovery methods of data after Reset/Full reset

When performing full reset, all data and information excluding on-board FLASH memory and MicroSD card folders will also be lost. It requires to reinstall applications, reset registry, or recovery of application or registry. Those methods can be performed smoothly by selecting the functions described below. Follow the steps below in order, implementing from function [1] for full reset, function [5] for reset, respectively when rebooting.

When skipping reinstall and recovery methods of data after reset/full reset with the following procedures, all data including files and settings stored in the RAM will also be lost and the RAM will revert to the factory default.

- Press full reset key combination (**M1** + **M2** + **Left Trigger** + **Power**) + **SCAN** key
- Press **SCAN** key when the power is turned ON ("Working" displays)

Memory contents are erased except FLASH and SD Card folder. The registry is also being lost.
(Refer to “Chapter 2 BHT Preparation” – "2.6.5 Memory Contents after Reset / Full reset")

Refer to “Chapter 4 System Operation” – "4.4.3 System Properties [3] File System" for details of how to return the Registry to its default status.

Refer to “Chapter 4 System Operation” – "4.4.3 System Properties [7] Data Backup and [8] Startup Configuration" for details of how to config the following settings.

<table>
<tr><th>Functions</th><th>Outlines</th></tr>
<tr><td colspan="2">Follow the steps below in order, implementing from function [1] for full reset, function [5] for reset, respectively when rebooting</td></tr>
<tr><td>[1] Backup (BHTBackup.exe)
Automatic restore (BHTRestore.exe)</td><td>Back up data (files) using backup tool and registry.
Restore backup details automatically when rebooting performing full reset.
Backup/Restore parameters can be set with BHTBackup GUI.
For further details, refer to “Chapter 4 System Operation” – "4.4.3 System Properties [7] Data Backup and [8] Startup Configuration ".</td></tr>
<tr><td>[2] Registry backup
Registry automatic restore
(Regload.exe)</td><td>Registry can be supported/automatic restored selectively. Refer to “Chapter 2 BHT Preparation” – “2.5.2 Turning the Power OFF after Registry Back-up” for further details.
[Note]
When [1] automatic restore function is activated, backup details using registry backup function is not automatically restored.</td></tr>
<tr><td>[3] File automatic copy
(Regload.exe)</td><td>Copy files (data) stored in a folder below of on-board FLASH memory in order.
<table>
<tr><th>Folders to copy from</th><th>Folders to copy to</th><th>Notes</th></tr>
<tr><td>\Flash\Startup\Windows</td><td>\Windows</td><td>Does NOT copy files in sub folders.</td></tr>
<tr><td>\Flash\Copyfile</td><td>\(root folder)</td><td>Copy file in sub folders</td></tr>
</table>
[Note]
"\Flash\Copyfile" folder is strongly recommended, and
"\Flash\Startup\Windows" should be used only for compatibility with past BHT series.
<table>
<tr><th><Example> Folders to copy from</th><th><Example> Folders to copy to</th></tr>
<tr><td>\Flash\Copyfile\Windows
\Flash\Copyfile\Program Files</td><td>Windows
Program Files</td></tr>
</table></td></tr>
<tr><td>(Reset internally)</td><td></td></tr>
<tr><td>[4] Execute program automatically
And /or
Reset</td><td>Execute the programs automatically including applications deployed in the "\Flash\Setup" folder. Execute setup application and perform installation of CAB files, too.
[Specific execution with bat file]
Execution order can be defined more specifically by setting up "*.bat" batch file for function 1 to function 3 and deploying applications.
[Example autorun.bat] Specific execution with *.bat
<table>
<tr><td>wceload /noui /delete 0 \Flash\SetUp\dnwa.cab
call apl1setup.bat
call apl1setup.bat
regedit /H /I \Flash\Setup\Regfile\setup.reg</td><td>' CAB Install
' Application1 setup
' Application2 setup
' registry setup</td></tr>
</table>
[Note] For further details about registry setup, refer to “Chapter 4 System Operation” – "4.4.3 System Properties [9] Registry editor".</td></tr>
<tr><td>[5] Execute program automatically (Windows Startup)</td><td>Execute programs including applications deployed in "\Windows\Startup".</td></tr>
<tr><td>[6] Execute program automatically
[Compatibility with the past functions]</td><td>Execute programs automatically including applicators deployed in "\FLASH\Startup"
[Note] This function is used to be compatible with the past functions.</td></tr>
</table>

– Point – Function [4], [5] and [6] execute bat files (*.bat, *.cmd) deployed in the following folder without a window, if the bat file name starts with '_'(underscore).

function [4] : "\Flash\Setup"

function [5] : "\Windows\Startup"

function [6] : "\Flash\Startup"

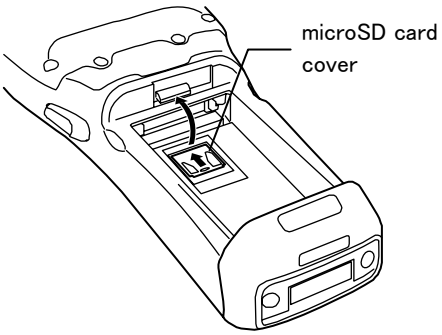
2.7 Inserting and extracting the microSD

2.7.1 Inserting the microSD

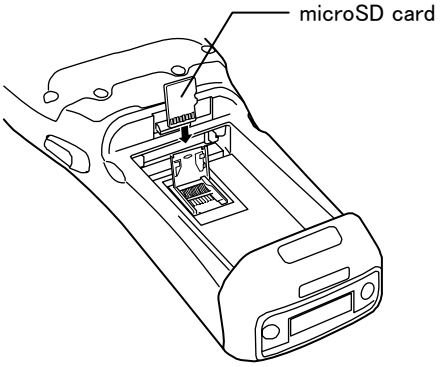
Insert the microSD card (option) into the BHT using the following procedure.

1. Remove the battery.

2. Slide the microSD card cover in the OPEN direction and then open the microSD card cover.



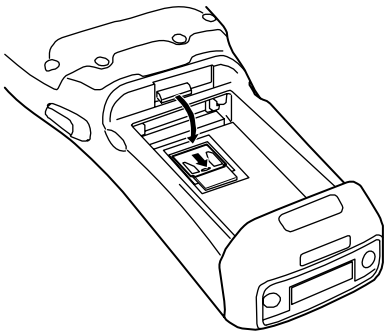
3. Insert the microSD card into the slot beside the microSD card cover.



– Point – Ensure that the microSD card is inserted in a direction that matches the shape of the microSD card slot.
Don't insert the microSD card by the strong power more than necessary.
The microSD card and the microSD card cover may be damaged.

4. Close the microSD card cover and then slide the microSD card cover in the LOCK direction.

5. Load the battery.



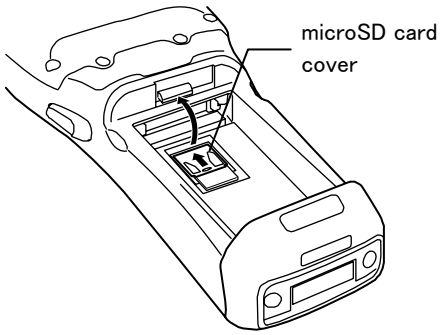
2.7.2 Extracting the microSD

Extract the microSD card (option) from the BHT using the following procedure.

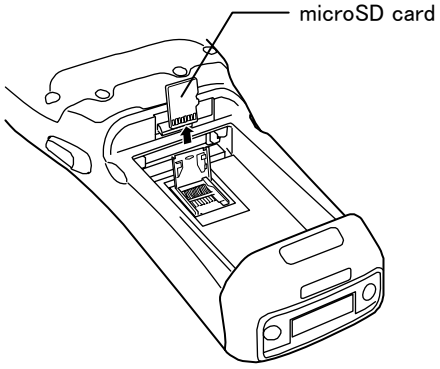
– Caution – Always turn the BHT power OFF before extracting the microSD card. Failure to observe this may result in the loss of data stored in the microSD card.

1. Remove the battery.

2. Slide the microSD card cover in the OPEN direction and then open the microSD card cover.

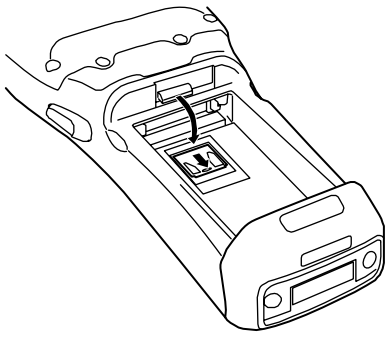


3. Extract the microSD card from the slot beside the microSD card cover.



– Point – Ensure that the microSD card is extracted in a direction that matches the shape of the microSD card slot.
Don't extract the microSD card by the strong power more than necessary.
The microSD card and the microSD card cover may be damaged.

4. Close the microSD card cover and then slide the microSD card cover in the LOCK direction.



5. Load the battery.

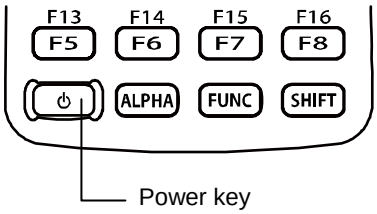
Chapter 3
Basic Operation

This chapter describes how to scan barcodes using the BHT, the backlight function, how to use the keypad, and BHT data transmission.

3.1 Scanning Barcodes

Follow the procedure below to scan barcodes.

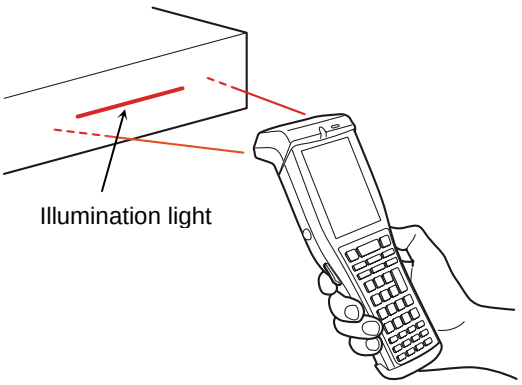
1. Turn the BHT power ON.



– Note –
- Scanning may be unsuccessful immediately after turning the BHT power on.
- At the same time, beeping sound may be lost sometimes when reading etc.

2. Press the trigger key.

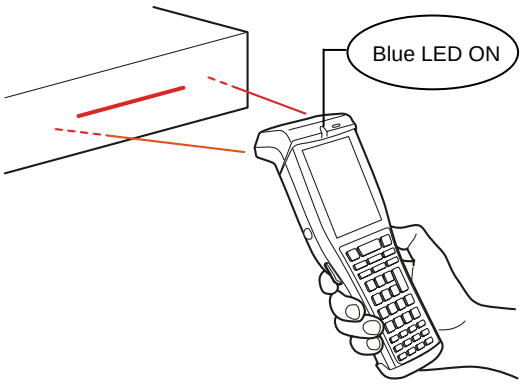
The BHT emits an illumination LED.



3. Hold the BHT close to the barcode to align the illumination LED.

When the BHT has read the barcode successfully, the indicator LED will illuminate in blue.

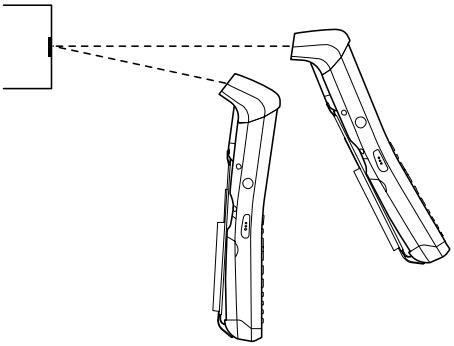
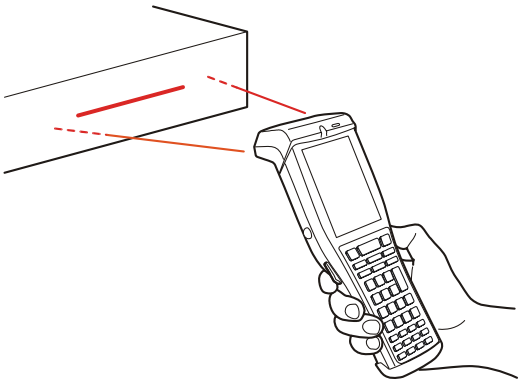
Barcodes can be read also by pressing the **Scan** key.



– Point – The barcode scanning method may differ depending on the application. Perform scanning in accordance with the instructions provided in the application User's Manual.

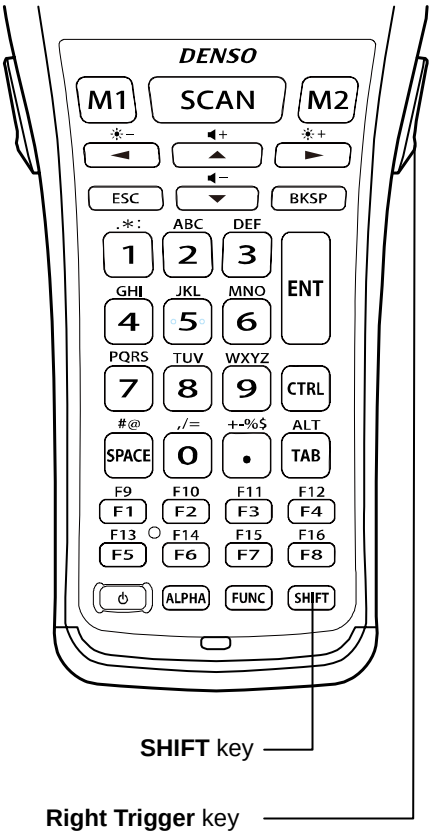
– Note –
- If required, clean dirty labels before scanning.
- It may not be possible to perform scanning in direct sunlight.
- If the barcode is on a curved surface, perform scanning in the center of the illumination LED emission range.
- If the barcode reading window is pulled away from the barcode, the scannable barcode range will become narrower than that of the illumination LED emission.
- Do not use the BHT in the vicinity of radio equipment. This may cause the BHT to malfunction.

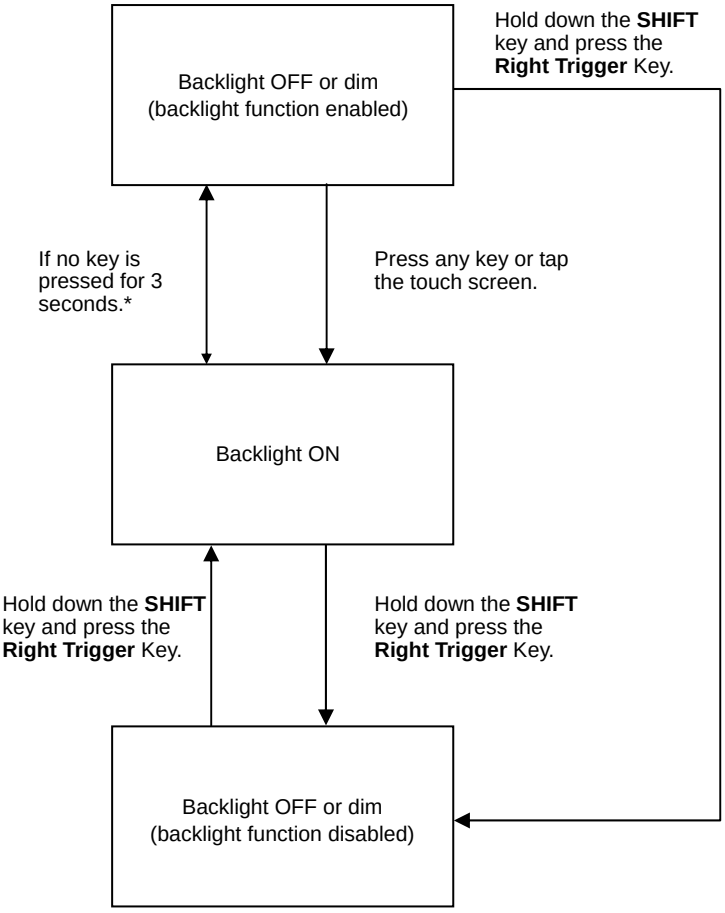
When unable to successfully read barcodes…

Cause		Countermeasure
Specular reflection	When the illumination LED is focused on the printed surface of the barcode from directly above, there are times when scanning is unsuccessful due to specular reflection.	Change the BHT scanning angle and try again. 
Distance from barcode	Scanning may be unsuccessful if the BHT reading window is too close to or too far from the barcode, even when the barcode is within the illumination LED range.	Move the BHT slowly toward or away from the barcode and try again. The illumination LED range is only a guideline. Barcodes can be read at a maximum distance of 130 cm from the BHT reading window. 
Barcode surface curvature	Scanning may be unsuccessful if the barcode surface is curved.	Scan the barcode at the center of the barcode reading window.
Barcode surface dirt	Scanning may be unsuccessful if the barcode surface is dirty.	Wipe the dirt from the barcode and try again.
Barcode reading window dirt	Scanning may be unsuccessful if the barcode reading window is dirty.	Blow any dust away with an airbrush, and then gently wipe the reading window with a cotton swab or similar soft object.
Direct sunlight, ambient light	Barcode scanning may be adversely affected by direct sunlight or the brightness of the surrounding light.	Perform barcode scanning away from direct sunlight. Try adjusting the brightness of the surrounding light when scanning indoors.

3.2 Turning ON/OFF the Backlight

To turn the backlight ON or OFF, hold down backlight key.





***** Under 1 minute if the BHT is placed on the CU.

– Point –

- Time until auto OFF can be set at user programs.
- As opposed to pressing the backlight function enable/disable key, the backlight function can be enabled or disabled at the Backlight settings menu.

3.3 Using the Keypad

3.3.1 Entering Numerical Data

The default setting is numeric entry mode, enabling numbers written on the top of numeric keys to be entered.
To enter “120” for example, press the “1”, “2” and “0” keys sequentially.
If the wrong number is incorrectly entered, press the **BKSP** key to delete the number and then reenter the correct number.

It is also possible to switch to alphabet entry mode at the program. Refer to the “BHT API Reference Manual" or "BHT Class Library Reference Manual" for further details.

3.3.2 Entering Alphabet Data

In alphabet entry mode, press a numerical key to input the alphabet character assigned to that key.
Press the **ALPHA** key to switch to alphabet entry mode.
Press the **ALPHA** key once again to return to numeric entry mode.

Numeric entry mode ⟷ (**ALPHA** key) Alphabet entry mode

It is also possible to switch to alphabet entry mode at the program. Refer to the “BHT API Reference Manual" or "BHT Class Library Reference Manual" for further details.

3.3.3 Entering Data using shift status

Press the **SHIFT** key to switch to the shift status which enables the different character assigned to that key.
Refer to the “BHT API Reference Manual" or "BHT Class Library Reference Manual" for further details.

There are two **SHIFT** key modes –-“Nonlock mode” and “Onetime mode”.
“Nonlock mode” enables the shift status only while the **SHIFT** key is held down.
“Onetime mode” enables the shift status for one key after pressing the **SHIFT** key in addition to enabling the shift status only while the **SHIFT** key is held down.
The default setting is “Nonlock mode”.

The **SHIFT** key mode can be switched in “System Properties”.
Refer to “4.4 System Menu Details – 4.4.3 System Properties – [5] key” for further details.

It is also possible to change the sift status with the program.
Refer to the “BHT API Reference Manual” or “BHT Class Library Reference Manual” for further details.

3.3.4 Entering Data in function mode

The **FUNC** key switches to the function mode which enables the blue character keys.

For example, pressing the **F1** key in function mode enters the "**F9**". (One time lock)

There are two **FUNC** key modes –-"Lock mode" and "Onetime lock mode".
The default setting is "Onetime mode".

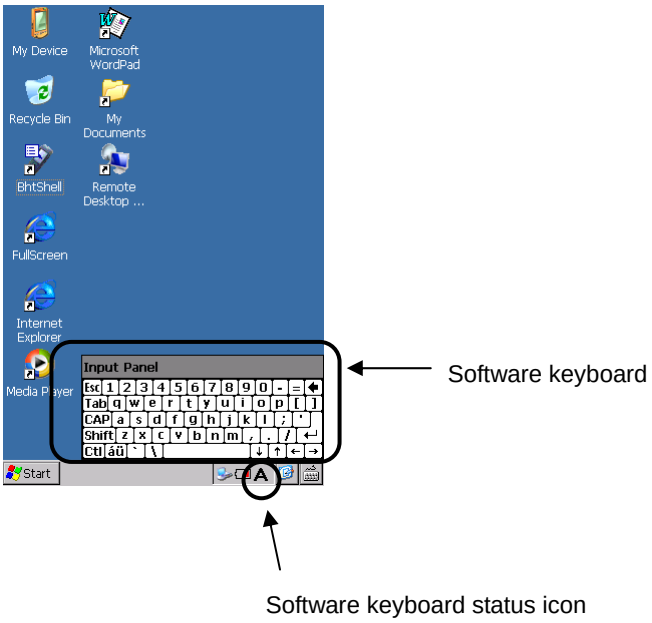
"Lock mode" enables the keypad **FUNC** status after pressing the FUNC key.
"Onetime mode" enables the **FUNC** status only for one key after pressing the **FUNC** key

The **FUNC** key mode can be switched in "System Properties".
Refer to "4.4 System Menu Details – 4.4.3 System Properties – [5] key" for further details.

It is also possible to change the function mode with the program.
Refer to the "BHT API Reference Manual" or "BHT Class Library Reference Manual" for further details.

3.3.5 Using the Software Keyboard

Tap the software keyboard status icon in the taskbar to display/hide the software keyboard.

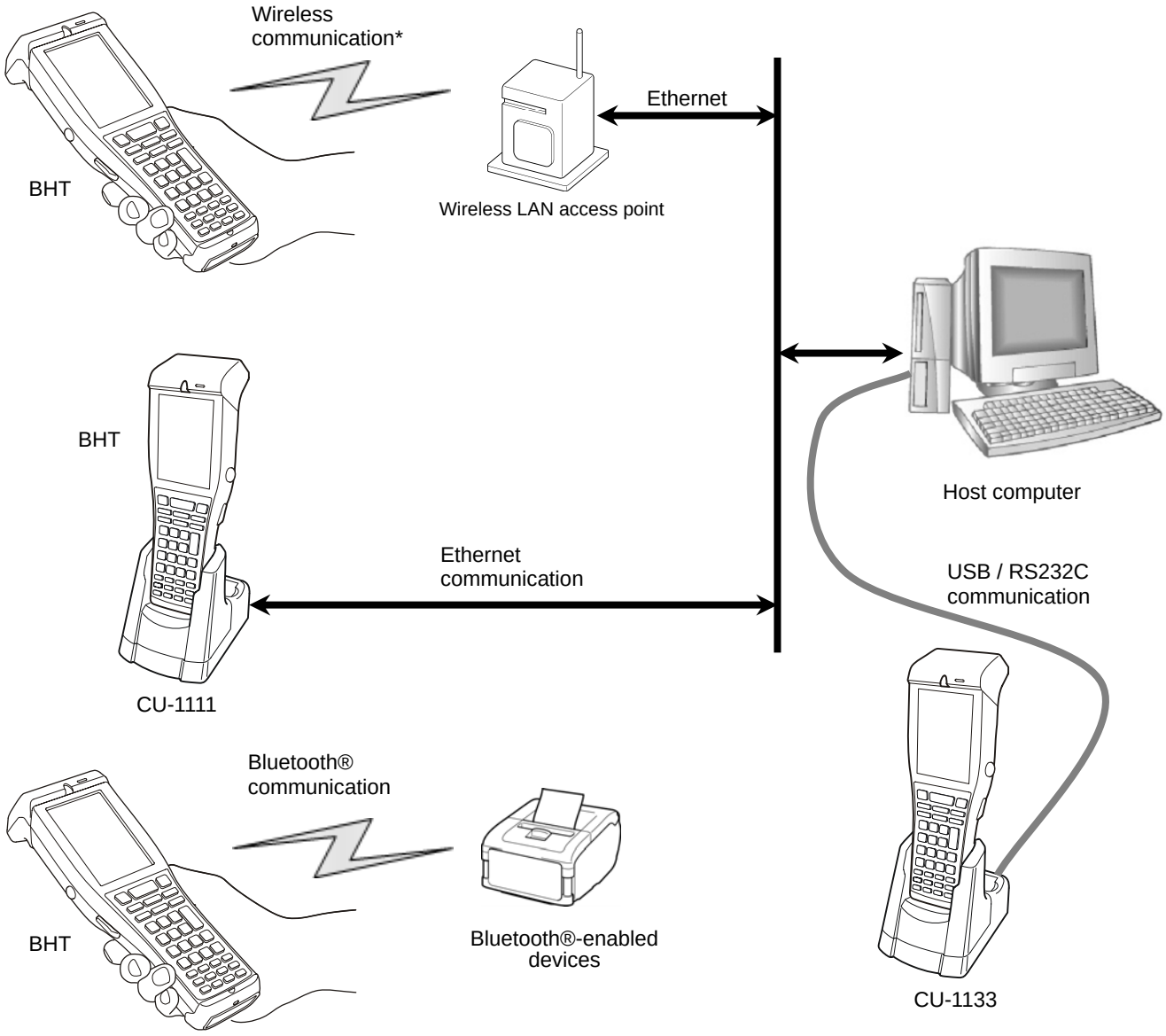


Data can be entered by tapping the keys on the software keyboard.

3.4 Transmitting Data

Data gathered by the BHT can be transmitted to the host computer by Ethernet communication, USB / RS-232C connection, Bluetooth® communication or wireless communication*.
The data transmission method and BHT setting method will differ depending on the system used, and therefore the system administrator should be contacted for details of operation.

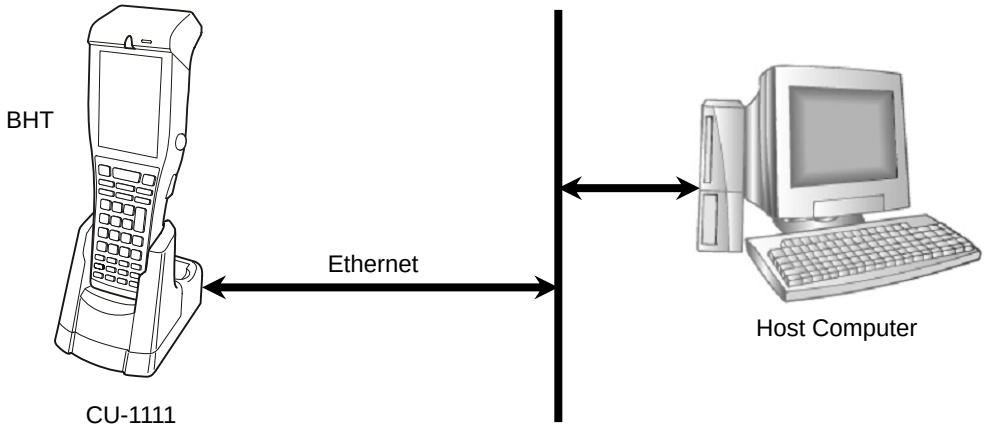
Request
Data gathered by the BHT should be promptly uploaded to the host computer.



To perform wireless communication with a wireless LAN access point, it is necessary to configure the wireless local area network (wireless LAN) at the BHT and access point.

3.4.1 Ethernet Communication

The user can use Ethernet connection via the CU-1111.
Place the BHT on the CU-1111 and transmit data.



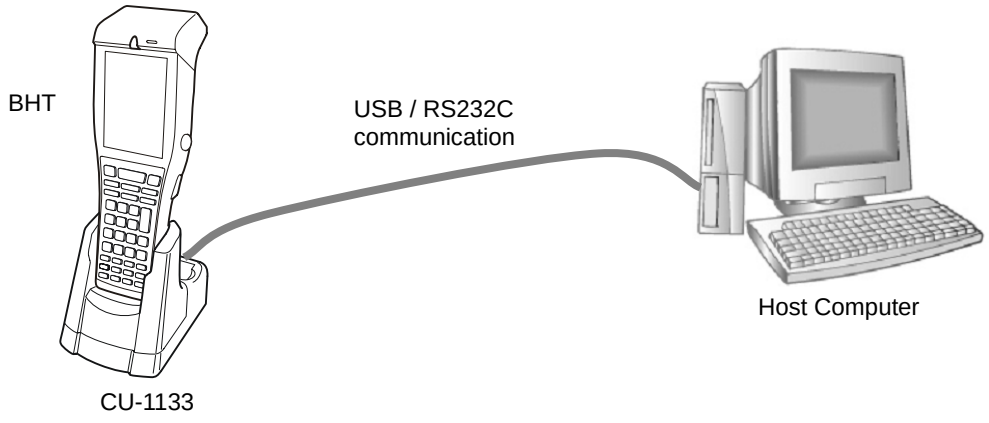
Requests

Handling the CU-1111

- A Category 5 (Cat 5) Ethernet cable or higher is required when using the CU-1111 in 100BASE-TX networks. Successful communication may not be possible with other cables.
- Do not forcibly insert the Plug of the Ethernet cable or pull the Ethernet cable strongly. Failure to observe this may result in damage to the connector or cable.
- The MAC address is written on the rear of the CU-1111.
- When use Ethernet communication via the CU-1111, connect the Ethernet cable to the CU-1111 beforehand.

3.4.2 USB / RS-232C Communication

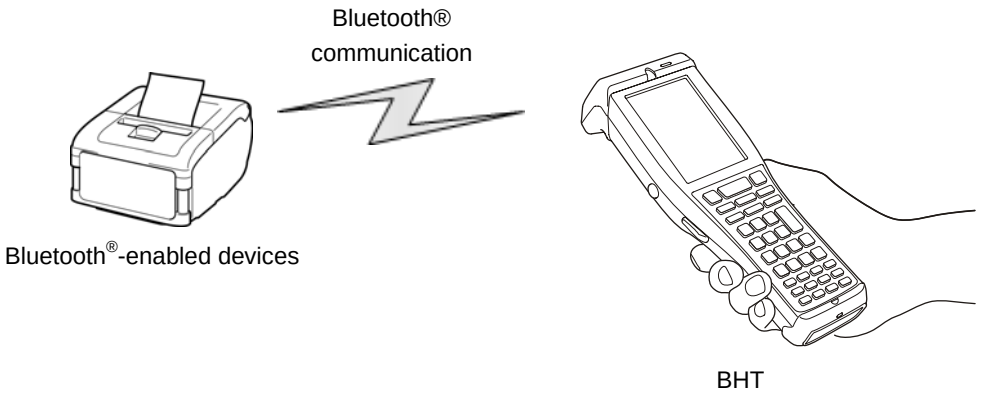
The user can use USB / RS-232C connection via the CU-1133.
Place the BHT on the CU-1133 and transmit data.



The BHT-1100 RS-232C interface has no signal line for ActiveSync connection, and therefore ActiveSync connection via RS-232C cannot be used.

3.4.3 Bluetooth® Communication

This interface permits wireless communications with other Bluetooth®-enabled devices.



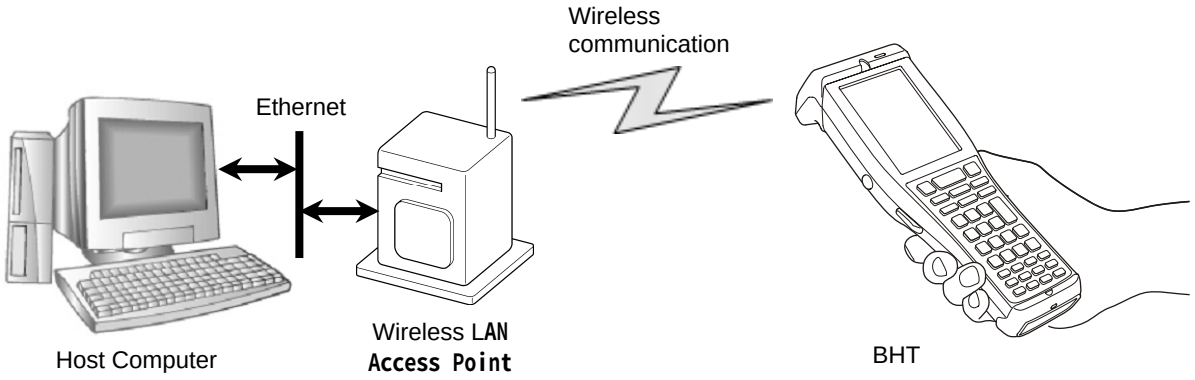
The BHT supports the following profiles:
- DUN-DT
- Generic Access
- Serial-DevA
- Serial-DevB
- Service Discovery
- FTP
- OPP
- A2DP
- HSP

Requests

Pointing the BHT in the direction of the other device sometimes improves communications over the link.

3.4.4 Wireless Communication

Transmit data to host computer via the wireless LAN access point.
To perform wireless communication, it is necessary to configure the wireless local area network (wireless LAN) at the BHT and access point.



Requests

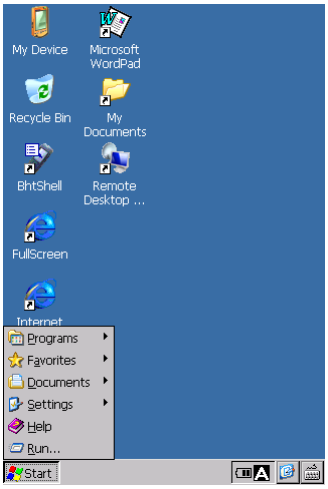
- Point the antenna on top of the BHT toward the access point to improve communication performance.
- Communication may not be possible at the following locations.
  1. In the vicinity of devices operating on the same 2.4GHz waveband as the BHT such as microwave ovens, industrial heating equipment, or high-frequency medical equipment.
  2. In the vicinity of computers or household appliances such as refridgerators that emit electromagnetic noise.
  3. In the vicinity of metallic objects, in places with high levels of metallic dust, in rooms surrounded by metal walls (metallic influence), or places where the BHT may be subject to strong impact.

Chapter 4
System Operation

This chapter describes how to operate the desktop, Start menu and System Menu, and how to make wireless network settings.

4.1 Desktop

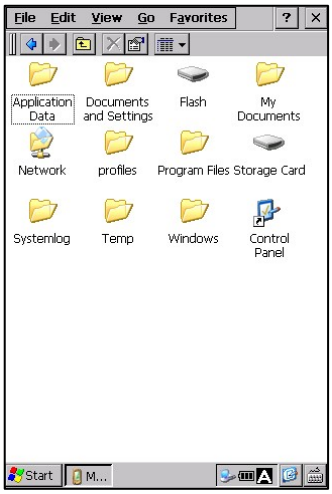
The desktop displays when initial setup (See “Chapter 2 BHT Preparation” – “2.4 Initial Setup”.) is complete.
All programs can be started up by double-tapping their respective icons on the desktop.



◆ My Device / My Documents

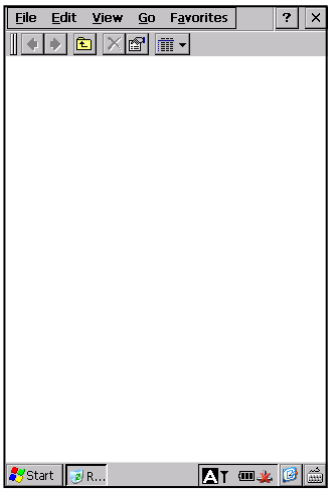
Double-tap the “My Device” icon on the desktop to display the screen on the right. This program can be used to browse file information and so on in the BHT.

Double-tap the “My Documents” icon on the desktop to browse file information and so on in the BHT too.



◆ Recycle Bin

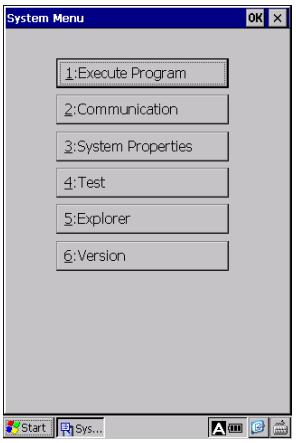
Double-tap the “Recycle Bin” icon on the desktop to display the screen on the right.
Files deleted in the BHT are stored in the Recycle Bin.
To retrieve deleted files from the Recycle Bin, select the applicable file and tap [File(F)] – [Restore(E)].
To delete specific files in the Recycle Bin from the BHT memory, select the applicable file and tap [File(D)] – [Delete(D)].
To delete all files in the Recycle Bin from the BHT memory, select the applicable file and tap [File(D)] – [Empty Recycle Bin(B)].



– Note – Files deleted in the “FLASH” and “Storage Card” folder are deleted directly from the BHT memory, without being stored to the Recycle Bin.

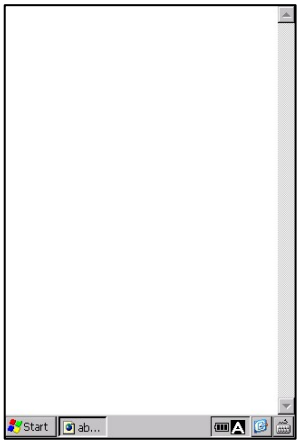
◆ BhtShell

Double-tap the “BhtShell” shortcut icon on the desktop to display the screen on the right.
Refer to “4 System Operation - 4.4 System Menu Details” for further details on this program.



◆ FullScreen

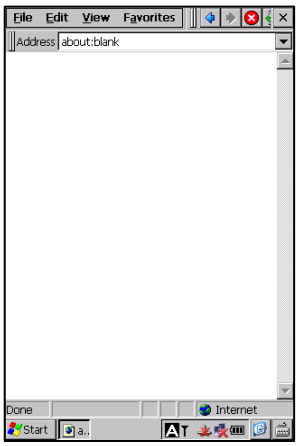
This is full-screen browser without menu, address, and status bar.
Double-tap the "Fullscreen" icon on the desktop to display the screen on the right (example).
The function is basically same as "Internet Explorer".



◆ Internet Explorer

Double-tap the “Internet Explorer” icon on the desktop to display the screen on the right (example). This program can be used to browse Web pages.

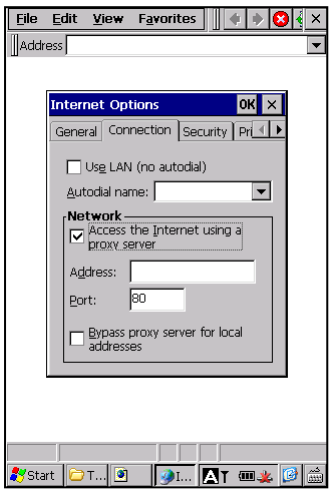
– Note – It is necessary to make wireless settings and open the wireless device before running Internet Explorer. Refer to “4 System Operation - 4.4.3 System Properties” – “[11] Wireless LAN”, or “4.5 Wireless Network Settings” for further details.



– Note – **Configuring the Proxy Server**

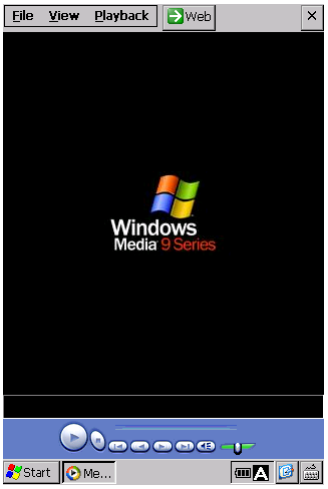
Select [View(V)] – [Internet Options(O)] from the Internet Explorer menu to display the “Internet Options” screen.

Tap the “Connection” tabbed page to display the screen on the right and then make the Internet connection settings.



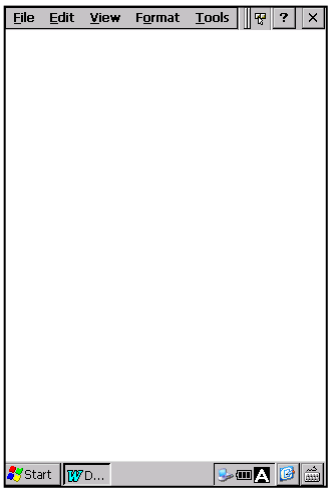
◆ Media Player

Double-tap the “Media Player" icon on the desktop to display the screen on the right.



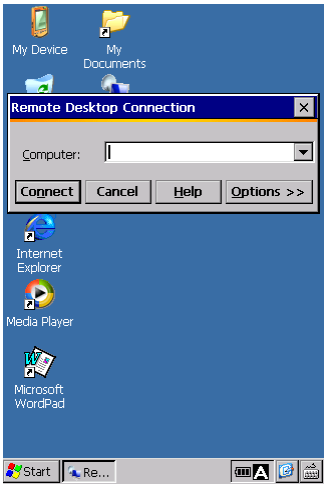
◆ WordPad

Double-tap the “Microsoft WordPad" icon on the desktop to display the screen on the right.



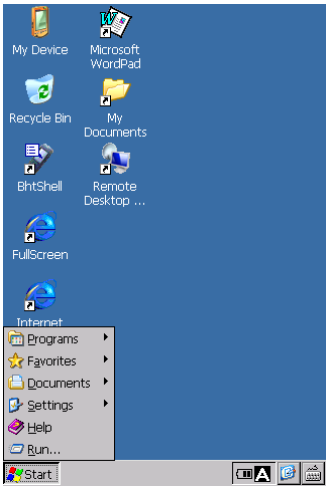
◆ Remote Desktop Connection

Double-tap the “Remote Desktop Connection” icon on the desktop to display the screen on the right. This program can be used to remotely operate the desktop on other computers.



4.2 Start Menu

Tap the Start button in the bottom left corner of the desktop to display the screen on the right.
This menu can be used to run programs and make system settings.

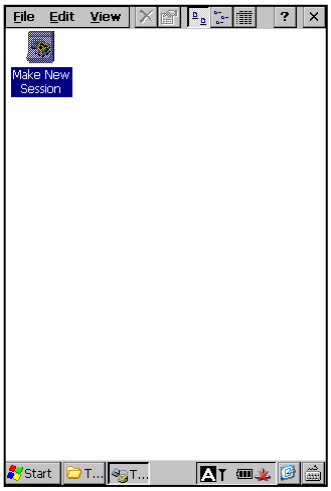


◆ BHT Photo (Only BHT-1171BWB-CE)

From the **Start** menu, tap [Programs(P)] - [BHTPhoto] - [BHTPhoto] to run BHTPhoto.
Refer to "4 System Operation - 4.8 **エラー! 参照元が見つかりません。**" for further details.

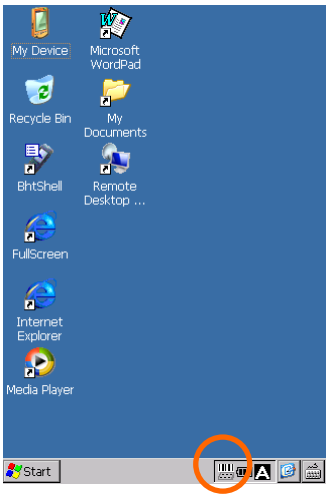
◆ Terminal

From the **Start** menu, tap [Programs(P)] – [Communication] - [Terminal] to display the screen on the right.
Double-tap the “Make New Session” icon and perform settings in accordance with the instructions given in the wizard that starts up.



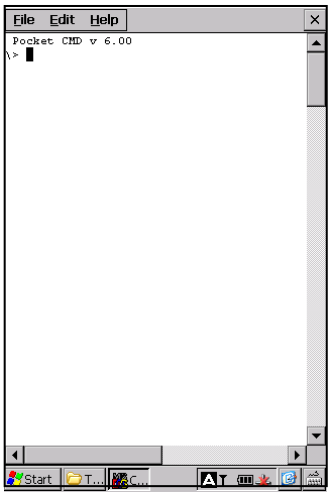
◆ kbifCE

From the **Start** menu, tap [Programs(P)] – [kbifCE] - [kbifCE] to display the icon shown in the task bar in the screen on the right and permanently enable the “kbifCE” keyboard interface shift.
Refer to the “Barcode Scanner Keyboard Interface with BHT-CE kbifCE User's Guide“ for further details on kbifCE.



◆ Command Prompt

From the **Start** menu, tap [Programs(P)] – [Command Prompt] to display the screen on the right.



◆ Internet Explorer

From the **Start** menu, tap [Programs(P)] – [Internet Explorer] to run Internet Explorer.
Refer to “4 System Operation - 4.1 Desktop” – “Internet Explorer” for further details.

◆ Media Player

From the **Start** menu, tap [Programs(P)] – [Media Player] to run Internet Explorer.
Refer to “4 System Operation - 4.1 Desktop” – “Media Player” for further details.

◆ Microsoft WordPad

From the **Start** menu, tap [Programs(P)] – [Microsoft WordPad] to run Internet Explorer.
Refer to “4 System Operation - 4.1 Desktop” – “Microsoft WordPad” for further details.

◆ Remote Desktop Connection

From the **Start** menu, tap [Programs(P)] – [Remote Desktop Connection] to run Remote Desktop Connection.
Refer to “4 System Operation - 4.1 Desktop” – “Remote Desktop Connection” for further details.

◆ Windows Explorer

From the **Start** menu, tap [Programs(P)] – [Windows Explorer] to run Windows Explorer.
Refer to “4 System Operation - 4.1 Desktop” – “My Device” for further details.

– Note –

Connecting to the (remote) host computer via Windows Network feature, the date and time of BHT should be set properly. If the date and time of BHT is different from the (remote) host computer, the BHT can not log into to the (remote) host computer.

◆ Favorites

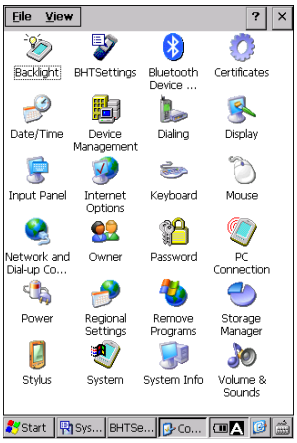
A list if files registered in Favorites displays.
To add items to the Favorites list, create a shortcut(s) of the file(s) to be added in the “¥Windows¥favorites” folder.

◆ Documents

A list of recently used files displays.
To add items to this list, use the SHAddToRecentDocs(D) standard API.
Refer to the Help item in application development tools for further details on SHAddToRecentDocs(D).

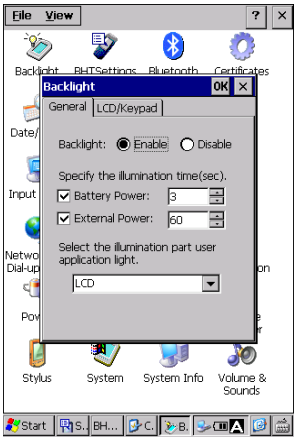
◆ Control Panel

From the **Start** menu, tap [Settings(S)] – [Control Panel(C)] to display the screen on the right.
The Control Panel can be used to configure the basic Windows operating environment.



Backlight

Double-tap the “Backlight” icon at the Control Panel to display the “Backlight” screen.
Tap the “General” tabbed page at the “Backlight” menu to display the screen on the right.



Backlight (*1)

Set whether to turn ON the backlight when keys are pressed or the screen tapped.

Enable: Backlight turns ON.
Disable: Backlight does not turn ON.

(*1) Pressing the backlight function ON/OFF key between the enabled and disabled states, regardless of the backlight function setting made at this screen.
Refer to “Chapter 3 Basic Operation” – “3.2 Turning ON/OFF the Backlight” for details of the backlight ON/OFF function keys.

Specify the illumination time (sec)

Set the length of time the backlight remains ON when keys are pressed or the screen tapped.

Battery Power: ON-duration when the BHT is not placed on the CU.
External Power: ON-duration when the BHT is placed on the CU.

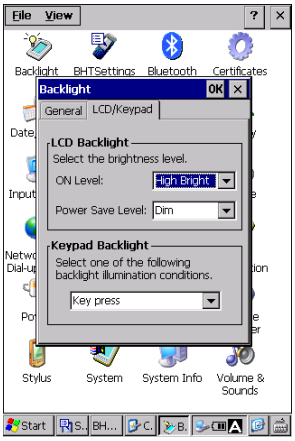
Checkbox	Value	Description
Check	0	Continuously ON
	1 to 600	1 to 600 seconds
Uncheck	-	Backlight OFF

Select the illumination part

Set the part to be illuminated when turning ON the backlight from the user application.

None
LCD
Keypad
LCD and Keypad

Tap the “LCD/Keypad” tabbed page at the “Backlight” menu to display the screen on the right.



LCD Backlight

ON Level

Select the brightness from one of the following four levels.

(Dark)

Off
Low Bright
Mid Bright
High Bright

(Bright)

Power Save Level

Change the settings for turning OFF the backlight after no keys have been pressed or the screen tapped for a specified period of time.

Dim: Dim (Backlight remains ON faintly.)
Off: Backlight turns OFF.

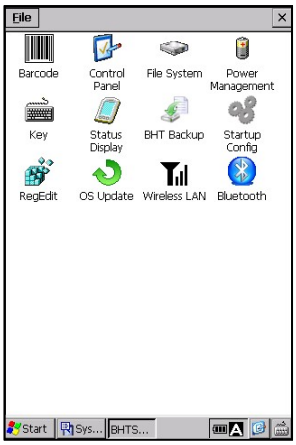
Keypad Backlight

Select one of the following keypad backlight illumination conditions.

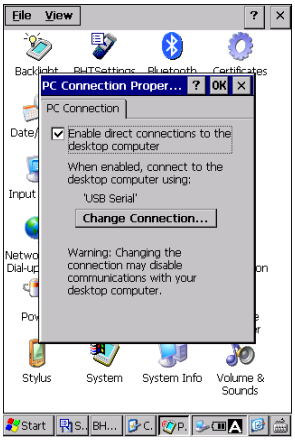
Key press or Screen tap
Key press
Disable

System Properties Menus

Double-tap the “BHTSettings” icon at the Control Panel to display the System Properties menu.
Refer to “4 System Operation - 4.4.3 System Properties” for further details.

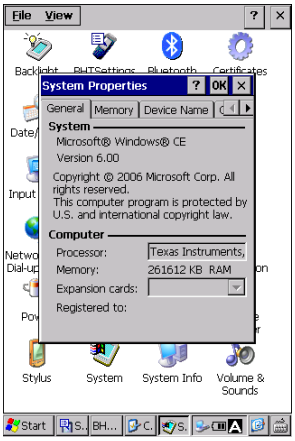


PC Connection Properties

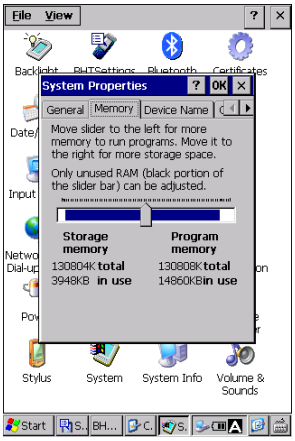


Double-tap the “PC Connection” icon at the Control Panel to display the screen on the right.
This menu can be used to the connection method to the computer.
Tap the [Change Connection…] button to set the connection method.

System Properties



Double-tap the “System” icon at the Control Panel to display the “System Properties” screen.
Tap the System Properties “General” tabbed page to display the screen on the right.



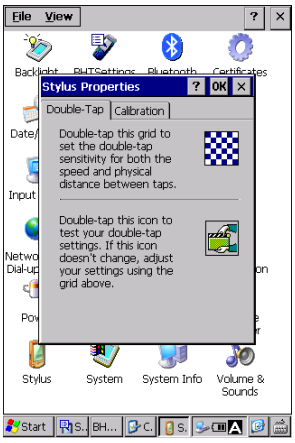
Tap the System Properties “Memory” tabbed page to display the screen on the right.
The RAM memory allocation and available space can be checked at this screen.
The RAM memory allocation can also be changed by moving the slider.

– Note – Allocate the memory between “Storage memory” and “Program memory” based on the operating requirements.

Depending on the memory allocation (e.g., insufficient program execution space), the BHT may not operate normally.

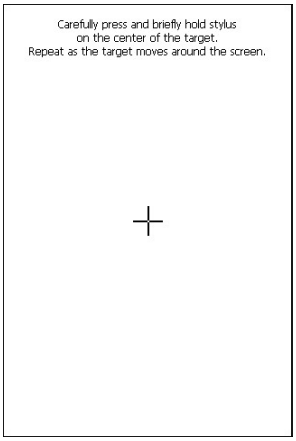
Stylus Properties

Double-tap the “Stylus” icon at the Control Panel to display the “Stylus Properties” screen.
The double-tap speed can be adjusted at this screen.

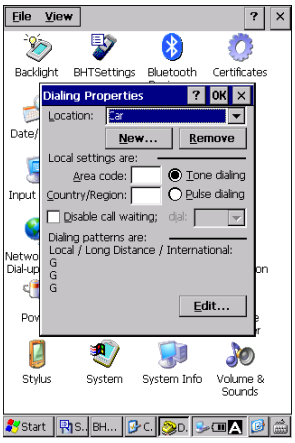


Tap the “Calibration” tabbed page to display the screen on the right.
Tap the [Recalibrate] button to perform touch screen calibration.

Follow the instructions displayed on the screen.

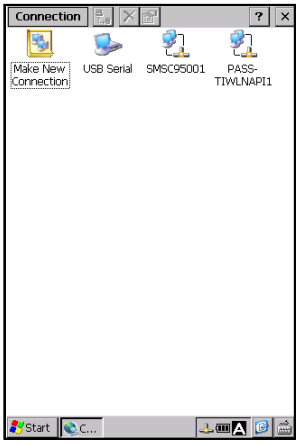


Dialing Properties



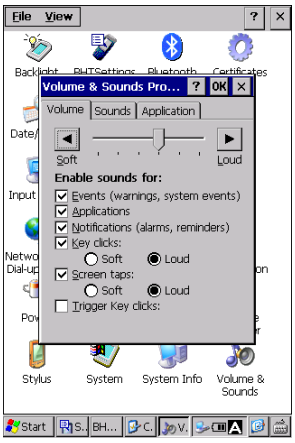
Double-tap the “Dialing” icon at the Control Panel to display the “Dialing Properties” screen.
Telephone line settings can be made at this screen.

Network and Dial-up Connection Properties



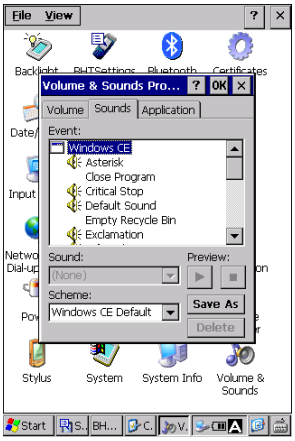
Double-tap the “Network and Dial-up Connection” icon at the Control Panel to display the screen on the right.
Double-tap the “Make New Connection” icon and set the connection name and type in accordance with the instructions given in the wizard that starts up.

Volume and Sounds Properties

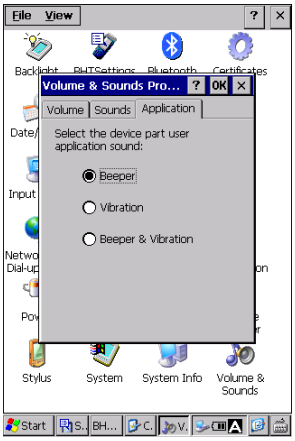


Double-tap the “Volume & Sounds” icon at the Control Panel to display the “Volume & Sounds Properties” screen.
Tap the “Volume” tabbed page to display the screen on the right.
The following settings can be made at this screen.

- Sounds volume adjustment (excluding volumes for key entry and screen taps) (0 to 5)
- Event sound enable/disable
- Application sound enable/disable
- Notification sound enable/disable
- Key clicks
- Screen taps
- Trigger Key clicks



Tap the “Sounds” tabbed page to display the screen on the right. Sounds for various events can be set at this page.



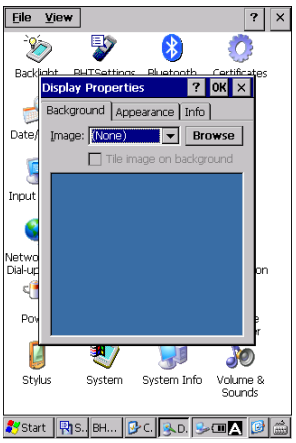
Tap the “Application” tabbed page to display the screen on the right.

Switching between the Beeper and Vibrator
Select one of the following three patterns for notification of barcode scanning completion, application and system warning.
Beeper: Beeper only (default)
Vibration: Vibrator only
Beeper/Vibration: Simultaneous beeper and vibrator

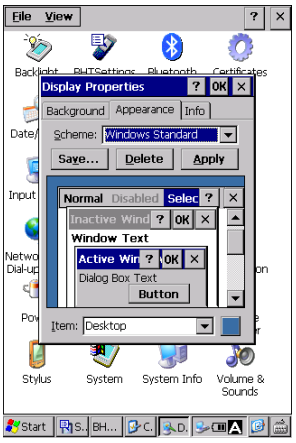
– Note – The vibrator can be controlled by shifting the sounds volume with the “Volume” tabbed page.
Level 0 (1st position from the left) : The vibrator is disabled.
Level 1 (2nd position from the left) : The vibrator operates at a low vibration level.

Display Properties

Double-tap the “Display” icon at the Control Panel to display the “Display Properties” screen.
Tap the “Background” tabbed page to display the screen on the right.
The wallpaper displayed on the desktop can be set at this screen.

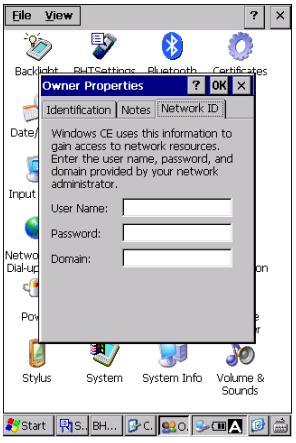


Tap the “Appearance” tabbed page to display the screen on the right.
The desktop appearance can be set at this screen.

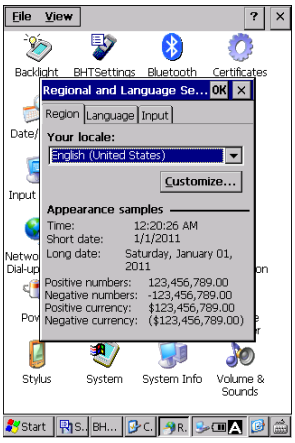


Owner Properties

Double-tap the “Owner” icon at the Control Panel to display the “Owner Properties” screen.
Tap the “Network ID” tabbed page to display the screen on the right.
The user name, password and domain required to access the network resource can be set at this screen.



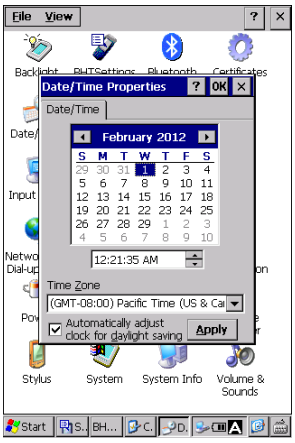
Regional and Language Settings Properties



Double-tap the “Regional and Language Settings” icon at the Control Panel to display the “Regional and Language Settings Properties” screen.
The display method for the following items can be set at this screen.

- Region
- Values
- Currency
- Time
- Date

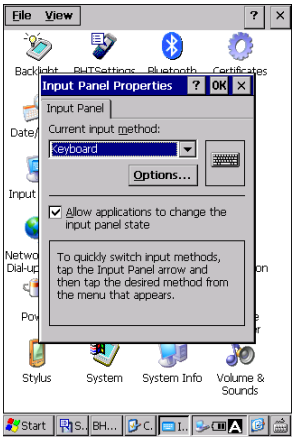
Date/Time Properties



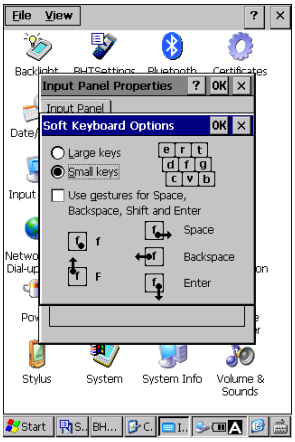
Double-tap the “Date/Time” icon at the Control Panel to display the “Date/Time Settings Properties” screen.
The date, time, time zone and automatic adjustment for daylight saving time can be set at this screen.

– Note – The entry range for the date is 2000 to 2099.

Input Panel Properties



Double-tap the “Input Panel” icon at the Control Panel to display the “Input Panel Properties” screen.



Tap the [Options…] button at the Control Panel to display the screen on the right.
The keys at the input panel (software keyboard) can be switched between small and large at this screen.

– Note – Gestures* are always active, regardless of the setting made at "Use gestures for...,".

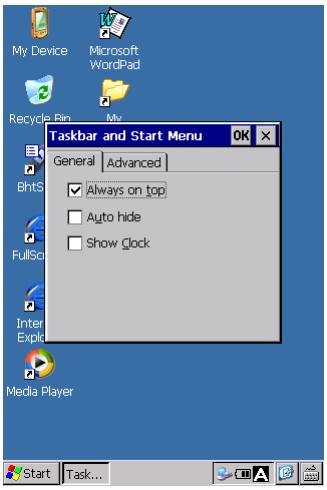
* Gestures refer to special stylus operations that enable special input at the software keyboard as shown on the right.

◆ Network and Dial-up Connection

From the **Start** menu, tap [Settings(S)] – [Network & Dial-up Connection(N)] to display the “Network & Dial-up Connection” screen.
Refer to “4 System Operation - 4.2 Start Menu” – “Control Panel” for further details.

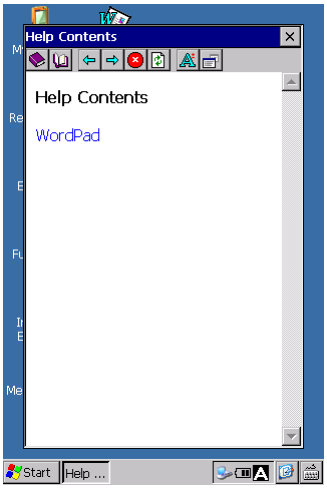
◆ Task Bar and Start Menu

From the **Start** menu, tap [Settings(S)] – [Taskbar and Start Menu(T)] to display the “Taskbar and Start Menu” screen.
Tap the “General” tabbed page to display the screen on the right.
The taskbar can be customized at this screen.



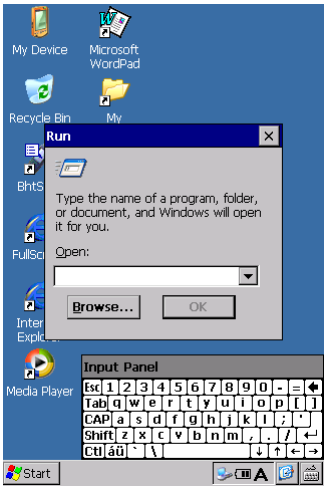
◆ Help

From the **Start** menu, tap [Help(H)] to display the screen on the right.
Contents of the Windows CE Help can be browsed at this screen.



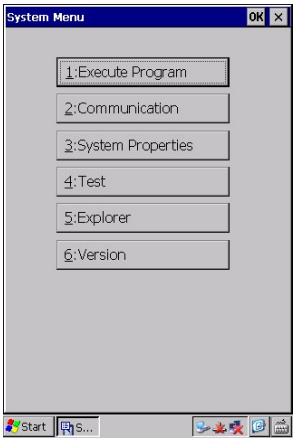
◆ Run

From the **Start** menu, tap [Run(R)…] to display the screen on the right.
Applications can be run and files opened from this screen.



4.3 System Menu Outline

Double-tap the “BhtShell” icon on the desktop to display the “System Menu” screen on the right.



To run items in the System Menu, tap the relevant item or press the corresponding numerical key.
To exit the System Menu, tap the OK or × button located in the top right corner of the screen.

The keys below are so designed that the function of each key is consistent in every screen.

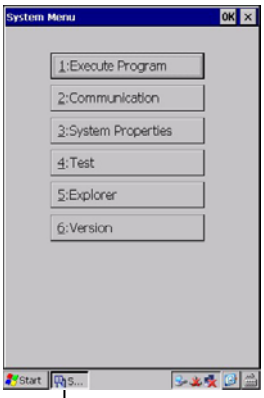
Numerical keys	Runs the item corresponding to the number displayed on the screen.
ENT key	Runs the focused (*) item.
Tab key Cursor keys	Moves the focus.
ESC key	Returns to the previous screen. (**)

* Currently active item. In the screen above, the [1:Execute Program] is focused.

** The ESC key function is disabled at the following menus in “4 System Operation - 4.4 System Menu Details”.

- 4.4.3 System Properties
- 4.4.5 Explorer

4.3.1 System Menu Structure



<System Menu>
Double-tap the "BhtShell" shortcut icon on the desktop to start up the System Menu.

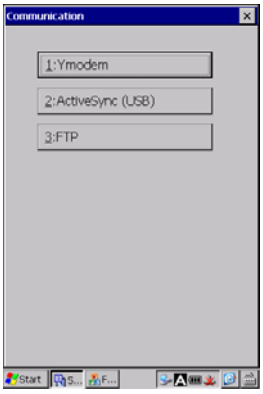
Menu [1]

ESC key

<Execute Program>
Executes selected applications.
(Refer to "4 System Operation - 4.4.1 Execute Program Menu" for further details.)

Menu [2]

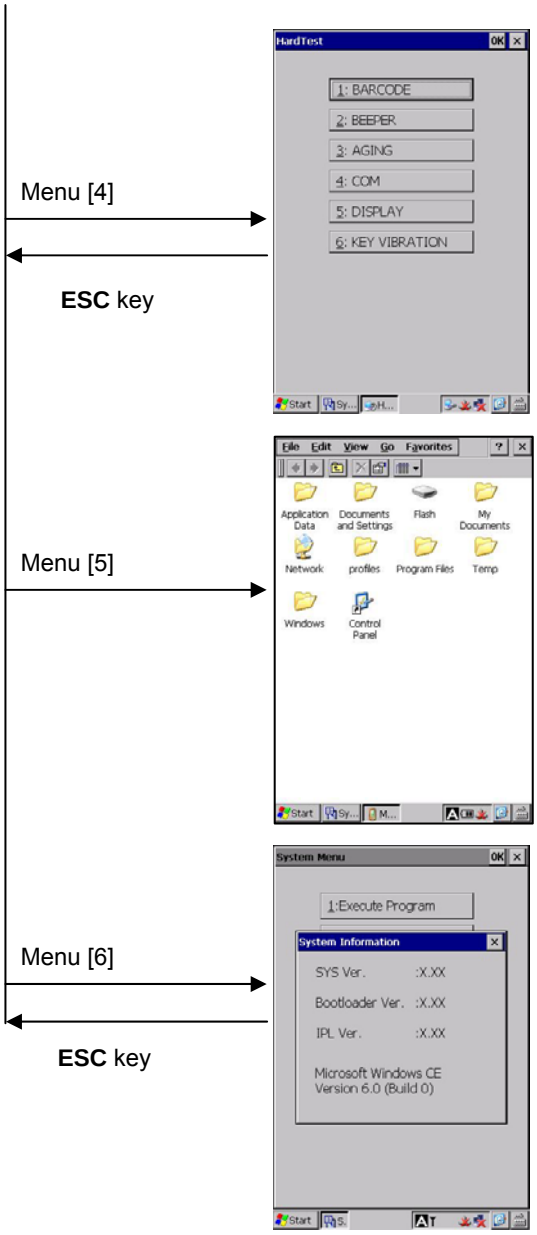
ESC key



<Communication Menu>
Performs communication with the host computer.
(Refer to "4 System Operation - 4.4.2 Communication Menu" for further details.)

Menu [3]

<System Properties>
Sets various environmental conditions.
(Refer to "4 System Operation - 4.4.3 System Properties" for further details.)



<Test Menu>
Tests various hardware operations.
(Refer to “4 System Operation - 4.4.4 HardTest Menu” for further details.)

<Explorer>
Runs Explorer.
(Refer to “4 System Operation - 4.4.5 Explorer” for further details.)

<Version>
Displays system information.
(Refer to “4 System Operation - 4.4.6 System Information” for further details.)

Detailed Description of the Functions in System Menu

Hold down the **SHIFT** key and press the corresponding numerical key.

SHIFT + 0 key

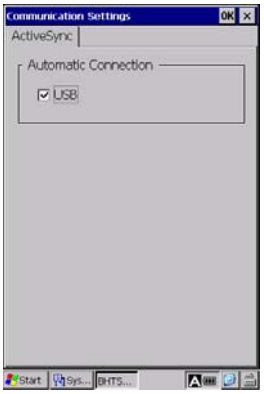
ESC key

SHIFT + 1 key

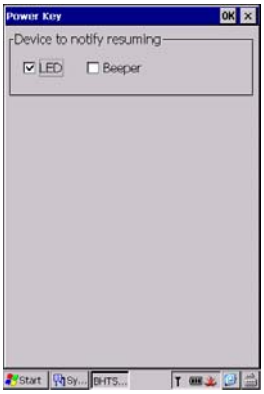
SHIFT + 2 key

<System Properties>
Sets various environmental conditions.
(Refer to “4 System Operation - 4.4.3 System Properties” for further details.)

<Backup Battery Discharge Count Reset>
Resets the backup battery discharge count.



<ActiveSync Auto Connection Setting>
Sets whether to switch to ActiveSync auto connection.



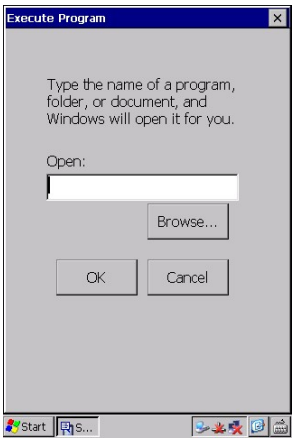
<Power key>
Select the device for notification of pressing power key to turn BHT power ON.

4.4 System Menu Details

4.4.1 Execute Program Menu

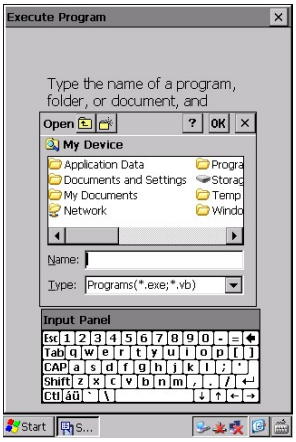
Applications and so on can be started up at this menu.

1. Tap “1: Execute Program” at the System Menu to display the screen on the right.



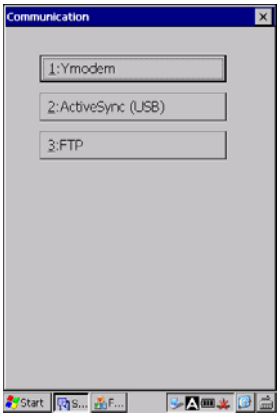
2. Tap the [Browse…] button to display the screen on the right.

Select the file to be started up or enter a file name.
Check that the name of the file to be started up displays in the “Name:” field and tap the [OK] button.



3. Check that the name of the file to be started up displays in the “Open:” field and tap the [OK] button.

4.4.2 Communication Menu



Tap “2: Communication” at the System Menu to display the screen on the right.

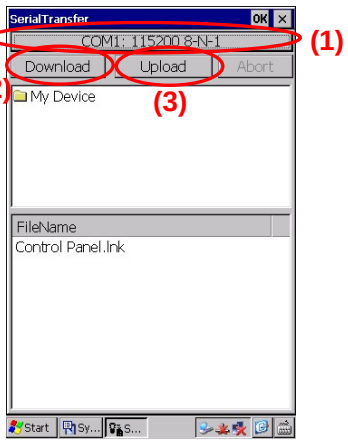
[1] Ymodem: Communicates with the host computer using the Ymodem.

[2] ActiveSync(USB): Communicates with the host computer via USB using ActiveSync.

[3] FTP: Communicates with the host computer using the FTP.

– Point – ● Connection with ActiveSync is not possible when using the CU (LAN)、wireless communication .

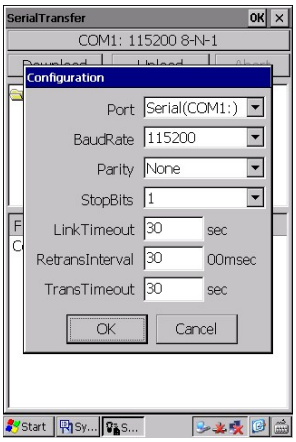
[1] Ymodem Menu



The Ymodem can be used to communicate with the host computer using the following procedure.
Select “1:Ymodem” at the Communication menu to display the screen on the right.

Button (1): Sets the communication environment.
Button (2): Downloads files to the BHT.
Button (3): Uploads files stored in the BHT to the host computer.

◆ Communication Environment Settings



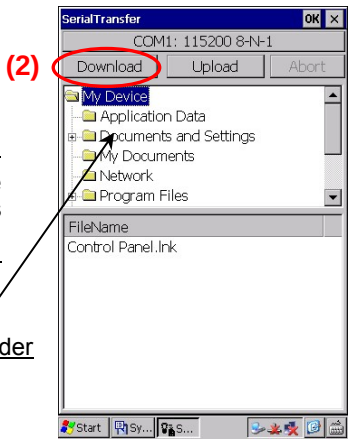
Tap button (1) at the Ymodem menu to display the communication environment settings screen.

RS-232C Interface Settings

To perform RS-232C communication with the host computer via the connector interface port, specify “Serial(COM1:)” for “Port”. The screen on the right displays.
Specify the same settings as those at the host computer for “BaudRate”, “Parity”, “StopBits”, “LinkTimeout”, “Retrans Interval” and “TransTimeout”.
Data bits are fixed at 8.

◆ Downloading

1. Specify the download destination folder and tap button (2) to begin downloading.

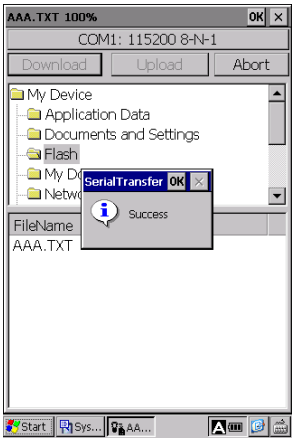


Download destination folder

– Note – If a file with the same name as one already in the same folder is downloaded, the newly downloaded file replaces the old one.

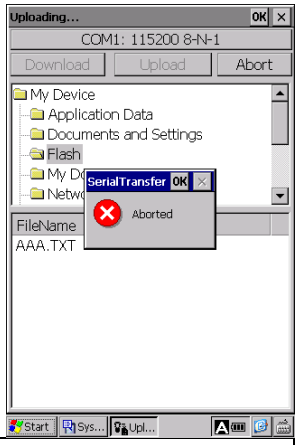
2. Downloading is now complete.

The screen on the right displays.



If an error occurs while downloading…

If an error occurs while downloading, the screen on the right displays.



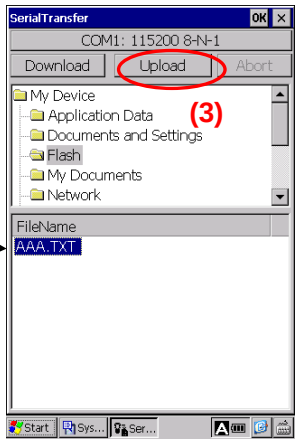
The error message list is shown below.

Message	Problem	Solution
Not enough storage	There is insufficient memory to store downloaded files.	Delete any unnecessary files or reduce the size of the file being downloaded.
Too long path	The path of the file being downloaded is too long.	Change the file name of the file being downloaded or change the download destination folder.
File open error	The file being overwritten is currently open.	Close the file and try again.
Communication error	Downloading has failed due to a communication error.	Check the communication environment settings and then try again. The communication parameters at the host computer should also be checked.
Aborted	Downloading has been aborted.	Check the communication environment settings and communication log and then try again. The communication parameters at the host computer should also be checked.
Cannot open port	The communication port has already been opened.	Close the communication port already opened for other processing and then try again.
Protocol timeout	A timeout has occurred.	Check the communication environment settings and communication log and then try again. The communication parameters at the host computer should also be checked.

◆ Uploading

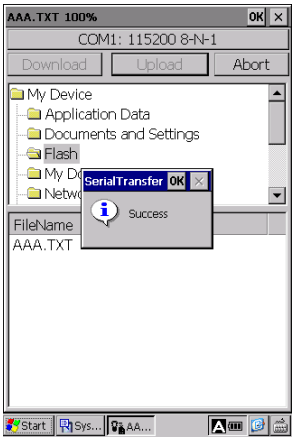
1. Specify the file to be uploaded and tap button (3) to begin uploading.

File to be uploaded →



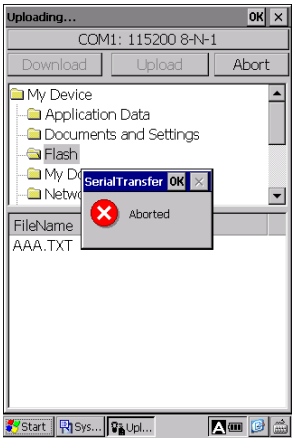
2. Uploading is now complete.

The screen on the right displays.



If an error occurs during uploading…

If an error occurs while uploading, the screen on the right displays.

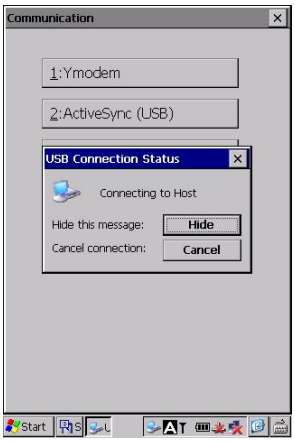


The error message list is shown below.

Message	Problem	Solution
File open error	The file being uploaded is currently open.	Close the file and try again.
Aborted	Uploading has been aborted.	Check the communication environment settings and communication log and then try again. The communication parameters at the host computer should also be checked.
Cannot open port	The communication port has already been opened.	Close the communication port already opened for other processing and then try again.
Protocol timeout	A timeout has occurred.	Check the communication environment settings and communication log and then try again. The communication parameters at the host computer should also be checked.
Select one or more files.	No file has been correctly selected for uploading.	Select the file(s) to be uploaded and then try again.

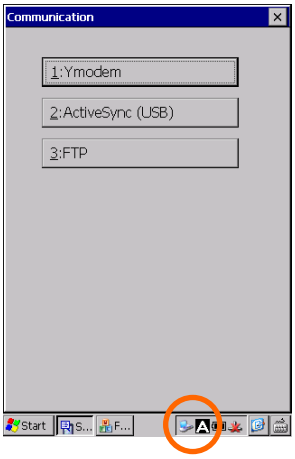
[2] ActiveSync(USB)

Tap “2:ActiveSync(USB)” at the Communication menu to connect to the host computer via USB.
The screen on the right displays when a connection has been established.



If ActiveSync connection is successful…

If ActiveSync connection is successful, the "Network Begin" sounds and the ActiveSync icon displays in the task tray (circled in red on right).



If ActiveSync connection fails…

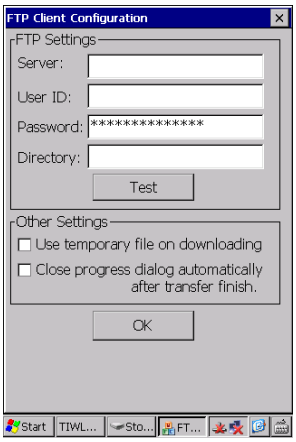
If ActiveSync connection fails, the ActiveSync icon does not display.

[3] FTP Menu

Use the FTP Client to transfer files from or to the FTP server in the following steps.

◆ FTP Client communication environment settings

Tap “3: FTP” at the Communication Menu to display the “FTP Client Configuration” on the right. Select the file transfer settings on this screen.



Server:	IP address or host name of the FTP server
User ID:	User name registered in the FTP server
Password:	Password of the above user name
Directory:	Folder to be used (Use the root folder if this is left blank)

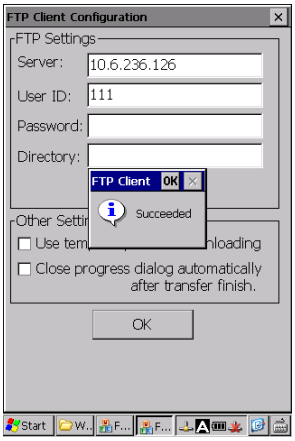
Use temporary file on downloading:

Sets whether or not to make a temporary file when downloading the file. Use this option if the existing file needs to be saved in case the file was not correctly transferred due to some trouble. Check that the memory of using device has enough size to use the temporary file when downloading.

Close progress dialog automatically after transfer finish:

This option is used to automatically close the file transfer progress dialog when file transfer is completed.

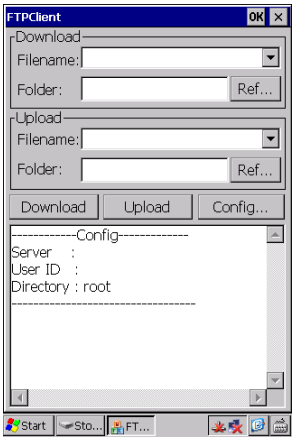
Tap the [Test] button to check if a login to the FTP server is enabled.
If the FTP Client is successfully logged in, the screen on the right is displayed. Close the message box and tap [OK] button to proceed to the file transfer screen.



– Note – Connect the wireless line with WLAN Manager before starting FTP via wireless LAN communication.
Refer to “4 System Operation - 4.5 Wireless Network Settings."

– Note – Once the FTP operating environment is established, the file transfer screen is displayed when the FTP Client is activated next time.

◆ Executing File Transfer (Uploading/Downloading)

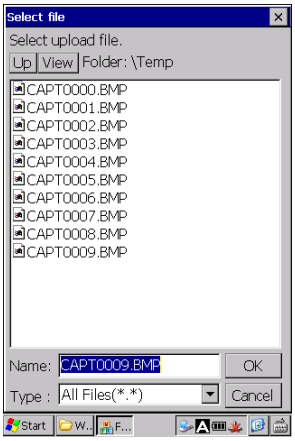


(1) File downloading

Tap the [Ref...] button in the Download group, open the “Select file” dialog box and then select the folder and the file to be saved before starting the download. Download the file with the same name stored in the FTP server using the [Download] button.

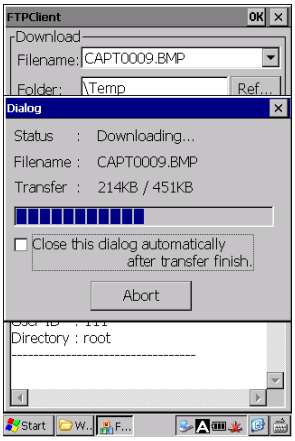
(2) File uploading

Tap the [Ref...] button in the Upload group, open the “Select file” dialog box and then select the file to be uploaded. Upload the selected file with the [Upload] button.



(3) Dialog during file transfer

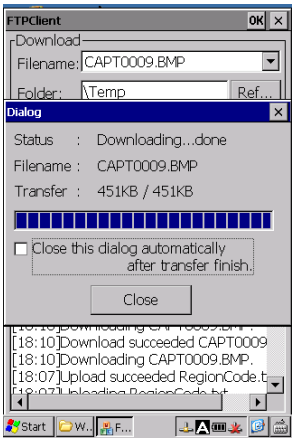
During the file transfer, the dialog that indicates the progress of file transfer is displayed.
To stop the file transfer, tap the [Abort] button.



(4) File transfer now completed

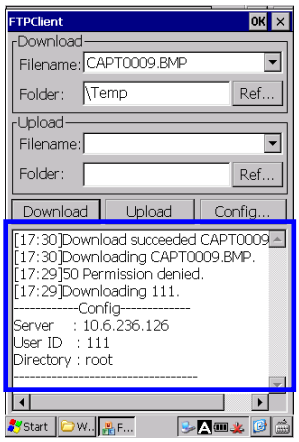
When the file is successfully transferred, the dialog that indicates the completion of the file transfer is displayed.
Tap the [Close] button.

To make this dialog close itself automatically after file transfer, check “Close progress dialog automatically after transfer finish” in the dialog.



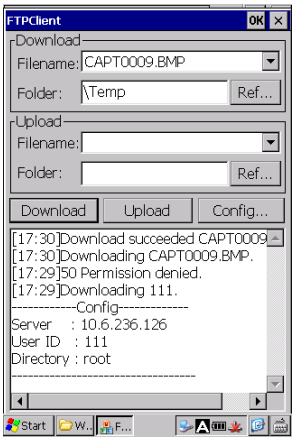
(5) File transfer history

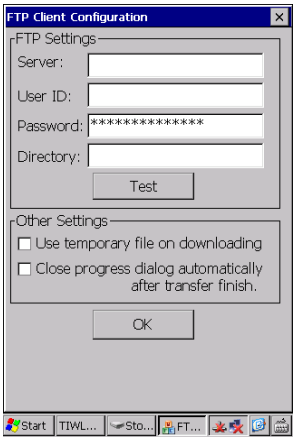
The history of logins and file transfers is displayed in the lower half of the screen on the right (the area surrounded by the blue line).



◆ File Transfer: Change Settings

Tap the [Config...] to display the “FTP Client Configuration”. The FTP settings can be changed on this screen.



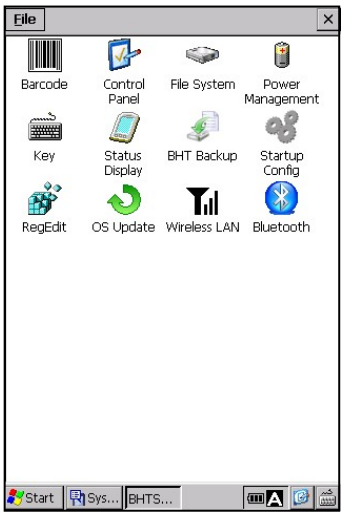


The error message list is shown below.

Message	Problem	Solution
Connection error XXXX	Cannot be connected to the server.	Check the network environments, server active status and FTP settings.
Server IP or Name required	Either the server IP or host name is not specified.	Specify the server IP or host name.
User ID required	The user ID/password is not specified.	Specify the user ID/password.
Cannot contain any of the following characters.	The folder/file name is not correct (e.g., unsupported or very long characters are used)	Specify the correct folder/file name.
The path is invalid.		
The path is too long.		
Filename required	No file name is given.	Enter the file name.
The file is read only.	No data can be written to the file that is specified as the download destination.	Make the file write-enabled or specify another file name.
The file could not be found.	The specified file cannot be found.	Specify the available file name.
This file already exists. Replace existing file?	The same file already exists.	Select [Yes] it is OK to overwrite the file. If not, select [No] and specify another file name.

4.4.3 System Properties

Tap “3:System Properties” at the System Menu to display the screen on the right.

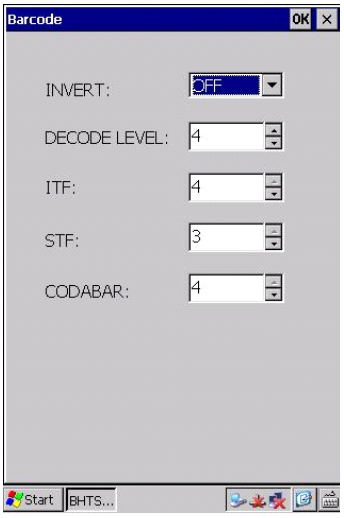


[1] Control Panel:	Opens the Control Panel.
[2] Barcode:	Opens the Barcode menu.
[3] File System:	Opens the File System menu.
[4] Power Management:	Opens the Power Management menu.
[5] Key:	Opens the Key menu.
[6] Status Display:	Opens the Status Display menu.
[7] BHT Backup:	Opens the Backup/Restore function menu.
[8] Startup Config:	Opens the startup behavior menu.
[9] RegEdit:	Run registry editor.
[10] OS Update:	Opens the OS update menu.
[11] Wireless LAN:	Opens the Wireless LAN menu.
[12] Bluetooth:	Opens the Bluetooth® menu.

[1] Control Panel

Double-tap “Control Panel” at the System Properties screen to display the screen on the right.
The basic Windows operating environment can be set at the Control Panel.
Refer to “4 System Operation - 4.2 Start Menu” – “Control Panel” for further details.

[2] Barcode Menu



Double-tap “Barcode” at the System Properties screen to display the screen on the right.

INVERT:	Enables/disables the black-and-white inverted label read function.
DECODE LEVEL:	Sets the decode level.
ITF:	Sets the default minimum number of digits for ITF.
STF:	Sets the default minimum number of digits for STF.
CODABAR:	Sets the default minimum number of digits for CODABAR.

Black-and-white inverted label read function (INVERT)

Standard labels are made up of black bars on a white background, however, this function makes it possible to read white bars on a black background.

– Note – Enabling this function may increase the frequency of barcode read errors. This function should normally be set to “OFF” (inverted label reading prohibited).

DECODE LEVEL

The decode level may be set by the user. Lowering the level increases the barcode scanning efficiency, however, the risk of misreading poor-quality barcodes (broken bars, dirty) also increases. Raising the level, on the other hand, decreases the barcode scanning efficiency, but lowers the possibility of misreading.

The setting range for the decode level is 1 to 9, with the default level set to 4.

Minimum digits for ITF, STF and CODABAR

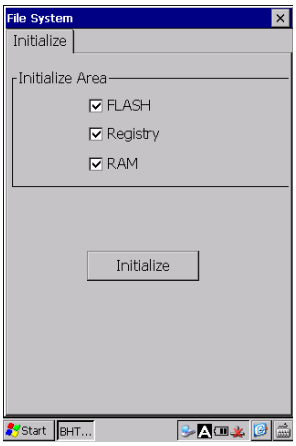
The minimum digits can be set for ITF, STF and CODABAR. Depending on how barcodes are scanned and the barcode quality and so on, setting a small number of digits increases the risk of missing digits or misreading. Setting a large number of digits, on the other hand, reduces this risk.

The setting range is 2 to 20 for ITF, 1 to 20 for STF, and 3 to 20 for CODABAR, with the default settings being 4, 3, and 4, respectively.

[3] File System

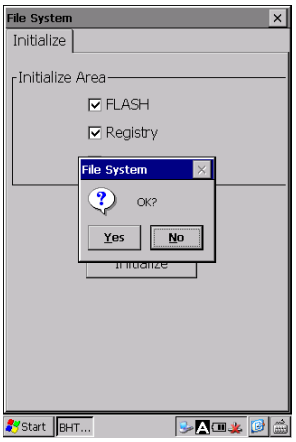
Double-tap “File System” at the System Properties screen to display the screen on the right.
The following operations can be performed at this menu.

- FLASH file system (built-in) initialization
- Registry initialization
- RAM file system initialization

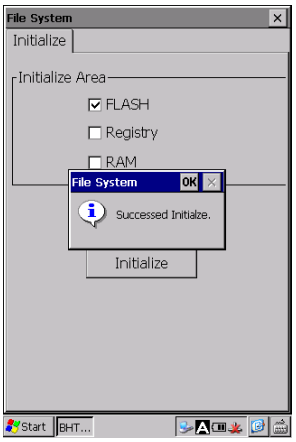


To initialize the memory, set up the check box on the initialize area and then tap the [Initialize] button.

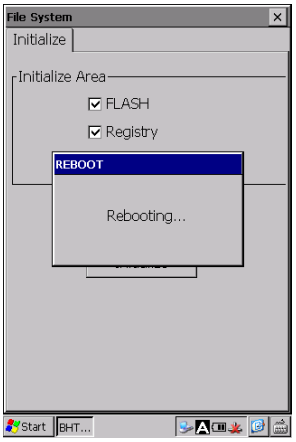
To initialize the memory, tap the [Yes] button, and to return to the previous menu, tap the [No] button.



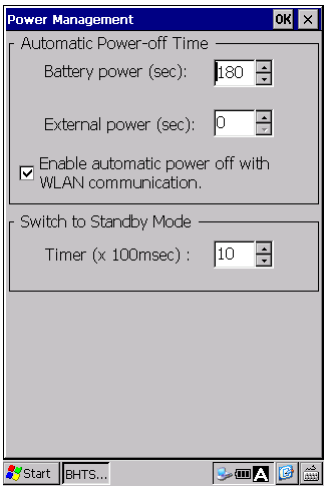
If FLASH only is initialized, the screen on the right is displayed on completion of the initialization.



If the registry or the RAM is included in the initialization, the screen on the right is displayed for several seconds before the system automatically reboots itself.



[4] Power Management



Double-tap “Power Management” at the System Properties screen to display the screen on the right.
This menu is used to set the automatic power-off timer, standby timer and CPU clock speed.

Automatic Power off Time:

Battery Power: (Default: 180)

Sets the automatic power-off time from 0 to 600 seconds when the BHT is not on the CU. The power does not automatically turn OFF when set to 0.

External Power: (Default: 0)

Sets the automatic power-off time from 0 to 1800 seconds when the BHT is placed on the CU. The power does not automatically turn OFF when set to 0.

The power does not automatically turn OFF when BHT communicates

The power automatically power off seconds after the specified automatic power-off time.

When the “**Enable automatic power off with wireless communication”** check box is selected, the power turns OFF automatically, even if a wireless connection is open.

- when automatic power-off time is set to 0 : The power does not automatically turn OFF.
- when automatic power-off time is set to not 0 : refer to the following chart.

	If a wireless connection is open	If a wireless connection is close	If the BHT communicates via the CU
Check	The power automatically turns OFF		
Uncheck	The power does NOT automatically turn OFF	The power automatically turns OFF	The power does NOT automatically turn OFF

– Point – The power does not be turned OFF for 10 seconds once the power turns ON.

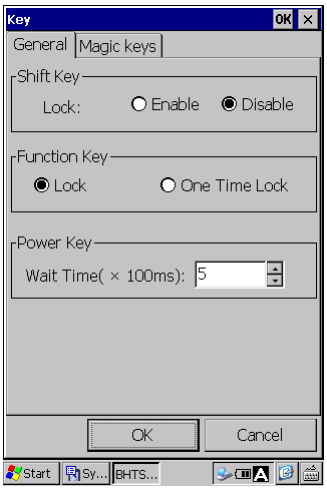
Switch to Standby Mode:

Timer (x 100 ms):

Sets the waiting time to switch to the standby mode in 100ms units.
(10: 100ms x 10 = 1 second)

Value	Description
0	Disable switching to Standby Mode
1 to 9	1 second
10 to 600	1 to 60 seconds

[5] Key



Double-tap “Key” at the System Properties screen to display the screen on the right. This menu is used to set the following keys.

Shift key

Nonlock: Enables the keypad shift status only while the **SHIFT** key is held down. (Default)

Onetime: Enables the shift status only for one key after pressing the **SHIFT** key.

Function key

Lock: Enables the keypad FUNC status after pressing the **FUNC** key. (Default)

One Time Lock: Enables the FUNC status only for one key after pressing the **FUNC** key.

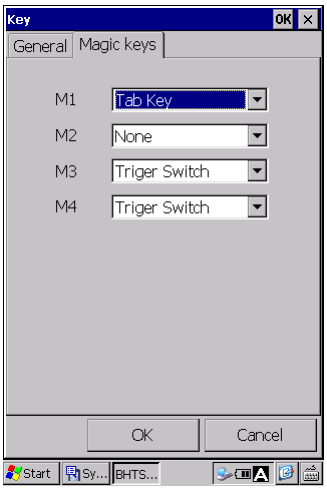
Power key

Effective Held-down Time of the Power Key for Switching to the Suspend State.

Mx (magic) key

Tap the “Magic keys” tabbed page at the Key settings menu to display the screen on the right.

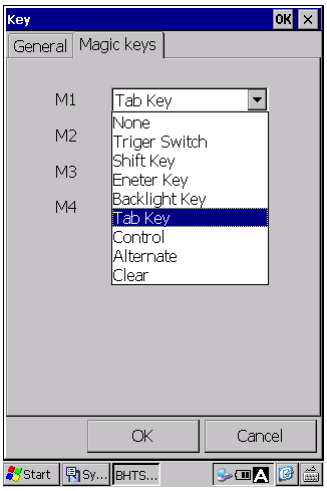
This menu is used to assign the trigger switch, **SF** key, **ENT** key, backlight ON/OFF function and **TAB** key and so on (See list below.) to magic keys **M1** to **M4**.



Choice of keys available

The following keys can be assigned to magic keys **M1** to **M4** at the respective combo boxes at the [Magic keys] tabbed pages.

(The example on the right shows the “Tab” key being assigned to **M1** at the [Magic keys] tabbed page.)



None: Key entry is ignored.

Trigger Switch: Sets the trigger switch as a magic key.

Shift Key: Sets the **SHIFT** key as a magic key.

Enter Key: Sets the **ENT** key as a magic key.

Backlight Key: Sets the backlight ON/OFF function as a magic key.

Tab Key: Sets the **TAB** key as a magic key.

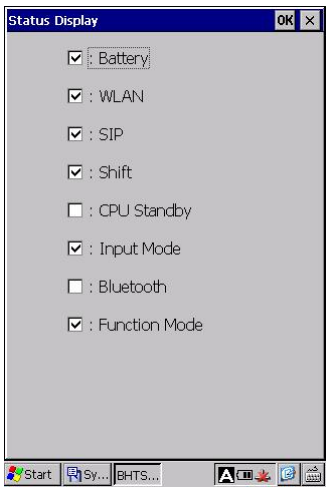
Control: Sets the **CTRL** key as a magic key.

Alternate: Sets the **ALT** key as a magic key.

Clear: Sets the Clear function as a magic key.

[6] Status Display

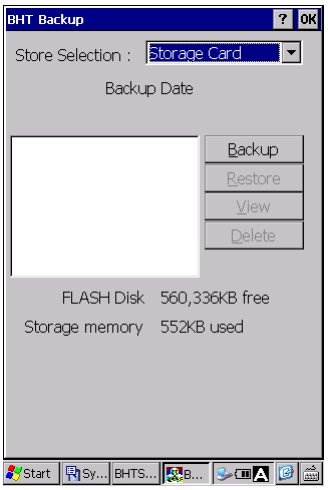
Double-tap “Status Display” at the System Properties screen to display the screen on the right.
This menu can be used to display or hide the following status indicators in the task tray.



Battery:	Battery voltage level (Default: Displayed)
WLAN:	Wireless communication status (Default: Displayed)
SIP:	Software input panel status (Default: Displayed)
Shift:	Keypad shift status (Default: Displayed)
CPU Standby:	CPU standby status (Default: Hidden)
Input Mode:	Alphabet input mode status (Default: Displayed)
Bluetooth:	Bluetooth device power status (Default: Hidden)
Function Mode:	Function mode status (Default: Displayed)

Refer to “Chapter 1 Outline” – “1.2.4 BHT Screen” for further details.

[7] Data Backup (BHT Backup)



Double-tap “BHT Backup” at the System Properties screen to display the screen on the right.
This menu can be used to perform the following processes.

- BHT Backup is a tool that allows to backup/restore data (files) including registry setting of BHT.
  Flash and SDCard data (file) data is excluded for this backup.
- The backup data can be automatically restored after cold booting by the setting (refer to [8] Startup Configuration for more details).

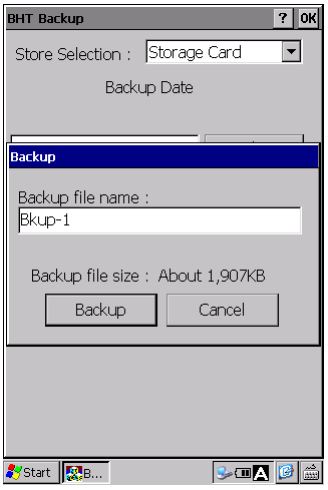
Store Selection:	Storage location of backup file
Backup Date:	Data and time of creation of backup file
Backup:	Display backup processing screen
Restore:	Display restore processing screen
View:	Display backup file information
Delete:	Display backup file delete processing screen
FLASH Disk:	Free space in FLASH(built-in)
Storage memory:	RAM memory size to backup

Backup files are created under folders below on FLASH folders or SD card.

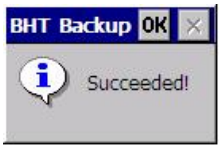
FLASH folder:	¥FLASH¥System¥Backup¥
SD card:	¥Storage Card¥System¥Backup¥

◆ Backup

Select “Store selection” for backup file at initial screen and press “Backup” button to display the screen on the right. Tap the [Backup] button after setting backup file name.

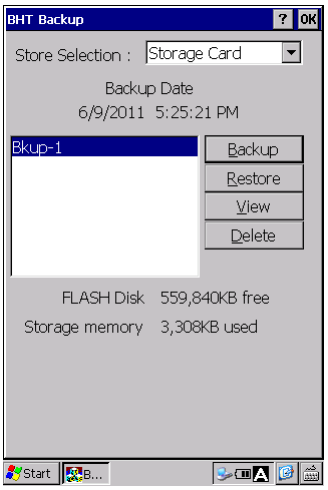


The screen right is displayed when backup is complete.

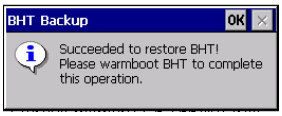


◆ Restore

Select backup file to restore from backup list and Tap [Restore] button to display the screen on the right.

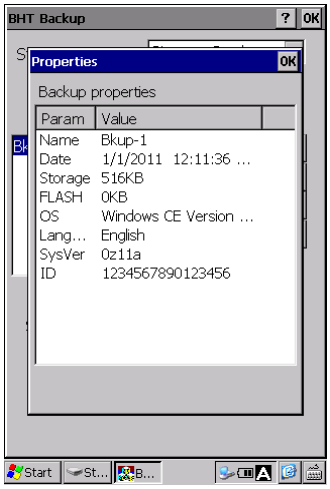


Restore is complete when the screen right is displayed after restoration process. Close the window, and then press reset key combination keys to reflect reboot. (Reset key combination **M1** + **Right Trigger** + **Power** key)



◆ Display detailed information

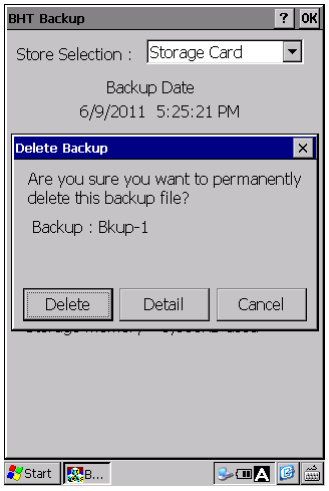
Select applicable backup file from backup list on initial screen and press down the [VIEW] button to display the screen on the right.



Name	Backup file name
Date	Created date and time for backup file
Storage	RAM capacity required for restore
FLASH	FLASH capacity required for restore
OS	OS information
Language	Language information
SysVer	System version
ID	Device serial number to create backup file

◆ Delete backup file

Select applicable backup files to delete from backup lists on initial screen and press [Delete] button to display the screen on the right. Process is complete when [Succeeded !] message is displayed.



[8] Startup Configuration

Double-tap "Startup Config" at the System Properties screen to display the screen on the right.

This menu is used to select the following functional items defined in ”2 BHT Preparation - 2.6.6 Reinstall/Recovery methods of data after Reset/Full reset” and to enable/disable error messages defined in ”7 Error Messages – 7.1 System Errors” by using the GUI.

◆ [General] Tab

(1) Automatic Restore (after cold boot)
Restore Data - File & Registry (BHT Backup)
(2) Automatic Registry Restore (after cold boot)
Restore Data - Registry Only
(3) Automatic File Copy
Copy files from one folder to another
(4) Automatic Application Setup and Warmboot
Setup Launcher
(5) Automatic Application Launch (whenever a warm or cold boot is performed.)
Startup Launcher - Flash "Startup" folder...:
(6) Automatic Application Launch (whenever a warm or cold boot is performed.)
Startup Launcher - Windows "Startup" folder...:

Restore Data: Specifies whether to run the Automatic Restore
File & Registry: Restores from the BHT backup data
Registry Only: Restores only the registry saved in the registry (default)

The following functions are supported by File & Registry (BHT Backup).
Storage device: Storage location of backup file
Backup file: Backup file name to be restored automatically

Copy files from one folder to another: Specifies whether to run the Automatic File Copy
"Flash¥Copyfile" folder...: Open left folder with file explorer
"Flash¥Startup¥Windows" folder...: Open left folder with file explorer

– Note – “Automatic File Copy” is not activated if no files exist in the above folder even if "Copy files..." is selected.

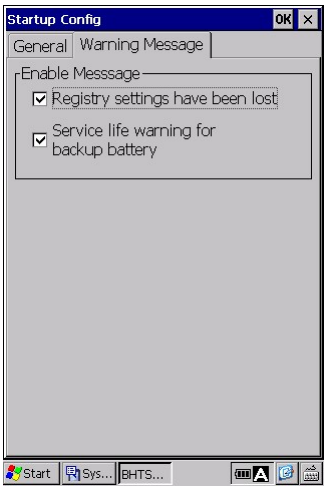
Setup Launcher: Executes the item “Automatic Application Launch”.
"Setup" folder...: Open "¥Flash¥Setup" folder with file explorer
Warmboot after Setup: Specifies whether to reset the system after the execution of program.

– Note – “Automatic Application Setup and Warmboot” is not activated if no files exist in the above folder even if "Setup Launcher" is selected.

Startup Launcher: Automatically launch any application
Windows "Startup" folder...: Open "¥Windows¥Startup" folder with file explorer
Flash "Startup" folder...: Open "¥FLASH¥Startup" folder with file explorer

– Note – “Automatic Application Launch” is not activated if no files exist in the above folder even if each of the corresponding functions is selected.

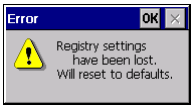
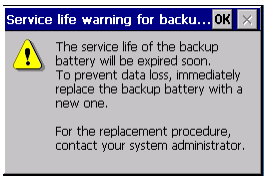
◆ [Warning Message] Tab



(1) Registry settings have been lost
(2) Service life warning for backup battery

This menu can be used to enble/disable error messages bellow.
Refer to section ”7 Error Messages – 7.1 System Errors” for more details.

Check : Enable
Uncheck : Disable

No.	Message	Display Timing	Default
(1)		The power is turned ON. (Only after full reset)	Enable
(2)		The power is turned ON.	Enable

◆ Configuration File

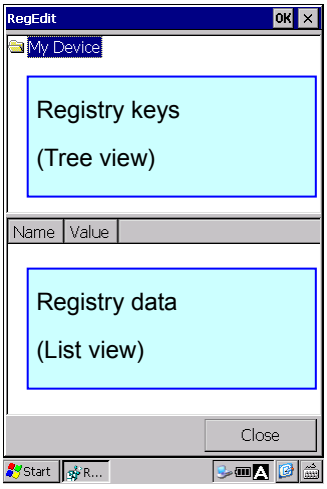
The settings of Startup Configuration are saved in the file bellow.

¥Flash¥System¥Startup.ini

[9] Registry Editor

Double-tap "RegEdit" at the System Properties screen to display the screen on the right.
This menu can be used to perform the following processes.

- Add/Modify/Delete/Import/Export registry via GUI.
- Import registry from registry file(*.reg).
- Import/Export registry from/to registry file via "Command Prompt (CMD)". This method is used to import registry defined in "2 BHT Preparation - 2.6.6 Reinstalling data after reset/full reset" - [4] Execute program automatically and /or reset.

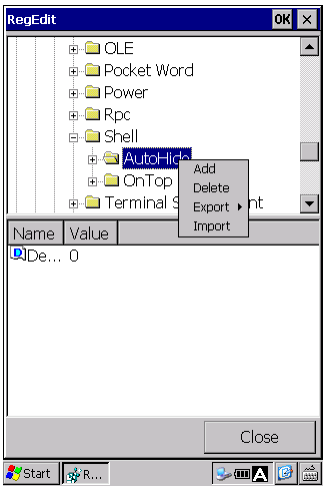


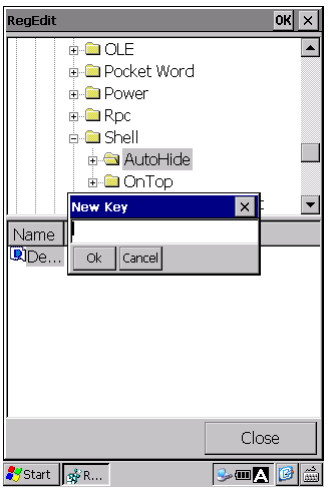
– Note – It is recommended that Reset (warm boot) be performed to reflect the registry change. Some programs (exe, dll) load registry after Resetting.

◆ Add/Modify/Delete/Import/Export registry via GUI

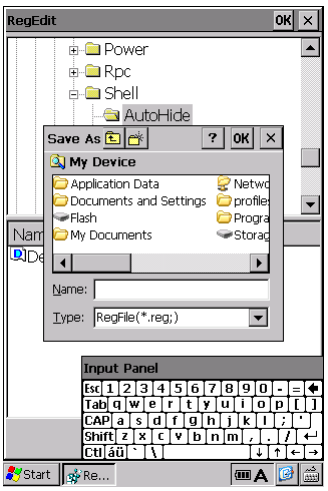
Select and hold the registry key, the contextual menu appears.

Add	Add registry key
Delete	Delete registry key
Export (All)	Export(backup) the whole of registry
Export (Subset)	Export(backup) the selected and sub registry
Import	Import(setup or restore) registry from registry file

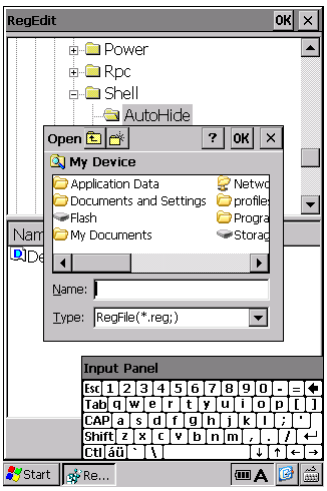




Add screen

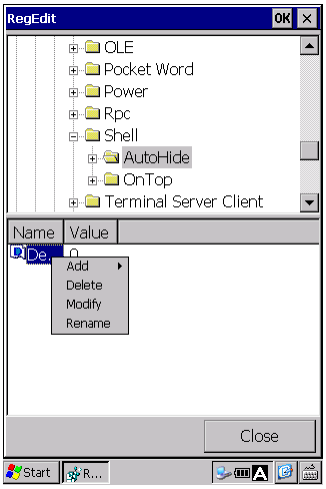


Export screen

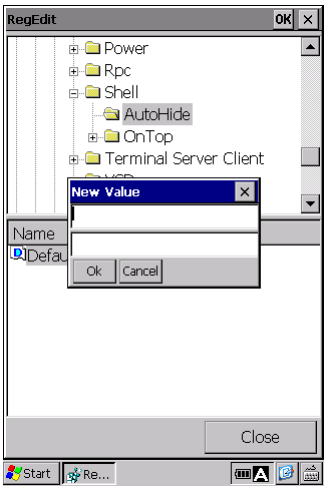


Import screen

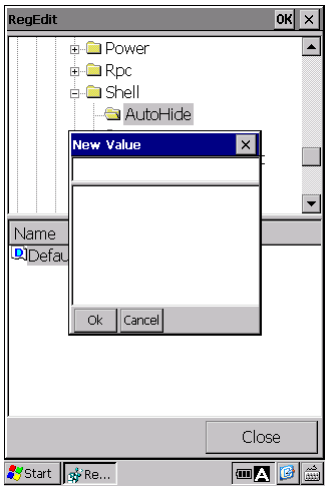
Select and hold the registry data, the contextual menu appears.



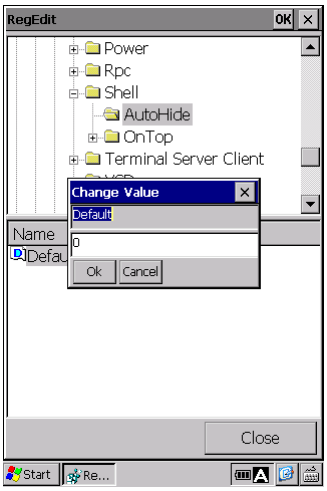
Add	Add registry data Select the type of registry DWORD STRING - Single (NOT contain linefeed) STRING - Multi (contains linefeed)
Delete	Delete registry data
Modify	Modify registry data
Rename	Rename registry data name



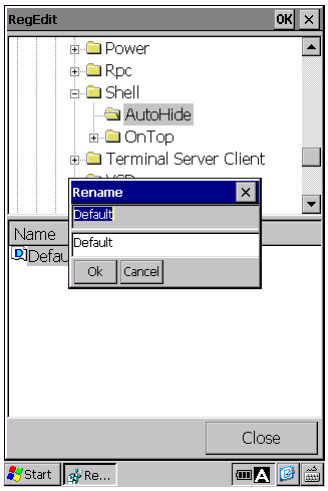
Add screen
DWORD, STRING(Single)



Add screen
STRING(Multi)



Modify screen

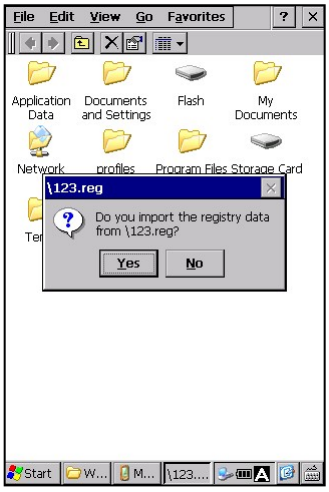


Rename

◆ Import registry from registry file(*.reg)

Import registry from registry file in the following steps.

1. Double tap the registry file to be installed.
2. Tap [Yes] button to start installing registry.
3. "Import succeed" dialog will appear after completing.



◆ Import/Export registry from/to registry file via "Command Prompt (CMD)"

Import registry from registry file with command prompt when full reset (cold boot) occurs.

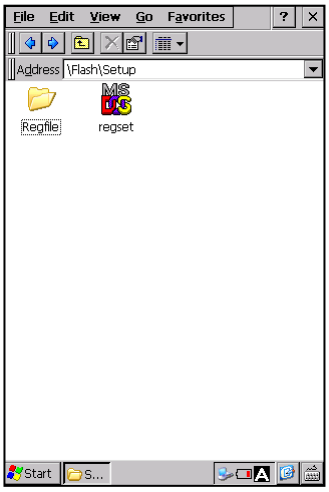
The procedure under the following conditions:

- Registry file : setup.reg
- Registry file deployment folder : ¥Flash¥Setup¥Regfile
- Registry import batch file : regset.bat

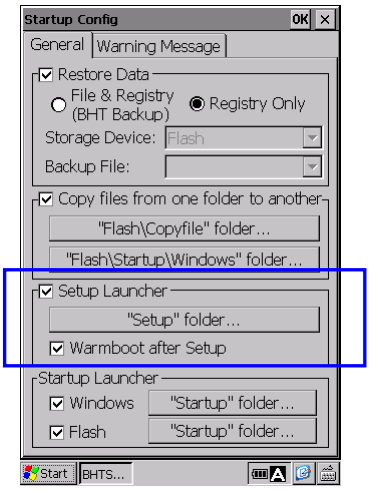
  Description content : regedit /H /I ¥Flash¥Setup¥Regfile¥setup.reg

1. Deploy registry file (setup.reg) into the registry file deployment folder(¥Flash¥Setup¥Regfile)
2. Deploy registry import batch file into the "¥Flash¥Setup" folder.
3. Set the following checkbox for after full-reset(cold boot).
   Execute BHTSHELL-3:SystemProperties-StartupConfig, check both [Setup Launcher] and [Warmboot after Setup] checkbox.

1. Registry file



2. registry import batch



3. Startup Config settings

[NOTES] Command Prompt (CMD) specification

- Export function (/E option)

  > regedit [/H] /E filepath [sub-key]

/H	Do NOT display any message when exporting registry (default: display)
filepath	Registry file and path name to be exported.
sub-key	Sub-key to be exported. if no sub-key, export the whole of registry.

- Import function (/I option)

  > regedit [/H] /I filepath

/H	Do NOT display any message when importing registry (default: display)
filepath	Registry file and path name to be imported.

◆ Registry file format

Registry file should be written in the right format.

Blank line
[*RegistryPath1*]
"*DataItemName1*"=*DataType1*:*DataValue1*
"*DataItemName2*"=*DataType2*:*DataValue2*
Blank line
[*RegistryPath2*]
"*DataItemName3*"=*DataType3*:*DataValue3*
"*DataItemName4*"=*DataType4*:¥
DataValue4
"*DataItemName5*"=-
Blank line
[-*RegistryPath3*]

• *Blank line*

Blank line is a separator for new registry path.

• *RegistryPath*

Describe the sub-key path with square bracket ("[]").
For example:

```
[HKEY_LOCAL_MACHINE\SOFTWARE\BHT\BackLight]
```

If the sub-key described does not exist in registry, OS makes new sub-key. If "-" (hyphen character) is described in front of sub-key, OS deletes the sub-key.
For example:

```
[-HKEY_LOCAL_MACHINE\SOFTWARE\BHT\BackLight]
```

• *DataItemName*

Describe the data item name with double quotation mark ("").
If the data item name described does not exist in registry, OS makes new data item name and value.
If the data item name described already exists in registry, OS overwrites data item name and value.

• *DataType*

Describe the data type in the following chart format.
If "-" (hyphen character) is described in front of "="(equal mark), OS deletes the value.
For example:

```
[HKEY_LOCAL_MACHINE\SOFTWARE\BHT\BackLight]
"Brightness"=-
```

• *DataValue*

Describe data value in the following chart format. Linefeed is "¥".
For example:

```
[HKEY_LOCAL_MACHINE\Time Zones\Pacific Standard Time]
"TZI"=hex:\
      a4,01,00,00,00,00,00,00,c4,ff,ff,ff,00,00,0b,00,\
      00,00,01,00,02,00,00,00,00,00,00,00,00,00,03,00,\
      00,00,02,00,02,00,00,00,00,00,00,00
```

Data type	Format	Description
REG_SZ	"DataItemName"="my string"	String data
REG_MULTI_SZ	"DataItemName"=multi_sz:"my string","my string"	String data (multi-line) Separate with "," (commas)
REG_DWORD	"DataItemName"=dword:00000000	Numeric value (32bits) Hexadecimal format
REG_BINARY	"DataItemName"=hex:01,23,cd,ef	Binary format

◆ Error Message List

<table>
<tr><th>Message</th><th>ErrorNo.</th><th>Problem</th><th>Solution</th></tr>
<tr><td rowspan="4">Import failed.
Err Code = X</td><td rowspan="2">2</td><td>The registry file being imported does not exist.</td><td>Check the existence of the registry file being imported.</td></tr>
<tr><td>The sub-key or value being deleted does not exist.</td><td>Check the existence of the sub-key or value being deleted.</td></tr>
<tr><td>5</td><td>Editing the specified sub-key or value is not allowed.</td><td>Don’t edit the specified sub-key or value.</td></tr>
<tr><td>11</td><td>The registry file format is incorrect.</td><td>Correct the registry file format.
The followings are examples of error.

•The sub-key path is not enclosed in square brackets "[]".
NG
Blank line
HKEY_LOCAL_MACHINE¥SOFTWARE¥BHT¥Icon
"Battery"=dword:00000001
OK
Blank line
[HKEY_LOCAL_MACHINE¥SOFTWARE¥BHT¥Icon]
"Battery"=dword:00000001

•The specified data type is incorrect.
NG
Blank line
[HKEY_LOCAL_MACHINE¥SOFTWARE¥BHT¥Icon]
"Battery"= 00000001
OK
Blank line
[HKEY_LOCAL_MACHINE¥SOFTWARE¥BHT¥Icon]
"Battery"=dword:00000001

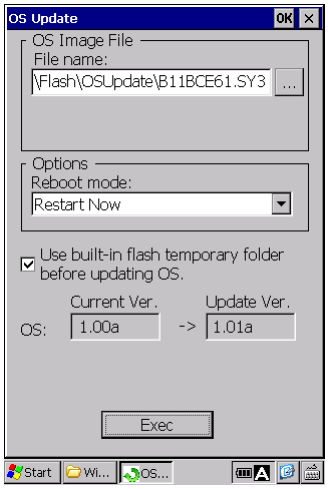
•The data item name is not enclosed double quotation marks ("").
NG
Blank line
[HKEY_LOCAL_MACHINE¥SOFTWARE¥BHT¥Icon]
Battery=dword:00000001
OK
Blank line
[HKEY_LOCAL_MACHINE¥SOFTWARE¥BHT¥Icon]
"Battery"=dword:00000001</td></tr>
</table>

Message	ErrorNo.	Problem	Solution
Import failed. Err Code = X	87	The sub-key path is not specified.	Specified the sub-key path or correct the registry file format. The followings are examples of error. •The sub-key path is not specified. NG *Blank line* *"Battery"=dword:00000001* OK *Blank line* *[HKEY_LOCAL_MACHINE¥SOFTWARE¥BHT¥Icon]* *"Battery"=dword:00000001* •The sub-key path is not recognized by the absence of the blank line. NG *[HKEY_LOCAL_MACHINE¥SOFTWARE¥BHT¥Icon]* *"Battery"=dword:00000001* OK *Blank line* *[HKEY_LOCAL_MACHINE¥SOFTWARE¥BHT¥Icon]* *"Battery"=dword:00000001*

Message	ErrorNo.	Problem	Solution
All / Part of the registry Export failed. Err Code = X	2	The specified sub-key on the command line does not exist.	Specify the existing sub-key path or correct the command line format. The followings are examples of error. •The sub-key path is enclosed in square brackets "[]". Don't enclose the key path in square bracket on the command line. NG *> regedit /e "sample.reg" [HKEY_LOCAL_MACHINE]* OK *> regedit /e "sample.reg" HKEY_LOCAL_MACHINE* •The file path with space is not enclosed in double quotation marks ("") NG *> regedit /e ¥Storage Card¥sample.reg* OK *> regedit /e "¥Storage Card¥sample.reg"*
	8	There is not enough free memory.	Close other programs.
	87	The specified file path or sub-key path on the command line is incorrect.	Correct the file path or sub-key path. The followings are examples of error. •The file path is null. NG *> regedit /e ""* OK *> regedit /e "sample.reg"* •The key is null. NG *> regedit /e "sample.reg" ""* OK *> regedit /e "sample.reg" HKEY_LOCAL_MACHINE*

[10] OS Update

Double-tap "OS Update" at the System Properties screen to display the screen on the right.

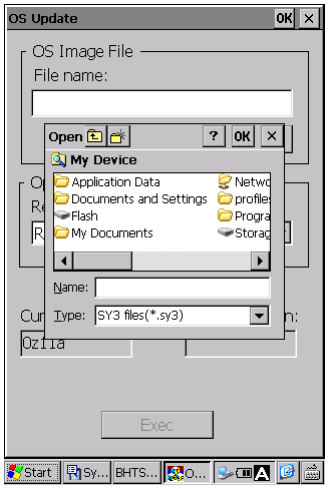


File Name: File name for OS Update
"¥Flash¥OSUpdate" is default folder.
Before updating OS, copy OS update file to the folder.
Browse: Display OS Update file dialog
Reboot mode: Specify the operation after OS Update

Restart Now (Default)	Cold Boot
Restart Later	Return to this menu
Power off	Power off

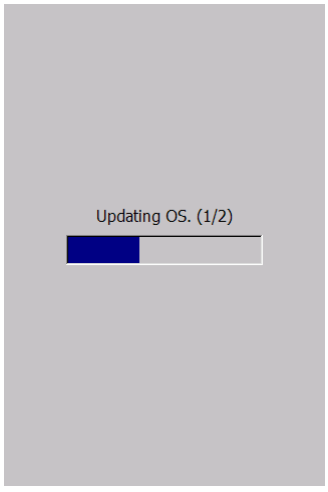
Current Version: Current OS version
Update Version: OS version to be updated
Exec: Execution of OS Update
"Use built-in flash temporary folder before updating OS."
Check when updating OS via SDCard.

Make sure that the OS Update file is copied to the BHT or it is stored on the SDCard. If yes, tap the [Browse] button to display the screen on the right and then select the OS Update file on this screen.



Tap the [Exec] button to initiate the OS updating.

The progress dialog is displayed before the system automatically reboots itself according to the Reboot mode



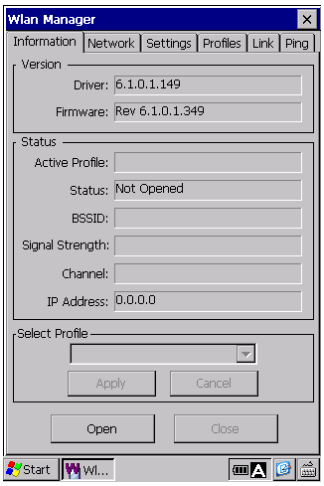
- Note - The OS always restarts from a cold boot after it is updated.
At this time, the RAM file system, the registry and the registry data stored in the FLASH memory are all deleted.
It is necessary to reconfigure the registry settings.

- Note - When OS update is failed, Full reset has to be performed manually to restart or complete OS update.

[11] Wireless LAN Menu

Double-tap “Wireless LAN” at the System Properties screen to display the screen on the right.

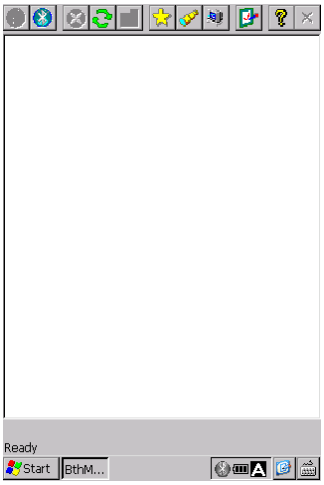
Refer to Section "4 System Operation - 4.5 Wireless Network Settings" for more details.



[12] Bluetooth Manager

Double-tap the "Bluetooth Manager" at the System Properties screen to display the screen on the right.

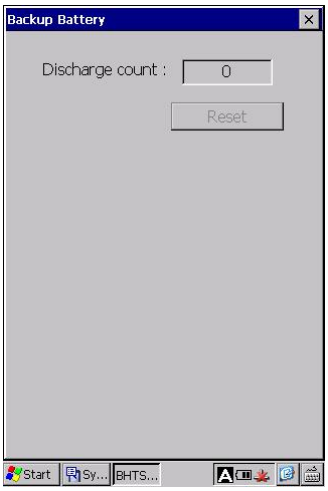
Refer to Section ""4 System Operation - 4.6 Bluetooth Manager" for more details.



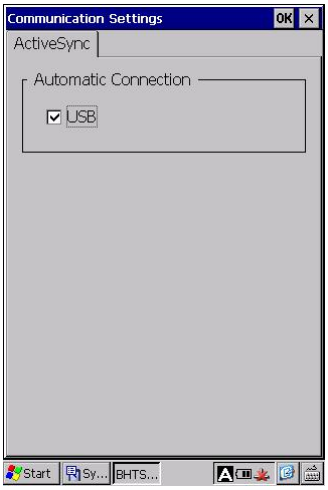
[13] Resetting the Backup Battery Discharge Count

At the System Properties menu, hold down the **SHIFT** key and press the “0” key to display the screen on the right.
This menu displays the memory backup battery discharge count. When the backup battery is replaced, tap the [Reset] button to clear the battery backup discharge count to zero (0).

– Note – The counter can only be reset after the discharge count reaches 200.



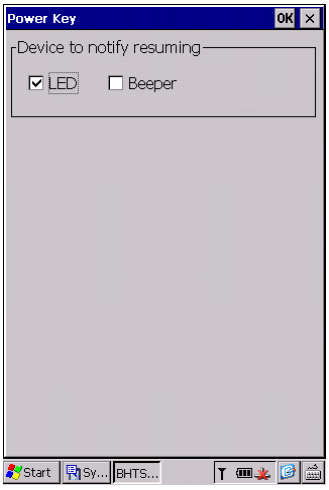
[14] ActiveSync Automatic Connection



At the System Properties menu, hold down the **SHIFT** key and press the “1” key to display the screen on the right.
Select both check boxes and tap the [OK] button to enable ActiveSync automatic connection.

– Note – Automatic connection is enabled by default.

[15] Power key

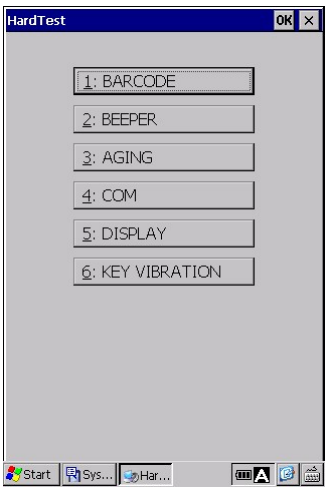


At the System Properties menu, hold down the **SHIFT** key and press the “2” key to display the screen on the right.
Select the device for notification of pressing power key to turn BHT power ON.
Following combinations are possible for notification.

LED: Blue LED (Default)
Beeper: Beeper

4.4.4 Test

Tap “4:Test” at the System Menu to display the screen on the right.

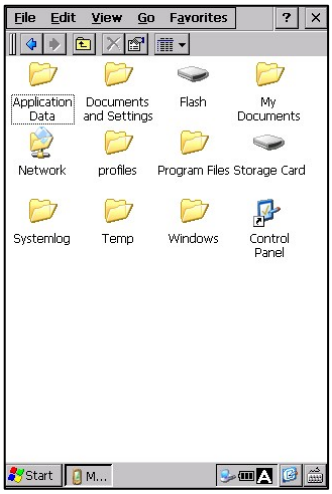


Refer to Section "4. System Operation - Hard Test Menu" for more details.

– Note – Contact your sales dealer if an error occurs during any of the above tests.

4.4.5 Explorer

Tap “5:Explorer” at the System Menu to display the screen on the right.

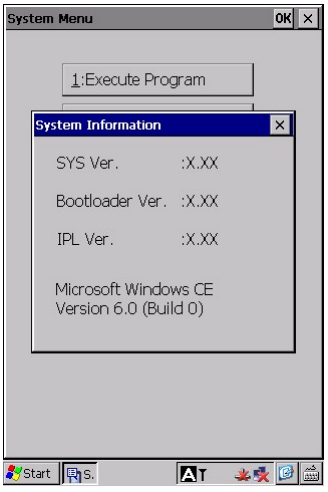


– Note –

Connecting to the (remote) host computer via Windows Network feature, the date and time of BHT should be set properly. If the date and time of BHT is different from the (remote) host computer, the BHT can not log into to the (remote) host computer.

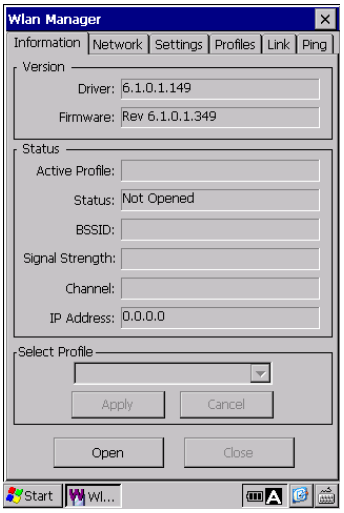
4.4.6 System Information

Tap “6:Version” at the System Menu to display the screen on the right.



4.5 Wireless Network Settings

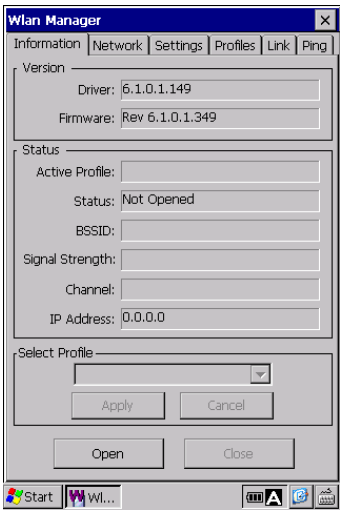
4.5.1 Wireless LAN Menu



Double-tap “Wireless LAN” at the System Properties screen to display the screen on the right.
This menu can be used to perform the following processes.

- Displaying the wireless module version and current connection status, and opening/closing the wireless device
- Displaying the IP address and MAC address
- Setting the wireless LAN options
- Editing the profiles
- Displaying the current communication status
- Performing a Ping test

4.5.2 Displaying the Wireless Module Version and current connection status, and Opening/Closing the Wireless Device



Tap the “Information” tabbed page at the Wireless LAN menu to display the screen on the right. This menu displays the following information.

Wireless Module Version

Driver Version:	Wireless driver version
Firmware Version:	Wireless module firmware version

Status

Active Profile:	Active Profile
Status:	Current connection status
BSSID:	Current BSSID
Signal Strength:	Current signal strength
Channel:	Current communication channel
IP Address	BHT IP Address

Select Profile — Select profile to connect the access point

– Note – It may be different between Active Profile and Select Profile. To change Active Profile, select profile and tap the [Apply] button.

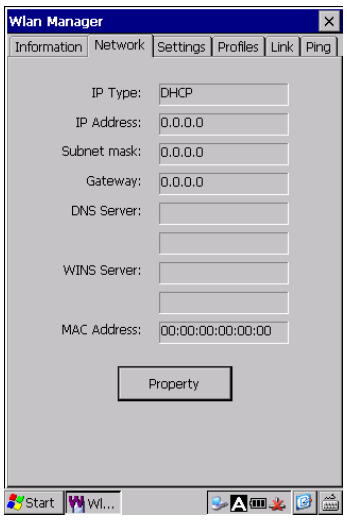
Also, the displayed active profile is not refleshed immediately, even if the profile is changed by other application and refresh the profile after re-open wireless device with [Close] - [Open] button.

Furthermore, wireless devices can also be opened and closed by tapping the [Open] and [Close] buttons.

– Note – If the wireless device is opened by tapping [Open], the device remains continuously open even if the Wireless LAN menu is closed. To close the wireless device, open this menu again and tap the [Close] button.

4.5.3 Displaying the IP Address and MAC Address

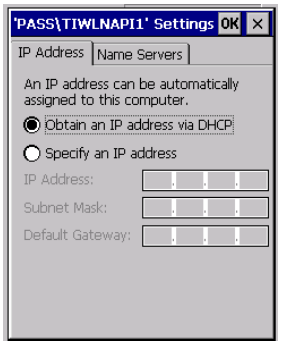
Tap the “Network” tabbed page at the NIC Control menu to display the screen on the right.
This menu displays the following information.



DHCP/Static:	DHCP usage/not used
IP Address:	BHT IP address
Subnet mask:	Subnet mask
Gateway:	Default gateway
DNS Server:	DNS IP address
WINS Server:	WINS IP address
MAC Address:	BHT MAC address

Tap the [Property] to display the screen on the right.
This menu can be used to perform the following processes.

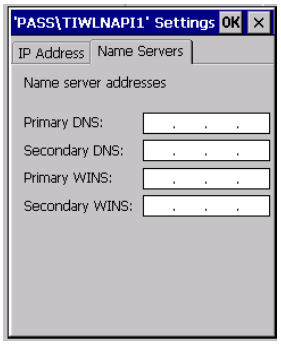
- Setting the IP address
- Setting the name servers



The IP address is set at the “IP Address” tabbed page.

Obtain an IP address via DHCP:
Select this option to automatically obtain a dynamic IP address from the DHCP server.
Specify an IP address:
Select this option to manually enter a static IP address and then enter the address.

Tap the “Name Servers” tabbed page to display the screen on the right.
Enter IP addresses for the name servers.

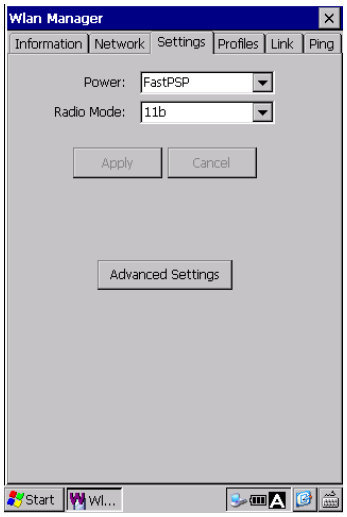


Primary DNS:
Enter the IP address for the Primary DNS server.
Secondary DNS:
Enter the IP address for the Secondary DNS server.
Primary WINS:
Enter the IP address for the Primary WINS server.
Secondary WINS:
Enter the IP address for the Secondary WINS server.

– Note – Consult with the network administrator concerning IP addresses.

4.5.4 Setting the Wireless Options

Tap the Settings tab on the Wireless LAN menu to display the screen shown at the right.



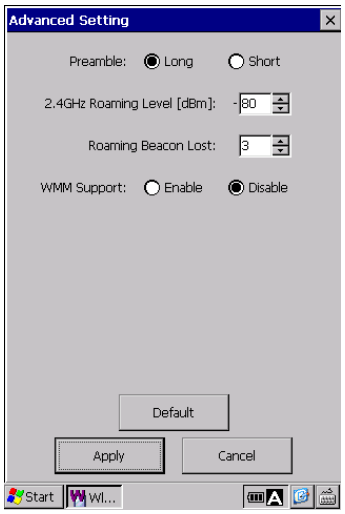
Power: Wireless module power save mode setting
- CAM: Always ON
- FastPSP: Power save mode (Default)
- MaxPSP: Power save mode

– Note – When using the BHT with PSP mode set, set a low value (2 or 3) for DTIM at the access point. It may not be possible to reconnect to the access point if a larger value is set.

Radio mode:Radio mode setting
- 11b: Enable 802.11b connection (Default)
- 11b/g: Enable 802.11b or 802.11g connection
- 11b/g: Enable 802.11b or 802.11g connection or 802.11n [2.4 GHz band] connection

Advanced Settings

Tap the "Advanced Settings" button to display the screen shown at the right.



Preamble: Preamble setting
- Long: Long preamble (Default)
- Short: Short preamble

– Note – If the preamble of the access point is set to short preamble, please set the same short preamble to the BHT. The BHT may not connect to the access point if long preamble is set in this case.

2.4GHz Roaming Level[dBm] : Roaming trigger level of 2.4GHz
-60 - -100[dBm] (Default：-80[dBm])

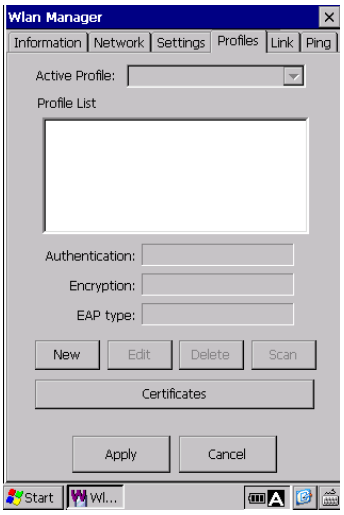
Roaming Beacon Lost : Beacon loss number to start roaming

WMM Support : enable or disable WMM function
- Enable : Enable WMM
- Disable : Disable WMM (Default)

Tap the [Default] button to change these parameters back to the default

4.5.5 Editing in RF Control

Make wireless network settings on the Profiles page (shown at the right) which is called up by tapping the Profiles tab on the Wireless LAN menu screen.



This page provides the following buttons.

Button	Use to
• **Active Profile**	Select the active profile.
• **New...**	Create a new profile.
• **Edit...**	Edit the selected profile.
• **Delete**	Delete the selected profile.
• **Scan**	Scan .
• **Certificate**	Edit certificates.
• **Apply**	Apply new settings made on this screen.
• **Cancel**	Reset new settings made on this screen.

[1] New

On the Profiles page, tapping the **New** button displays the screen shown at the right.

(1) SSID
Enter an ID that identifies the wireless network.
(1 to 32-character ASCII character string)

(2) Authentication
Select the authentication method.

(3) Encryption
Select the encryption method.

(4) Key
Enter the WEP Key when the encryption method is set to WEP. When the authentication method is set to WPA-PSK, enter the Pre Shared Key.
WEP key can be set with the following value.
26-character hexadecimal notation character string (128 bits)
10-character hexadecimal notation character string (40 bits)
13-character ASCII character string (128 bits)
5-character ASCII character string (40 bits)
Pre Shared Key can be set with the following value.
8 to 63-character ASCII character string
64-character hexadecimal notation character string

(5) Key index
Enter the key index (1 to 4).

(6) EAP type
Select the type of 802.1X.

(7) User ID
Enter the user ID.
(0 to 64-character ASCII character string)

(8) Password
Enter the password.
(0 to 64-character ASCII character string)

(9) Issued to
This field shows the destination of the specified client certificate.

(10) Issued by
This field shows the source of the specified client certificate.

(11) Validate Server
If this check box is selected, the BHT verifies the server certificate using the root certificate previously imported.

Configuring Security

Security can be configured with the combination of the encryption and authentication settings as listed below.

Parameter	Security							
	None		PEAP (802.1x)	EAP-TLS (802.1x)	PEAP (WPA)		EAP-TLS (WPA)	
Authentication	Open	Open	Open	Open	WPA-1X	WPA-1X	WPA-1X	WPA-1X
Encryption	None	WEP	WEP	WEP	TKIP	AES	TKIP	AES
802.1x	Disable	Disable	PEAP	EAP-TLS	PEAP	PEAP	EAP-TLS	EAP-TLS
ESSID	√	√	√	√	√	√	√	√
Profile Priority	√	√	√	√	√	√	√	√
Key	–	√	–	–	–	–	–	–
User ID	–	–	√	√	√	√	√	√
Password	–	–	√	–	√	√	–	–
Validate Server	–	–	√	√	√	√	√	√
Client certificate	–	–	–	√	–	–	√	√
screen image	A	B	C	D	E	E	F	F

Parameter	Security							
	PSK (WPA)		PEAP (WPA2)		EAP-TLS (WPA2)		PSK (WPA2)	
Authentication	WPA-PSK	WPA-PSK	WPA2-1X	WPA2-1X	WPA2-1X	WPA2-1X	WPA2-PSK	WPA2-PSK
Encryption	TKIP	AES	TKIP	AES	TKIP	AES	TKIP	AES
802.1x	Disable	Disable	PEAP	PEAP	EAP-TLS	EAP-TLS	Disable	Disable
ESSID	√	√	√	√	√	√	√	√
Profile Priority	√	√	√	√	√	√	√	√
Key	√	√	–	–	–	–	√	√
User ID	–	–	√	√	√	√	–	–
Password	–	–	√	√	–	–	–	–
Validate Server	–	–	√	√	√	√	–	–
Client certificate	–	–	–	–	√	√	–	–
screen image	G	G	E	E	F	F	G	G

– : Setting invalid

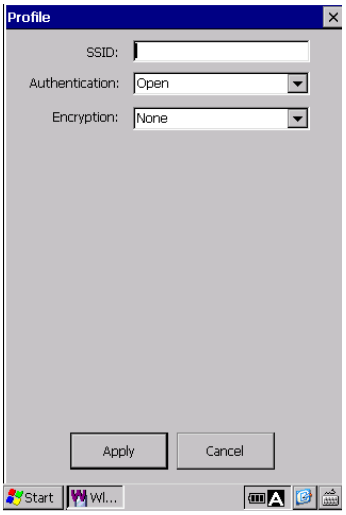
√ : Setting valid

– Note – Connect time might become long when all the following settings are filled.

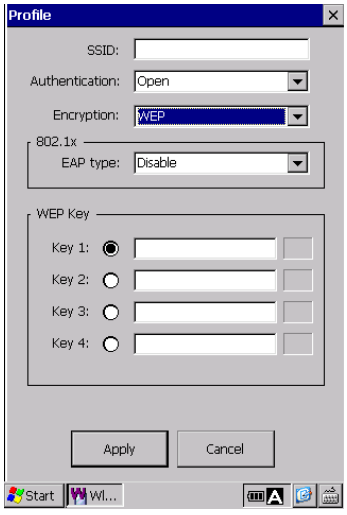
(1)The Authentication setting of BHT is made WPA2 or WPA2-PSK, and the Encryption setting is AES.

(2)The encryption setting of the access point has permitted the connection of both TKIP and AES.

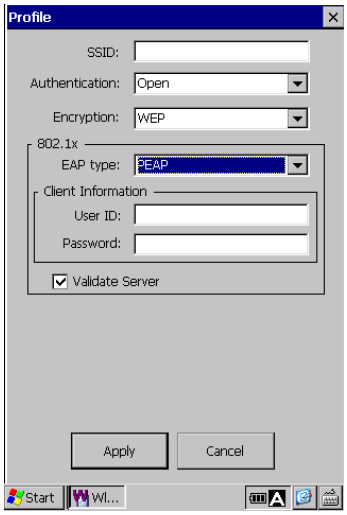
A


Profile
SSID:
Authentication: Open
Encryption: None
Apply
Cancel
Start
WI...

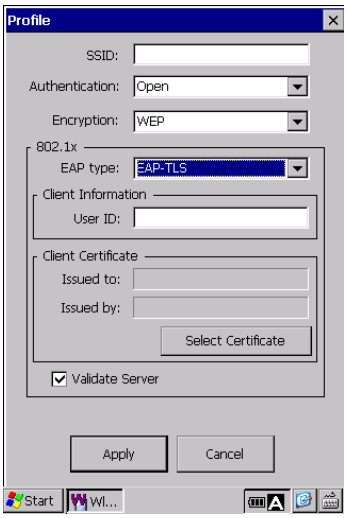
B


Profile
SSID:
Authentication: Open
Encryption: WEP
802.1x
EAP type: Disable
WEP Key
Key 1:
Key 2:
Key 3:
Key 4:
Apply
Cancel
Start
WI...

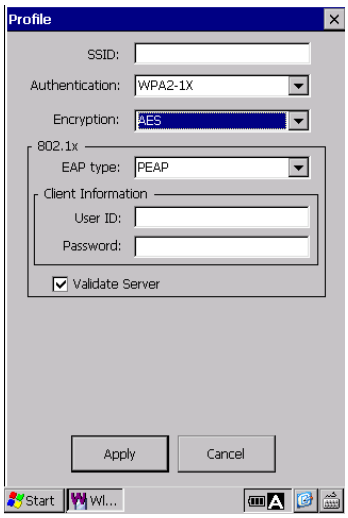
C


Profile
SSID:
Authentication: Open
Encryption: WEP
802.1x
EAP type: PEAP
Client Information
User ID:
Password:
Validate Server
Apply
Cancel
Start
WI...

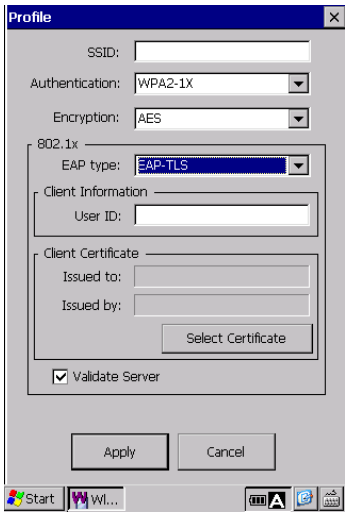
D


Profile
SSID:
Authentication: Open
Encryption: WEP
802.1x
EAP type: EAP-TLS
Client Information
User ID:
Client Certificate
Issued to:
Issued by:
Select Certificate
Validate Server
Apply
Cancel
Start
WI...

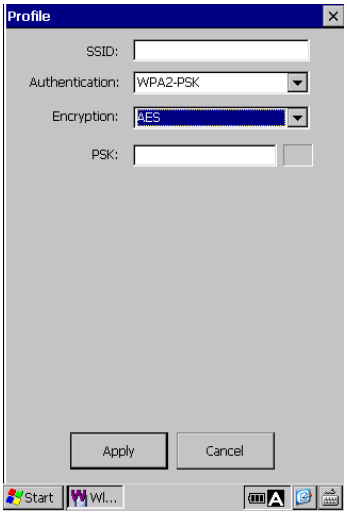
E


Profile
SSID:
Authentication: WPA2-1X
Encryption: AES
802.1x
EAP type: PEAP
Client Information
User ID:
Password:
Validate Server
Apply
Cancel
Start
WI...

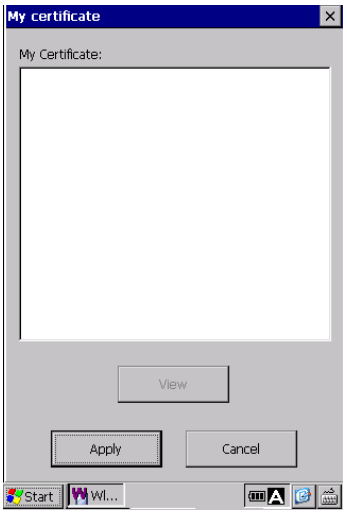
F


Profile
SSID:
Authentication: WPA2-1X
Encryption: AES
802.1x
EAP type: EAP-TLS
Client Information
User ID:
Client Certificate
Issued to:
Issued by:
Select Certificate
Validate Server
Apply
Cancel
Start
WI...

G


Profile
SSID:
Authentication: WPA2-PSK
Encryption: AES
PSK:
Apply
Cancel
Start
WI...

Tapping the **Select Certificate** button displays the screen shown at the right.

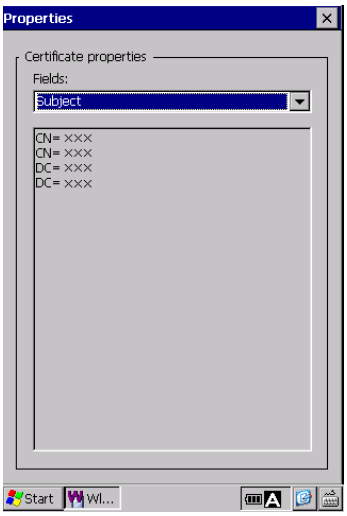


To specify the client certificate to be used, select the desired client certificate and tap the **Apply** button.

My Certificates

This area shows the client certificates imported.

With a client certificate being selected, tapping the **View** button displays the screen shown at the right.



Certificate properties

Field

Select the item to display.

Lower area

This area displays the properties of the selected item.

[2] Cert (Certificate)

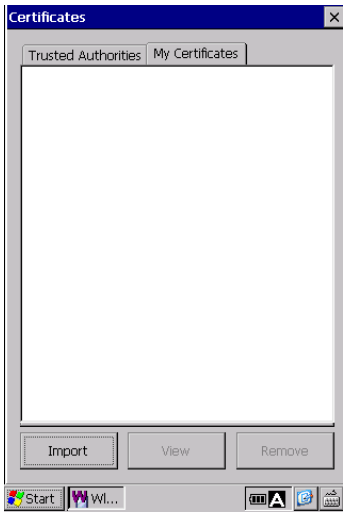
Some EAP types require certificates as listed below.

EAP type	Root certificate	Client certificate (incl. secret key)
PEAP	√ (omissible)	–
EAP-TLS	√ (omissible)	√

The certificates and secret key supported and their formats are as shown below.

File	Format
Root certificate Client certificate	X.509 DER format
Secret key	PKCS#1 DER format

On the Profiles page, tapping the **Certificates** button displays the screen shown at the right.



This page provides the following buttons.

Button	Use to
• **Import**	Import a certificate.
• **View**	View the details of the certificate.
• **Remove**	Remove the selected certificate.

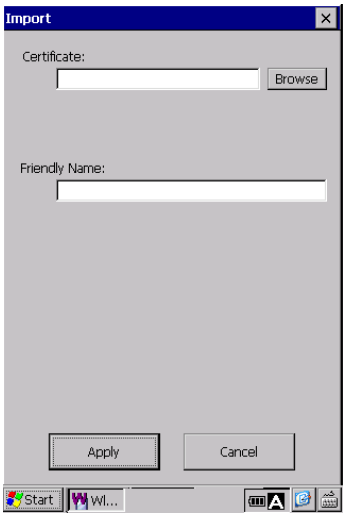
Select the certificate to import.

- Trusted Authorities Root certificate
- My Certificate Client certificate

(1) Import

<u>To import a root certificate</u>

On the Certificates screen, select “Trusted Authorities” tabbed page and then tap the **Import** button to display the screen shown at the right.



Certificate

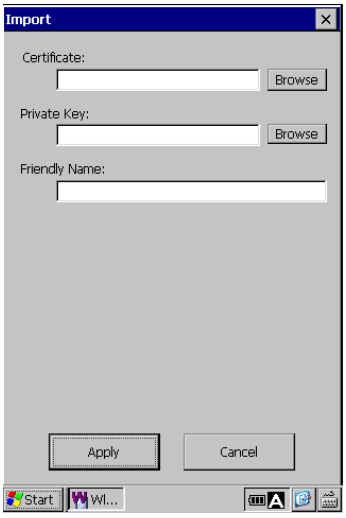
Specify a full path to the root certificate file to be imported.

Friendly Name

Specify a friendly name.

<u>To import a client certificate</u>

On the Certificates screen, select “My Certificate” tabbed page and then tap the **Import** button to display the screen shown at the right.



Certificate

Specify a full path to the client certificate file to be imported.

Private Key

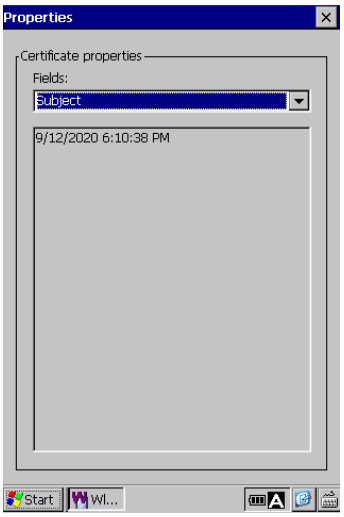
Specify a full path to the secret key.

Friendly Name

Specify a friendly name.

(2) View

On the Certificates screen, tap the **View** button to display the screen shown at the right.



Fields

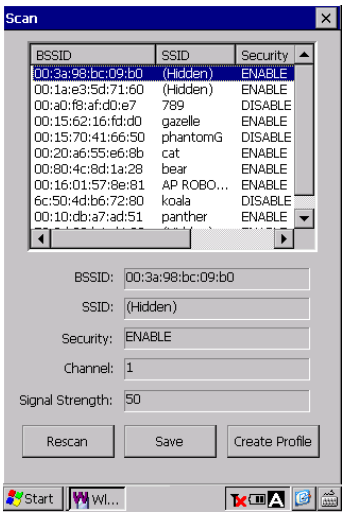
Select the item to display.

Lower area

This area displays the properties of the selected item.

4.5.6 Scan Access points

Scan Access points on the Scan page which is called up by tapping the Scan button on the Profiles page.



This page provides the following buttons.

Button	Use to
• **Rescan**	Rescan Access points.
• **Save…**	Save the results of Scan.
• **Create Profile...**	Create a new profile from the Access point's SSID.

[1] Rescan

On the Scan page, tapping the Rescan button displays the screen shown at the upper right. The maximum number of the scanned access point is 64.

The result of the scanning is displayed in the list, and information on the selected access point is displayed to the text box when tapping in addition in the list.

(1) BSSID

The MAC Address of the Access point

(2) SSID (※)

The SSID of the Access point

(※) "(Hidden)" is displayed when Access points hide their SSID.

(3) Security

ENABLE: Need Authentications or Ciphers.

DISABLE: NOT Need Authentications nor Encryptions.

(4) Channel

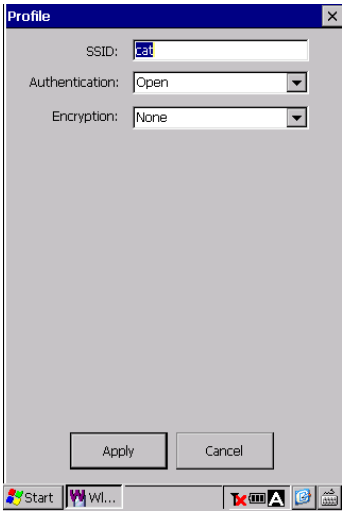
Channel that access point uses.

(5) Signal Strength

Radio field strength of the Access point.

[2] Save

The result of the scanning is preserved in the file. The preserved file can be selected from three (the text form, Comma Separated Value, and the binary form).



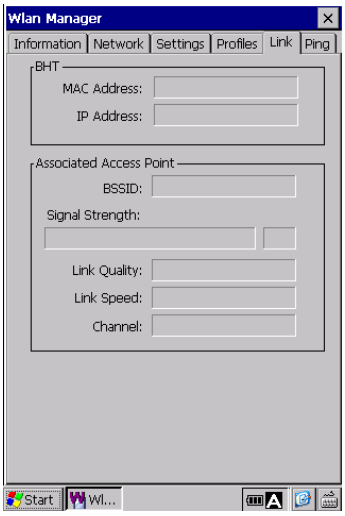
[3] Create Profile (*)

Either of Access point is displayed to a right screen from the list of the result of the scanning with tapping [Create Profile] button.

Moreover, the profile can be made from the state that SSID of the selected Access point is reflected.

(*) Please note that only SSID is reflected, and neither other Authentications nor Encryptions, etc. are reflected.

4.5.7Displaying the Current Communication Status



Tap the “Link” tabbed page at the Wireless LAN menu to display the screen on the right, at which the current communication status displays in real time.

BHT

MAC Address: MAC Address

IP Address: IP Address

Associated access point

BSSID:

Displays the MAC address assigned to the wireless interface of the associated access point.

Signal Strength:

Displays the receipt packet signal intensity.

Link Quality:

Displays the overall communication link quality with the access point.

Display	Communication Status
Excellent	Excellent communication link ↕ Poor communication link
Good	
Fair	
Poor	
Not Associated	Not associated with an access point
Not Opened	Wireless LAN device is not opened

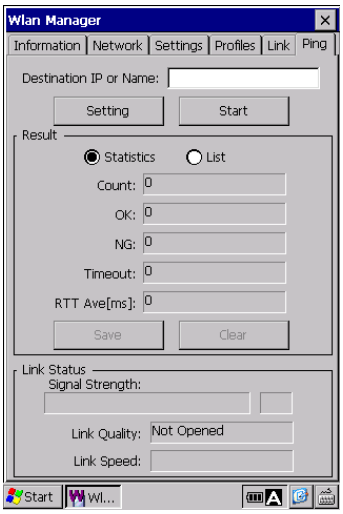
Link Speed:

Displays the current transmission speed.

Channel:

Displays the current communication channel.

4.5.8 Performing a Ping test



Tap the “Ping” tabbed page at the Wireless LAN menu to display the screen on the right.

Destination IP or Name: Specifies the IP address or name of the host computer to be pinged.

Tap the [Setting] button to set the Ping parameters.
Tap the [Start] button to commence the Ping test.

– Note – The host name of the BHT is "Device name" in control panel - System - Device Name tabbed page. "Device name" must be changed from default "BHT" to another device name when ping with host name from remote system is implemented.

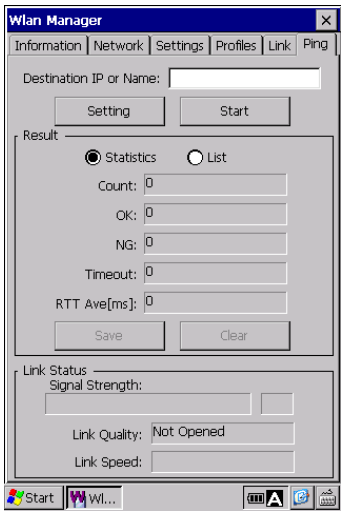
If "Device name" is default ("BHT"), ping from remote system can not find the BHT.

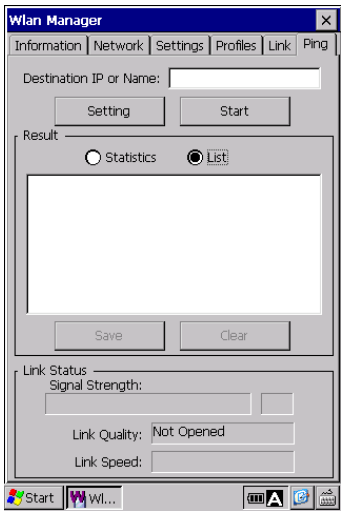
Ping result

The screen on the right displays when the Ping test is commenced.

Count:	Number of echo requests sent
OK:	Number of echo replies
NG:	Number of errors that occurred while performing the Ping test
Timeout:	Number of timeouts (for echo requests) that occurred while performing the Ping test
RTT Ave.(ms):	Echo reply time

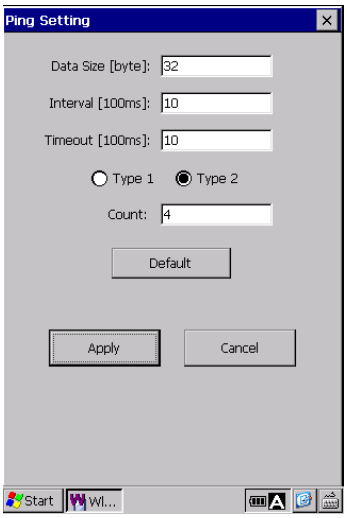
Select the [List] button to switch the Ping result screen.
Tap the [Save] button to save the Ping result into the file.
Tap the [Clear] button to clear the Ping result.





Ping settings

Tap the "Settings" button to display the screen shown at the right.



Data size:	Specifies the data size of the echo request.
Interval:	Specifies the length of echo request intervals (in 100 ms units).
Timeout:	Specifies the timeout period (in 100ms units) for the echo request.
Type1 or Type2:	Specifies the echo request transmission timing (described on next page).
Count:	Specifies the number of echo requests to be sent.

Tap the [Default] button to change ping parameters back to the default

Setting ranges

Item	Allowable Entry Range	Default Value
Data size	1 to 2048	32
Interval	0 to 65535	10
Timeout	0 to 65535	10
Type	Type1/Type2	Type2
Count	0* to 65535	4

* By setting zero (0), the number of echo requests sent will be infinite (until the Ping test is aborted.)

If a value outside the allowable entry range is specified, the nearest value within the range will automatically be applied.

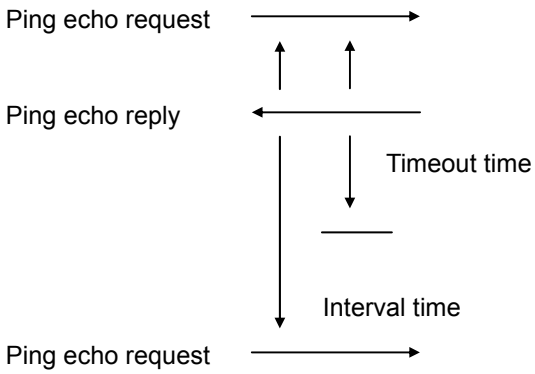
If the timeout is set to the maximum allowable value under the condition the Type 1 is selected, the interval setting value is automatically applied.

Ping echo request transmission timing

Two types of echo request transmission timing are available: Type 1 and Type 2. (Default: Type 2)

Type1

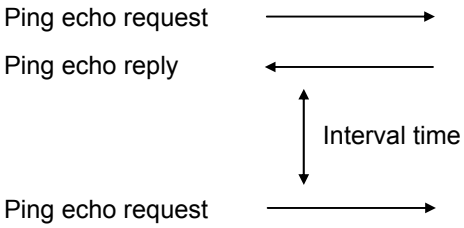
After sending an echo request, the next Ping echo request is sent after the interval time has elapsed. In such a case, set the Interval and Timeout so that “Interval ≥ Timeout”.



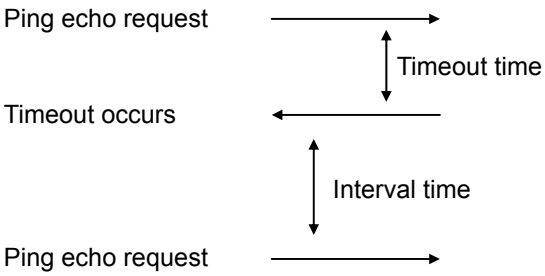
Type2

After sending an echo request, a Ping echo will either be received or a timeout will occur. The next Ping echo request is then sent after the interval time has elapsed. In such a case, there is no correlation between the Interval and Timeout.

<When Ping echo received>



<When timeout occurs>

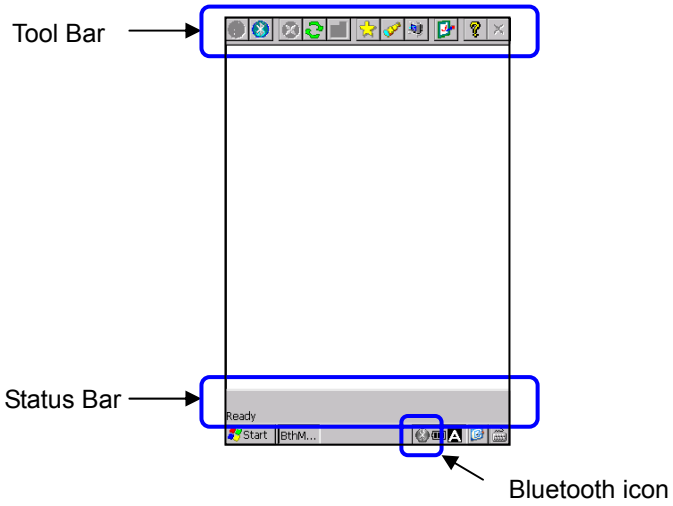


4.6 Bluetooth Manager

Double-tap “Bluetooth Manager” at the System Properties screen to display the following screen.

4.6.1 Main window description

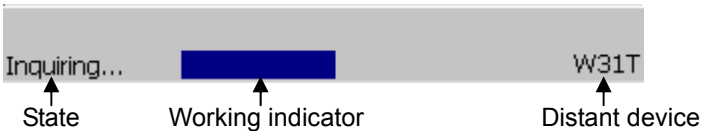
When the Bluetooth Manager is run, a new window appears and a Bluetooth icon appears in the task bar. This window contains a toolbar with some icons, a status bar, and a list window:



◆ The toolbar

	Indicates the current battery power level.
	Stop the current action
	Refresh
	(Does not work)
	Show favorite list
	Show distant devices
	Show local services
	Configure the application
	Show the about box
	Close the Bluetooth Manager main window.

◆ The statusbar



State : What the Bluetooth Manager is doing and the name of the current view
Working indicator : For long task (Inquiry, Connection)
Distant device : With which device the Bluetooth Manager is currently connected.

4.6.2 Inquiry devices

When the application is started, you need to click on  to start inquiry remote Bluetooth devices. The devices found are shown in the main window. They are represented by an icon (showing what class of device they are: computer, laptop, pda, audio device) and the name of the device.

Once you have clicked one time on  all futures clicks will show devices without inquiring (to decrease search time). To inquiry again remote Bluetooth devices you must refresh the list by clicking on  . (Note : All the coupled devices are shown without inquiry)

In the list, after an inquiry, some device class and name can be not found. You can update this by hold on the device and select update in the contextual menu:

During an inquiry, you can stop it by clicking on the  icon.

4.6.3 Device pairing

The device pairing can be done in three ways :

(1) We want to be paired with another distant device

For that the distant device must be in the list window to be paired with the current device. Hold on the selected device and click on pair.

A new window appears to insert the pin code. The pairing can be canceled by clicking on the close button or started by clicking on the OK button (after typing a pin code).

(2) A distant device tries to pair with the current device (with no Default Pin)

(refer to “4.6.4 Properties and configuration [3] Local device properties and configuration - Security properties” for Default Pin)

When a device try to pair with the current device, a new window appear to enter the pin code selected by the distant device.

(3) A distant device tries to pair with the current device (With Default Pin)

In this case, the user is not invited to type a pin code. It is automatically typed for him.

After the pin code is typed (or auto typed), there is three issues :

Device is not paired

Device is paired

(Service is connected)

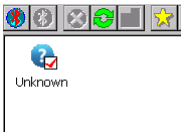
Device is paired

(Service is not connected)

– Note – When stating device pairing, distant device type icon (the icon indicates "local" device substantially) is displayed as "Unknown" at the distant device screen.

The "Unknown" icon does NOT affect actual Bluetooth communication.

It is recommended that "Inquiry device" from the remote device is needed before paring to display accurate device type icon, too.



4.6.4 Properties and configuration

[1] General

In the Bluetooth Manager, there are three local service proposed to distant devices:

SPP (Serial Port): A distant device wants to establish a serial connection with the local device.

OPP (Object Push): To receive files and contact information card.

FTP (File Transfer): To access to local directories, files and upload files and create directories.

Note : the OPP and FTP profile cannot be separated : You cannot deactivate one without deactivate the second.

Tap on  , to administrate a local service. Local service is shown in the list view with a specific icon and an explicit name.

You can activate or deactivate a local service by double-tapping it or by hold it and selecting the start or stop item from the contextual menu.

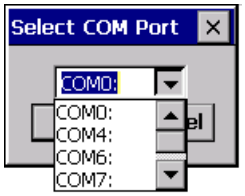
The local service is not activated

The local service is activated

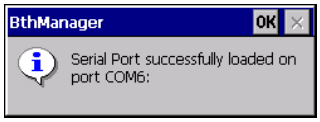
[2] SPP Profile

Load the SPP Server :

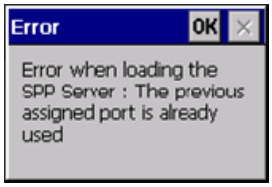
If the Auto Server COM Port is not checked, (refer to [3] Local device properties and configuration - Application properties)



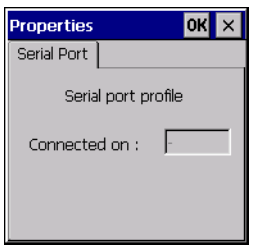
- The application shows a dialog box with all the available port COM
- Select the COM Port to be mapped with the SPP Server
- The Serial Port profile is activated



If the Auto Server COM Port is checked, the serial Port profile is activated with the last used COM Port for the SPP Server profile. If it is not available, an error appears.

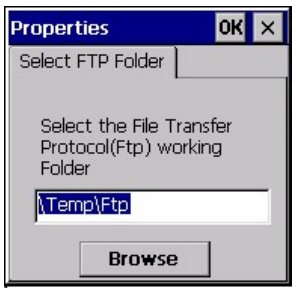


If the service is connected you can know the COM port assigned by selecting “Properties” in the contextual menu of the service.



[3] FTP Profile

You can change the directory of the FTP server (directory seen by distant device) in the service properties (Contextual menu).



[4] OPP Profile

You can change the directory where the File sent by distant device will be put.

[5] Local device properties and configuration

Tap on  , to see:

- The local device properties (MAC address, name and device type)

- Application option (start minimized, Auto assigned COM port number for client SPP and server).

- Security options of the Bluetooth Manager

◆ **General properties**

Name : Name for distant device of the current device

Address: MAC Address of the current device

Class: The current device is visible or not from other devices.

◆ **Security properties**

Authentification : Distant devices must be paired to access local services.

Let other devices discover : The current device is visible or not from other devices.

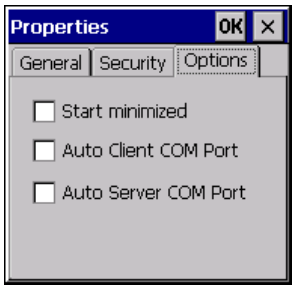
Default PIN : Don't show a window when a distant device wants to be paired. Auto-type the PIN code number.

◆ **Application properties**

Start minimized : Check this if you want the Bluetooth Manager starts minimized.

Auto Client COM Port : Check this if you want to affect the first available COM port to a SPP client connection.

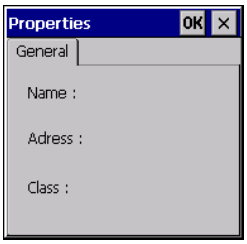
Auto Server COM Port : Check this if you don't want a dialog appears when you start the SPP server (to select the COM port).



4.6.5 Distant services

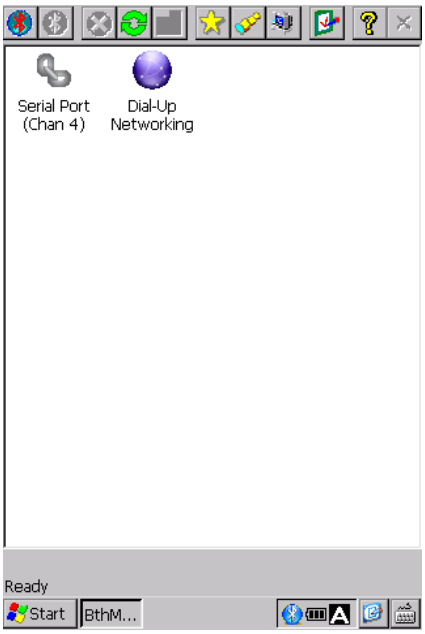
[1] Distant device properties

You can have general information on a distant device (like the General tab of the Local device properties) by selecting “properties” in the contextual menu of the distant device.



[2] Services Inquiry

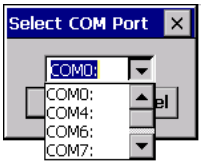
To inquiry the services available on a distant device, you have to double-tap on this one. After that, the Bluetooth Manager inquiries (it indicates this in the status bar) for all the services (among SPP / FTP / OPP / DUN) of the distant device. You can stop the inquiry with the  icon. You can also refresh the list of services by tapping on the  icon.



[3] Serial Port

To use this serial service, double-tap on the icon or choose “Connect” from the contextual menu.

If the Auto Client COM Port is not checked (refer to 4.6.4 Properties and configuration [3] Local device properties and configuration - Application properties), Bluetooth Manager shows a dialog box with all the available COM.



If the Auto Client COM Port is checked, Bluetooth Manager selects automatically the first available COM port in the system.

If the connection is successful a messagebox appears:

Else an error message appears.

The status of the service (connected or not) is displayed as shown below:

Service not connected

Service connected

When the service is on, all applications could use the virtual COM port.

To know the COM port setting, select properties in the contextual menu.

[4] Dial-Up Networking

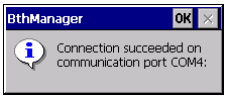
To use the Dial-up Networking service, double-tap on the icon or choose "Connect" in the contextual menu. The first available COM port in the system is assigned to the DUN profile on the selected device.

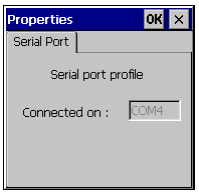
The status of the service (connected or not) is displayed as shown below:

Service not connected

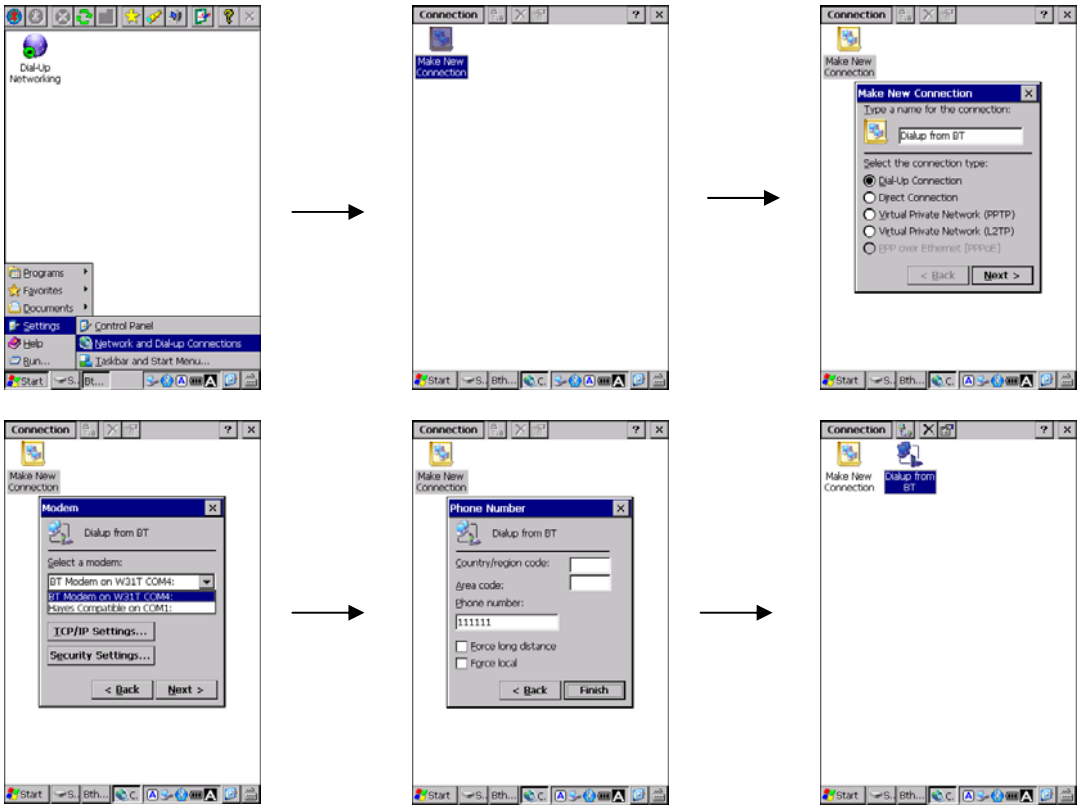
Service connected

When connected, Bluetooth Manager can still be used as usual. A modem associated to the COM port used by the service is created and can be used to establish a Dial-Up connection. To know the COM port settings, select properties in the contextual menu.

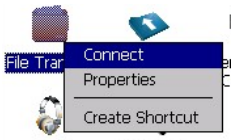




The modem created by Bluetooth Manager is displayed in the list of available modems for Dial-Up connection when making a new connection ("Make New Connection" icon in the "Network and Dial-Up Connection" window).



[5] File Transfer



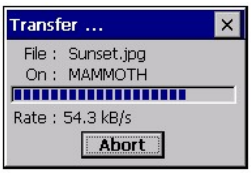
To use this service, double-tap on the icon or choose “Connect” on the contextual menu (tap and hold). Then, the Bluetooth Manager tries to connect to the distant service.

If the connection is successful, the root directory shared by the distant will be shown in the list view.

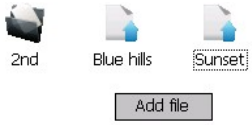
You can browse the device by double-tapping on the remote folder and go to the parent directory with the  icon.

To get a file, double-tap or choose “Get file” from the contextual menu. A window is displayed to indicate the transfer state.

The file is downloaded by default to the “¥Temp” directory. You can change this one with the FTP properties (contextual menu of the File Transfer service).



You can upload a file to the distant device by hold on a whitespace of the listview and select “Add file”.

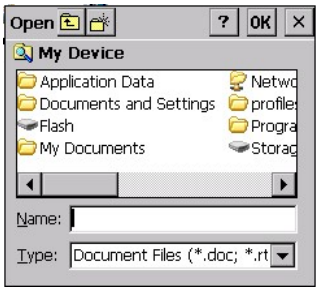


You can also delete a file by selecting “Delete” on the contextual menu.

[6] Object Push

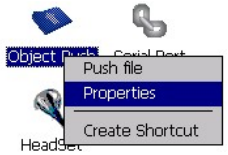
To use this service, double-tap on the distant service or select “Push file” on the contextual menu.

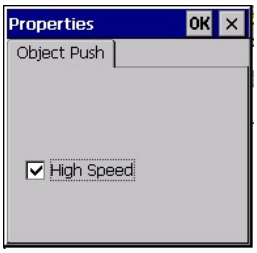
Then you can choose the file to transfer.



You can choose the speed of transfer (High speed or Low speed) when you select “Properties” on the contextual menu. Low speed is a buffer of 64KBytes and High speed is a buffer of 5000KBytes.

Then you can check the box or not. If the box is checked, High speed transfer is selected whereas if the box is not checked, Low speed transfer is selected.





[7] A2DP

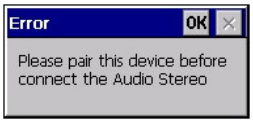
The name of the service is “Audio Stereo”, to use it, make sure that the device is paired before double-tap on the icon or choosing "Connect" in the contextual menu.

The status of the service (connected or not) is displayed as shown below:

Service not connected

Service connected

If the connection fails, an error message should appear:



You can configure the audio settings of the A2DP by selecting properties in the contextual menu.

[8] HSP

The name of the service is “HeadSet Profile”, to use it, make sure that the device is paired before double-tap on the icon or choosing "Connect" in the contextual menu.

The status of the device (paired or not and connected or not) is displayed as shown below:

HSP not paired

HSP paired

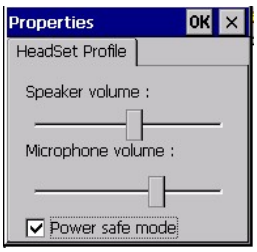
HSP paired and connected

The status of the service (connected or not) is displayed as shown below:

Service not connected

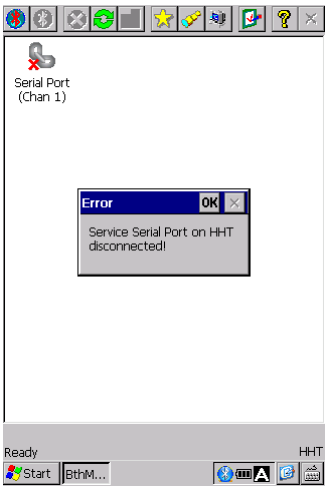
Service connected

You can configure the audio settings of the HSP by selecting properties in the contextual menu.



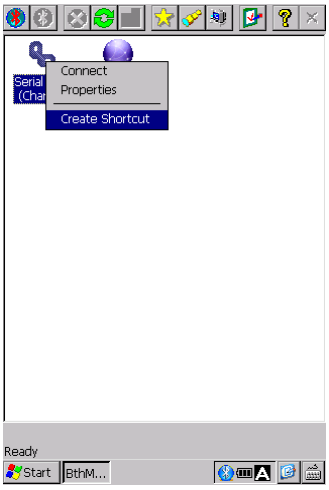
4.6.6 Distant disconnection management

When a connection, previously established, is shut down by the distant host (manual disconnection or connection loss due to distant device shutting down or due to a weak signal), the user is notified of the disconnection and Bluetooth Manager attempts to reconnect during a time (1min 30 seconds). The notification is made by a pop-up window and by changing the icon associated to the disconnected service.



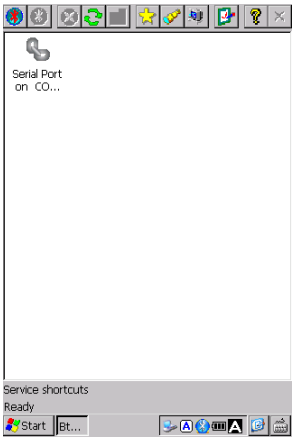
4.6.7 Connection shortcuts management

Shortcuts associated to defined services on defined devices make establishing connections with distant devices easier. A shortcut can be created by selecting the "Create Shortcut" item in the contextual menu of a connected service.

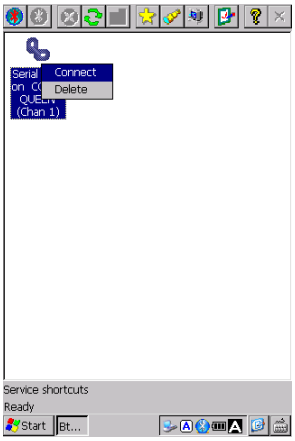


If the shortcut already exists, a notification is displayed. If the shortcut is successfully created, a notification is also displayed.

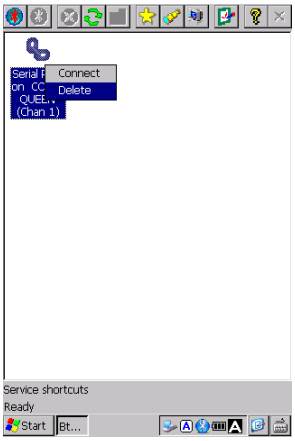
The  button in the tool bar displays the connection shortcuts list. The service, the device and, eventually, the COM port are used in the shortcut name.

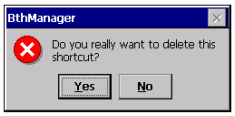


To establish a connection from the shortcut, double-tap on the icon or select "Connect" in the contextual menu. Once the connection is established (even if the connection is not successfully established), the display is switched to the services list associated to device linked to the shortcut. The connection status of the service (connected or not) is displayed not only on the service icon but also on the associated shortcut icon. However, disconnection can only be performed from the service contextual menu



Shortcuts can be deleted by using the "Delete" item of the contextual menu. The user must confirm the deletion.





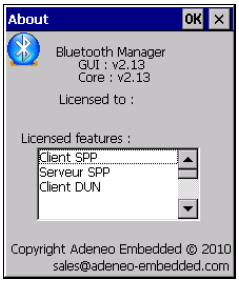
The content of the shortcut list is saved between executions of Bluetooth Manager.

4.6.8 About Box

Tap on  the icon if you want some general information about the Bluetooth Manager:

- Version

- License information



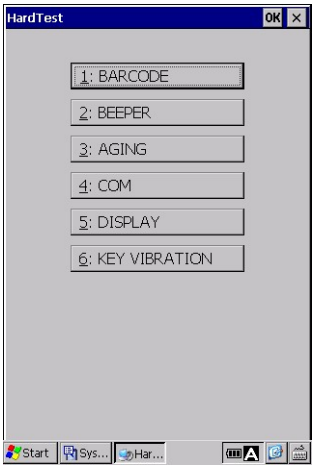
4.6.9 Stop the Bluetooth Manager

When the Bluetooth Manager window is closed, the application is still running in the background.

To display or stop it, tap on the Bluetooth icon on the Windows bar and select: “Show” or “Exit” . You can also display it by starting again the application.

4.7 Hard Test Menu

4.7.1 HardTest Menu

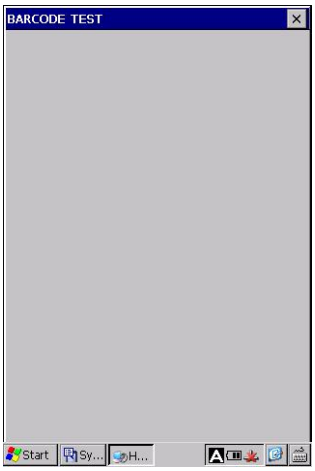


Tap “4:Test” at the System Menu to display the screen on the right.

[1] BARCODE:	Performs a barcode scanning test.
[2] BEEPER :	Performs a beeper scale test.
[3] AGING:	Performs an aging test.
[4] COM:	Performs a communication test.
[5] DISPLAY:	Performs an LCD and indicator LED test.
[6] KEY VIBRATION:	Performs a key entry and vibrator test.

– Note – Contact your sales dealer if an error occurs during any of the above tests.

[1] Barcode Scanning Test



Tap “1:BARCODE” at the HardTest menu to display the screen on the right.
Scan an actual barcode with the BHT and confirm that the display at the screen matches the barcode data.

⇓

When a barcode is scanned, the indicator LED illuminates in blue, the beeper sounds once, and the scanned barcode type, number of digits and data display on the screen.
The relationship between the scanned barcode type and characters displayed on the screen is shown in the table below.

Code Mark TYPE1 (***Code Mark TYPE2***) ***number of digits***

Barcode Type		Characters	
		Codemark Type1	Codemark Type2 *4
EAN-13（JAN-13）		A	]E0
UPC-A		A	]X0
EAN-8（JAN-8）		B	]E4
UPC-E		C	]X0
Interleaved 2of5 (ITF) *1		I	]Im
Standard 2of5 (STF) *2	Short	H	]R0
	Normal	H	]S0
Codabar（NW-7） *3		N	]Fm
Code 39		M	]Am
Code 93		L	]G0
Code 128		K	]Cm
GS1-128（EAN-128）		W	]C1
GS1 DataBar（RSS）		R	]e0
MSI		M	]M1

*1 With ITF, a barcode with 4 or more digits is read.

*2 With STF, a barcode with 3 or more digits is read.

*3 With Codabar, a barcode with 3 or more digits is read.

*4 Codemark Type2 is a code mark system which complies with “Guidelines on Symbology Identifiers” of AIM USA; “m” in the last digit position varies, as shown in the table below, depending on the data format of the barcode system.

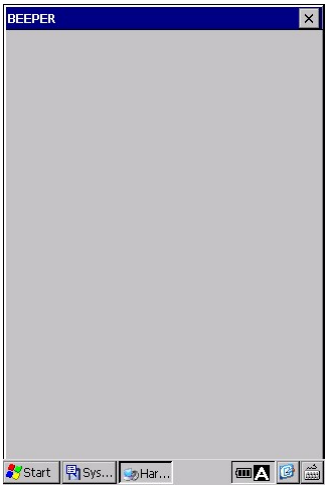
Example)]I1]: Flag Character (ASCII 93)
I: Code Character (ITF)
1: Modifier Character (see the table below)

e.g., in the case of the setting in which the ITF with C/D is read, the codemark is “]I1”.

Barcode type	Modifer Character	Description
Interleaved 2of5 (ITF)	0	Reading without C/D
	1	Reading with C/D
Code 39	0	Reading without C/D
	1	Reading with C/D
Codabar（NW-7）	0	Reading without C/D
	1	Reading with C/D
Code 128	0	The first and second characters after start codes do not include FNC1.
	2	The second character after start codes is FNC1.

C/D: Check digits

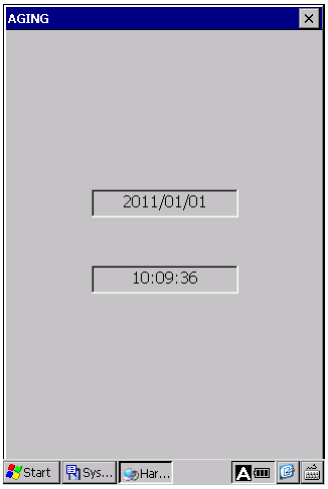
[2] Beeper Scale Test



Tap “2:BEEPER” at the HardTest menu to display the screen on the right and sound the beeper at the two octaves listed below.
The BHT automatically returns to the HardTest menu upon completion of the test.

Scale	Frequency (Hz)		
do	1046	2093	4186
re	1174	2349	–
mi	1318	2637	–
fa	1396	2793	–
sol	1567	3135	–
la	1760	3520	–
ti	1975	3951	–

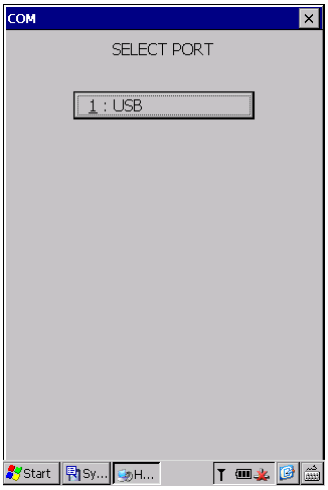
[3] Aging Test



Tap “3:AGING” at the HardTest menu to begin the again test while displaying the current date and time on the screen. (This test is intended for those performing inspection prior to shipping from the factory.)

– Note – The automatic power-off function is disabled once this test is selected.

[4] Communication Test

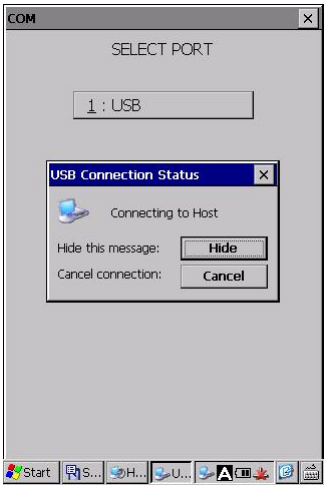


Tap “4:COM” at the HardTest menu to display the COM (communication test) menu.
This menu can be used to test the USB interface port.

[1] USB: Performs a USB interface test.

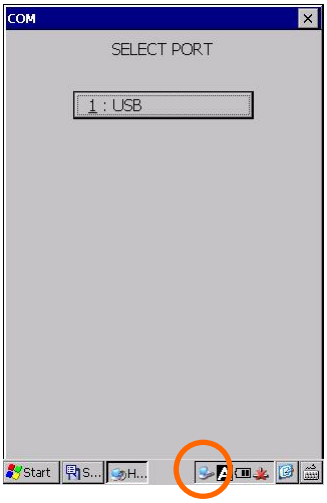
◆ USB Interface Test

Tap “1:USB” at the COM menu to display the screen on the right and commence connection to the host computer using ActiveSync.



If ActiveSync connection via the USB interface port is successful…

If ActiveSync connection is successful, the "Network Begin" sounds and the ActiveSync icon displays in the task tray (circled in red on right).



If ActiveSync connection via the USB interface port fails…

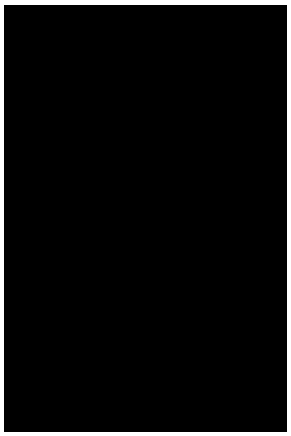
If ActiveSync connection fails, the ActiveSync icon does not display.

[5] LCD and LED Indicator Test

Tap “5:DISPLAY” at the HardTest menu to display the black test screen on the right and illuminate the indicator in blue.
Press the **ENT** key to proceed to the next test pattern.
Press the **BS** key to return to the previous test pattern.

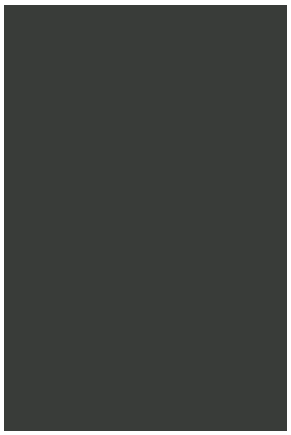
BS key ⇑ ⇓ **ENT** key

As shown on the right, the screen turns blank and the indicator LED turns red.



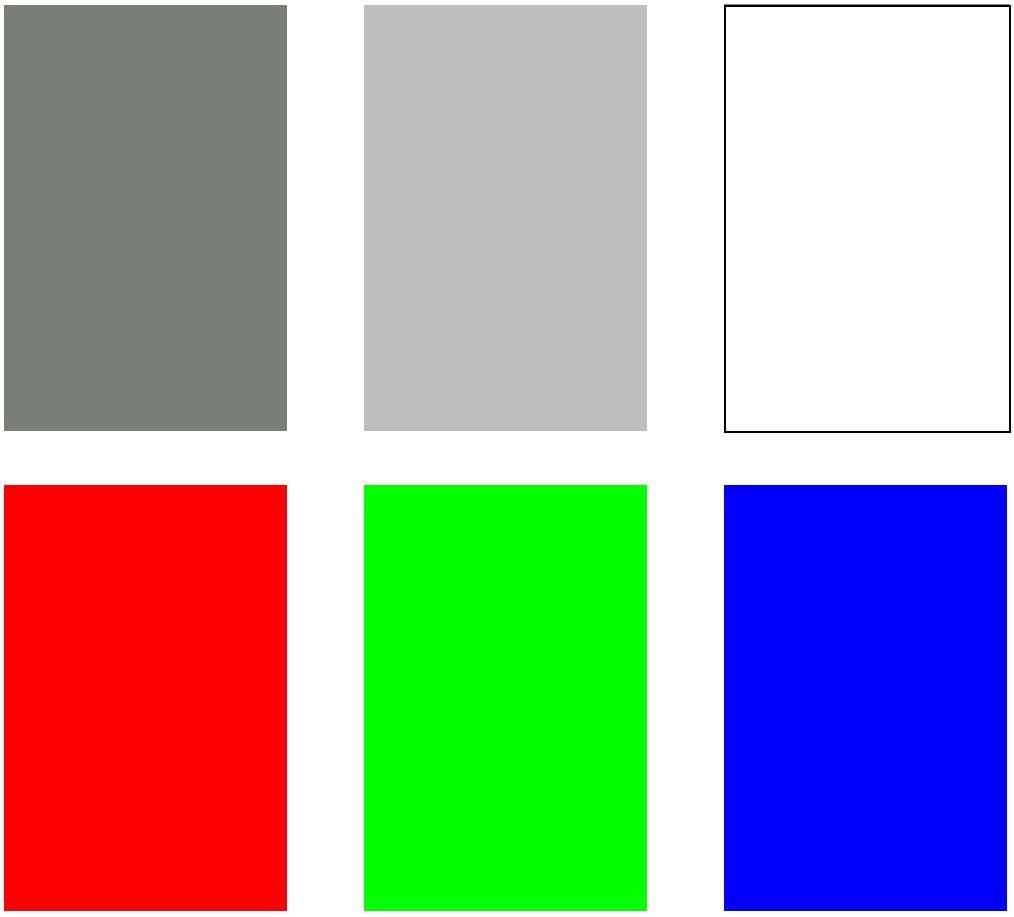
BS key ⇑ ⇓ **ENT** key

As shown on the right, a dark gray displays and the indicator LED turns OFF.

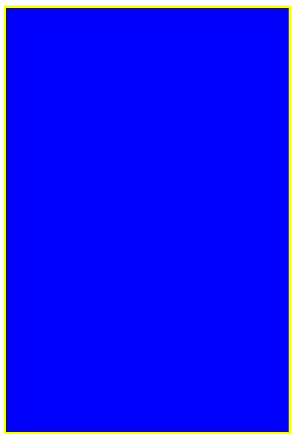


BS key ⇑ ⇓ **ENT** key

A gray, light gray, white, red, green, blue screen displays.
While red or blue screen displays, red or blue illumination LED turns on, too.



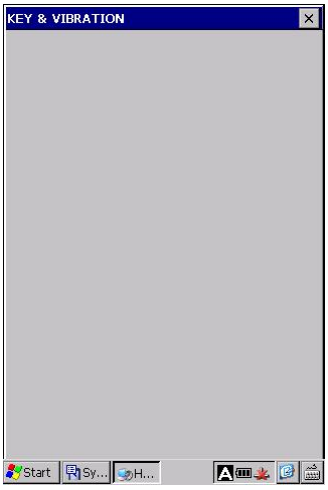
A blue screen displays with a one-dot wide yellow outline.
Red and blue illumination LED turns on, too.

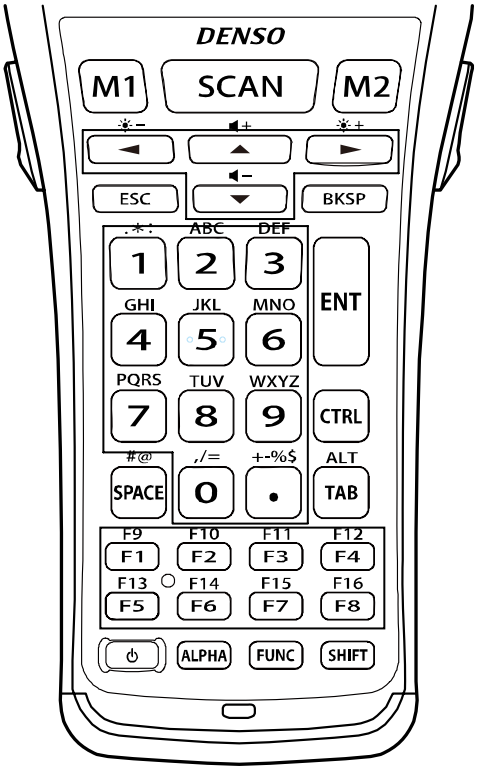


Press the **ENT** key to return to the HardTest menu.

[6] Key Entry and Vibrator Test

Tap “6:KEY VIBRATION” at the HardTest menu to display the screen on the right awaiting key entry.
Press individual keys to display characters at pre-assigned positions on the screen.





The vibrator works when the **SCAN** key or left trigger or right trigger is pressed.

After all keys listed right screen have been pressed and their corresponding characters displayed on the screen, the test is exited automatically and the screen returns to the HardTest menu.

4.8 BHT Photo

From the **Start** menu, tap [Programs(P)] – [BHTPhoto] - [BHTPhoto] to display the following screen.

Folder : Folder path of captured images
Format : Choose a still image format.
Quality : Choose a still image quality.
Resolution : Choose a still image resolution.
W/B : Choose a white balance mode of the image of the camera.
Brightness : Adjust brightness of the image of the camera.
Contrast : Adjust contrast of the image of the camera.

– Note – The camera device is available only on BHT-1171BWB-CE.

– Note – The camera device and the barcode device can NOT be used simultaneously.

– Note – While using the camera device, Battery consumption becomes faster because CPU is not in standby state. So, we recommend you to close BHT Photo when you finish taking images.

4.8.1 Taking Still Images

To take still images, tap the **Shutter** button or press the **Scan** key.
A file of the still image is saved in the folder shown at the **Folder** box. The name of the file consists of "IMG", a five-digit sequence number, and file extension.

You can adjust focus before you take a still image. If you tap the **Focus** button, the auto focus function starts, and the focus frame appears. If the auto focus function succeeded, the focus frame changes to green color. If the auto focus function failed, the focus frame changes to orange color.

If you tap the **Light** button, the light of the camera is switched on or off.

– Note – In case you choose JPG from the **Format** list, a compression level of captured still images changes depending on the selection of the **Quality** list.

Example:

Sample image
Resolution:640x480

Format	JPG			BMP
Quality	Fine	Norm	Eco	-
Compression level	Low	Middle	High	-
Size of file	56KB	29KB	20KB	600KB

4.8.2 Changing folder of captured images

If you tap the "**…**" button on the right of the **Folder** box, a folder selection dialog box appears.
To change the folder of captured images, you choose folder in this dialog box and tap the **OK** button.

Chapter 5
Communication

This chapter describes technical information about Connector communication, Bluetooth® Communication and Wireless communication.

5.1 Connector Communication

The BHT-1100 is equipped with a connector port used to communicate with other devices.
The Ethernet communication is possible via CU-1111.
The USB / RS-232C communication is possible via CU-1133.

5.2 Bluetooth® Communication

The BHT is equipped with Bluetooth® wireless module.

5.2.1 Notes for Bluetooth® Operations

- If there are too many communications errors, first make sure that the BHT points directly at other Bluetooth®-enabled devices because the 2.4 GHz band requires a more or less straight line path.
  Note also that the low-power radio waves have trouble passing through human bodies and other obstacles along that path.
- In the vicinity of wireless LAN devices using radio waves in the 2.4 GHz band, Bluetooth® link operation may cause interference to radio communications, resulting in decreased communications speed or communications failures.
- The Bluetooth® link will not operate properly in the vicinity of microwave ovens, industrial heaters, high-frequency medical equipment, and other sources of radio waves in the 2.4 GHz band.
- Electromagnetic noise from personal computers, refrigerators, and other home appliances can also interfere with link operation.
- Environmental factors that can also interfere with link operation include large metallic objects, metallic dust, or metallic walls in the vicinity of the path and vibration at either end.

– Point – **Requests to System Designers**

- Before developing the application, make sure that the intended environment is free of the interference factors above and thus actually capable of supporting link operation.
- Assume that there will be communications failures requiring robust retry capabilities in the software.
- When introducing the BHT link operation into an environment where equipment using radio waves in the 2.4 GHz band operates or when introducing such equipment after the introduction of the BHT link operation, be sure to confirm that the BHT radio link operates properly with all equipment being in operation beforehand.
- If the environment of the radio communications system is changed after the introduction (e.g., newly installed household appliances and movement/addition of shelves or objects), then confirm that the radio link operates properly again before the actual use.

5.2.2 Specifying Parameters

◆ Bluetooth® device address

Remote devices return these addresses, uniquely assigned to each Bluetooth® device by the Bluetooth® SIG, during device detection.

◆ Bluetooth® device name

Bluetooth® devices can distinguish themselves using user-friendly names--Robert or Sandra, for example.

◆ Bluetooth® passkey (Bluetooth® PIN)

Pairs of Bluetooth® devices use these encryption keys for mutual authentication and for establishing secure links between themselves.

◆ Security Modes

This BHT supports the following three security modes.

(1) No security: There is no security authentication.
(2) Service level security: There is security authentication.
(3) Link level security: There is security authentication using point-to-point encryption keys.

Specifying No security sometimes prevents connecting to remote devices using service or link level security--unless both ends use the same Bluetooth® passkey.

Service or link level security requires that both ends use the same Bluetooth® passkey.

5.3 Wireless Communication

The BHT is equipped with a 2.4 GHz waveband wireless module.

5.3.1 Usage Precautions

- It may be possible to avoid the easy occurrence of communication errors by pointing the right side of the BHT (equipped with built-in antenna) toward the access point. This is because the radio waves of the 2.4 GHz waveband on which the BHT operates are emitted straight ahead and do not easily pass through the human body and so on.
- Communication may not be possible when used in the vicinity of wireless devices, microwave ovens, industrial heating equipment or high-frequency medical equipment operating on the same 2.4 GHz waveband as the BHT.
- Communication may not be possible due to electromagnetic noise when the BHT is used in the vicinity of household appliances such as computers or refrigerators.
- Communication may not be possible in the following locations.
  - In the vicinity of metal objects or in places with high levels of metallic dust
  - Rooms surrounded by metal walls
  - Places subject to strong impact

– Point – **Requests to System Designers**

- Communication may not be possible depending on the environment in which the device is being used. Ensure that problem-free communication is possible prior to use.
- Use a program capable of retransmitting data if communication fails.
- If the BHT is introduced into an environment in which a device using 2.4 GHz waveband electromagnetic waves is operating, or if another device using 2.4 GHz waveband electromagnetic waves is introduced following introduction of the system, run all devices and ensure that communication with the BHT is possible prior to use.
- Check communication once again prior to use if any changes are made to the usage environment (addition of household appliances, movement or addition of shelves, equipment and so on) following introduction of the system.

– Point – **Wireless LAN Interference**

In addition to industrial, scientific, and medical equipment such as microwave ovens, static wireless stations (permit required) used for mobile identification in places such as plant manufacturing lines, amateur wireless stations, and specified low-power wireless stations (no permit required) operate on the same frequency band as this device.

1. Before using this device, ensure that no static wireless stations or specified low-power wireless stations for mobile identification are being used in the vicinity.
2. In the event of instances of electromagnetic interference from this device to a static wireless station being used for mobile identification, either promptly alter the usage frequency, or halt the electromagnetic discharge.

Chapter 6
Maintenance

This chapter describes battery and daily procedures for taking care of the BHT and CU.

6.1 Replacing the Battery

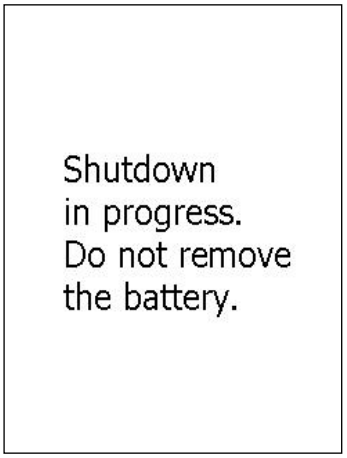
6.1.1 Battery Service Life

The battery is a consumable part. And it should be replaced upon the earlier of one year or after being charged approximately 300 times.
The performance of the battery's lithium-ion battery will deteriorate gradually with repeated charging, even during normal use. When the battery operation time becomes shorter even after charging for the specified length of time, replace the battery with a new one.

6.1.2 Battery Replacement Method

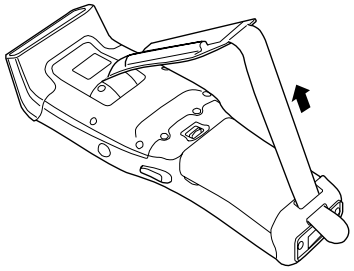
1. Press the **power** key to turn OFF the BHT power.

The screen on the right displays.
The error message is displayed by the application language in the specific country.

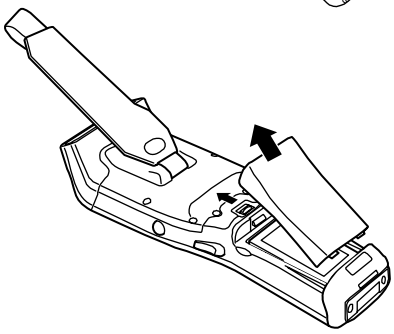


– Point – Do not remove the battery until the power turns OFF and the screen display clears.

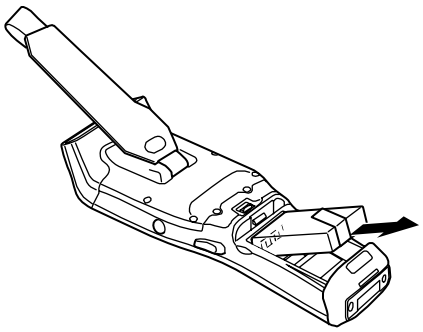
2. Loosen the hand belt.



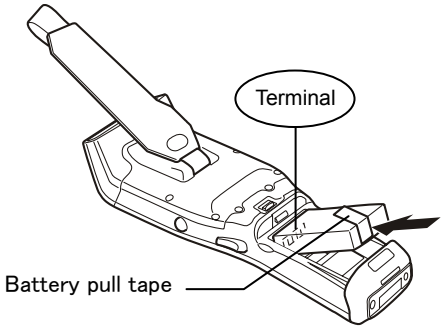
3. Slide the battery cover lock and remove the battery cover.



4. Remove the battery.

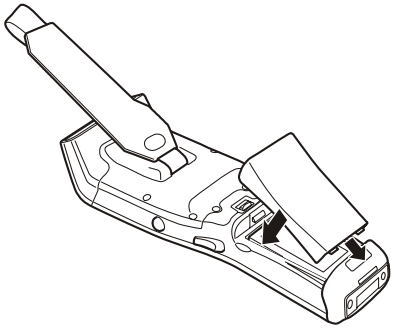


5. Load the new battery in the direction shown by the arrow.



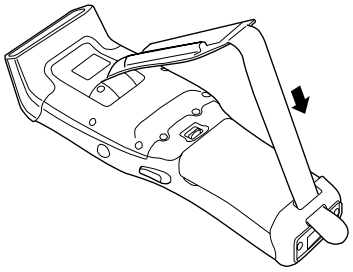
– Point – Insert the new battery within 3 minutes of removal to avoid data loss.

6. Close the battery cover and return the battery cover lock to the original position.



– Point – The end of the battery pull tape must not come out of the edge under the battery cover.

7. Return the hand belt to its original position.



Battery Recycling Request

- This product uses a lithium-ion battery that contains scarce, recyclable resources. We kindly ask for your cooperation in recycling to ensure reuse of these resources.

The crossed-out wheeled bin is applicable for EU member status only.

- Used batteries must not be disposed of as combustibles.
- Contact your nearest local sales office for information on disposal procedures.
- When disposing of used batteries, cover the terminals with vinyl tape to insulate and protect from overheating or fire due to a short-circuit.
- Never disassemble batteries.

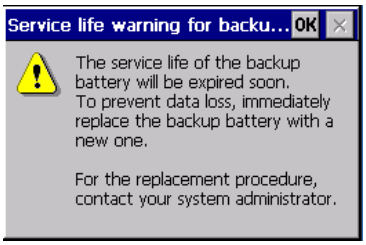
⚠ WARNING	Mishandling may result in battery overheating, smoke generation, blowout or combustion. Please read the following items prior to use. ● Never charge the battery in the vicinity of fire or under a scorching sun. ● Always use a dedicated charger to charge the battery.

⚠ CAUTION	Mishandling may result in battery overheating, smoke generation, blowout or combustion. Please read the following item prior to use. ● Terminate charging if not completed even after the specified time has elapsed.

– Note –	● Replace the battery promptly. ● If the BHT is left for long periods of time with the battery removed, it may not be possible to backup the content of the RAM, and data including files and settings stored in the RAM may be lost. In that case, because the RAM will revert to the factory default, it is recommended that any important data be backed up to the "FLASH" folder or uploaded to the host computer. When the BHT turns ON after the data in the RAM is deleted, the BHT starts from the "Initial Setup". ● Always turn the BHT power OFF before replacing the battery. Replace the depleted battery with a new one within three minutes to avoid data loss. Following replacement, turn ON the BHT power and check operation. ● The battery is charged using the CU. Refer to "Chapter 9" for details of the charging method for the CU. ● If a "Replace the battery!" or "Charge the battery!" message displays when impact is applied to the BHT, reboot the BHT and check the battery voltage level. The battery may not actually be depleted.

6.2 Replacing the Backup Battery

If the following warning message displays, contact your dealer and replace the backup battery.



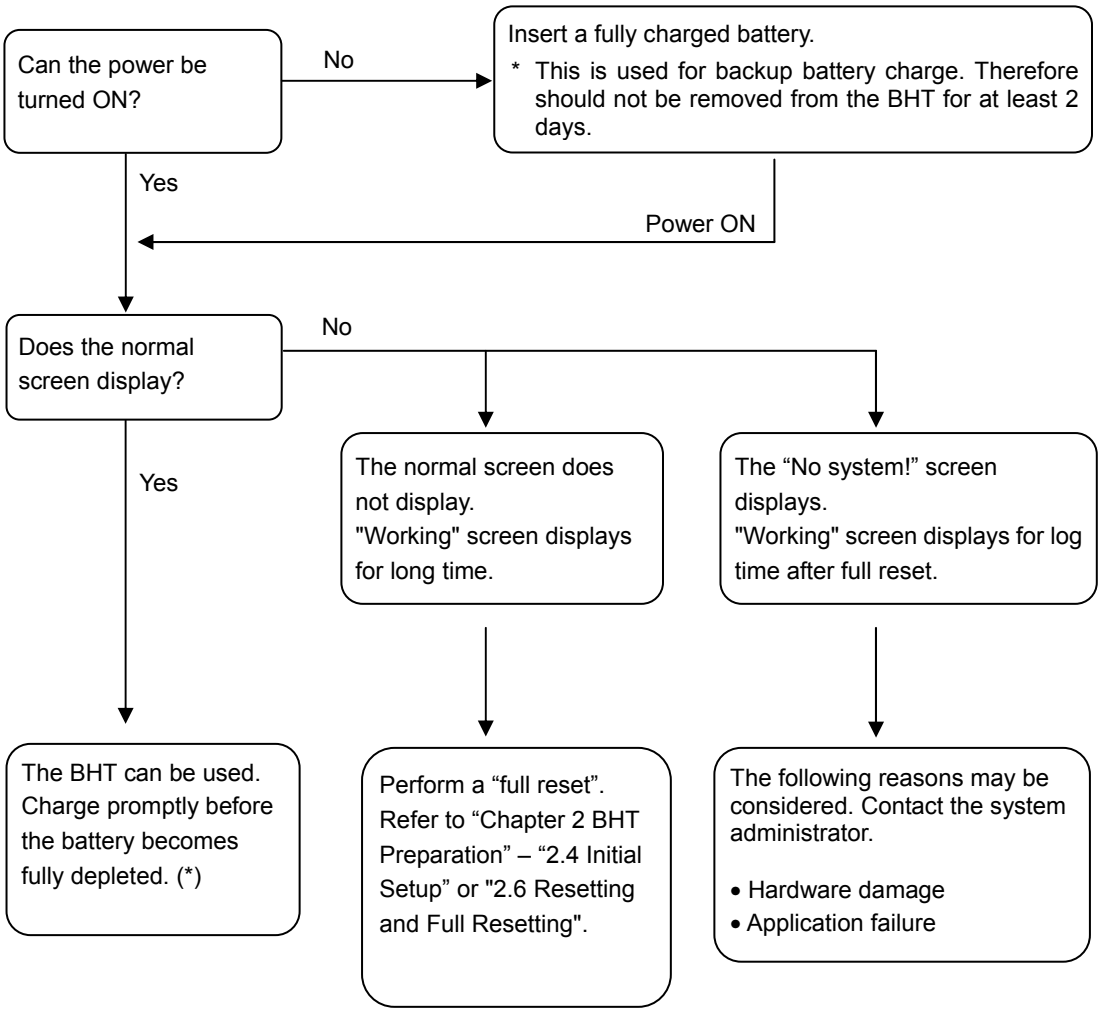
This warning message displays each time the power is turned ON after the backup battery discharge count has reached 200 times or more.
Even if this warning message displays, operation can be resumed by tapping the **OK** button in the top right corner of the message window.

– Point –

- If the backup battery is removed, it may not be possible to backup the content of the RAM, and data including files and settings stored in the RAM may be lost. In that case, because the RAM will revert to the factory default, it is recommended that any important data be backed up to the "FLASH" folder or uploaded to the host computer. When the BHT turns ON after the data in the RAM is deleted, the BHT starts from the "Initial Setup".
- Each time the backup battery is fully discharged, the discharge count automatically increases by one, and however, replacing the backup battery does not reset this value to zero automatically. As a result, it is necessary to reset the discharge count in accordance with the procedure described in "Chapter 4 System Operation" – "4.4.3 System Properties" – "[13] Resetting the Backup Battery Discharge Count" when the backup battery is replaced.
  Please note that the backup battery discharge count is reset when the BHT is shipped from the factory.

6.3 Using the BHT after Long Periods

Data including files and settings stored in the RAM may be lost and the calendar clock may stop if the BHT is left unused for long periods of time.
(Because the RAM will revert to the factory default, it is recommended that any important data be backed up to the "FLASH" folder or uploaded to the host computer. When the BHT turns ON after the data in the RAM is deleted, the BHT starts from the "Initial Setup".)
Take appropriate measures in accordance with the procedure below.



– Point – *: Files may become corrupt if left for a long period of time without replacing the battery.

6.4 Daily Maintenance

6.4.1 Proper Care of the BHT

Wipe any dirt from the BHT housing, charge terminals, BHT or battery terminals and microSD card connector terminals with a dry, soft cloth.

Ensure to turn OFF the BHT before cleaning.

Notes in each part

BHT terminal, charger terminal dirt	Do not touch the BHT or the communication unit terminals by hand or stain them. Doing so could result in malfunction, a contact failure or prevent charging. Periodically clean the terminals of the BHT or the communication unit. And when they got dirty, wipe them away on each time. Wipe any dirt on the charge terminals with a dry, soft cloth (such as a lens cloth) or a cotton swab. But be careful not to damage the charge terminals when wiping them. Never use substances such as benzene, thinner and alcohol. Doing so can cause plating on the charge terminals to be marred.
Housing dirt	Wipe any dirt from the housing with a dry, soft cloth. If excessively dirty, wipe with a soft cloth that has been soaked in soapy water (always use neutral detergent) and wrung out thoroughly. Never use substances such as benzene or alcohol, as this may cause the housing to be marred or paint to peel off.
LCD dirt	Never rub or strike the LCD with anything hard, as this may result in scratches on the screen or breakage.
Keypad dirt	When cleaning the keypad, do not scrub the surface too hard or pull on the keys, as this may break the keys.
Barcode reading window dirt	Any dirt or dust adhering to the clear plate of the barcode reading window will adversely affect reading performance. When using in dusty areas, perform periodic inspections to check whether any dust has accumulated on the clear plate of the barcode reading window, and if so, first blow the dust away with an airbrush, and then gently wipe the plate with a cotton swab or similar soft object. If sand or hard particles have accumulated, rubbing the plate will result in scratches. Blow the particles away with an airbrush or wipe with a soft brush.

6.4.2 Proper Care of the CU

Wipe any dirt from the housing or charge terminals with a dry, soft cloth.

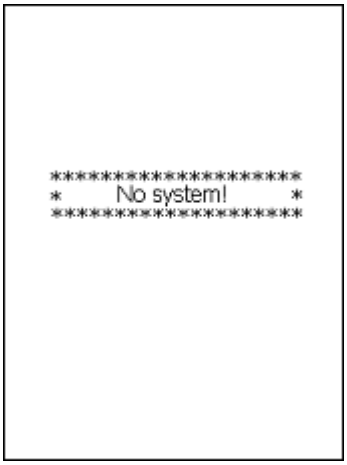
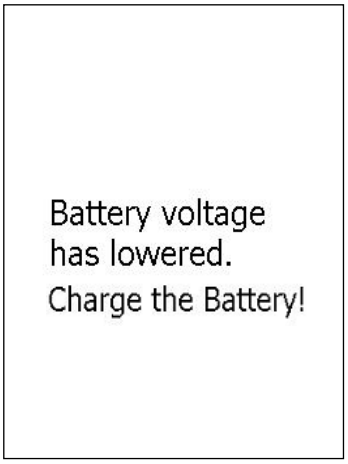
In the interests of safety, unplug the AC adapter from the socket when cleaning the CU.

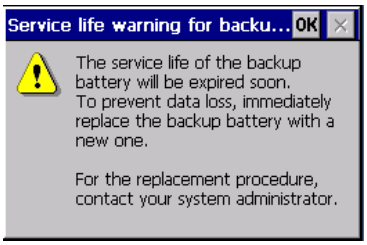
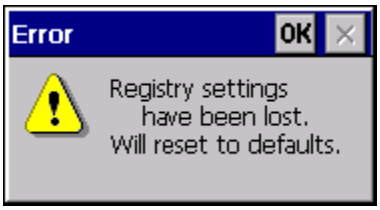
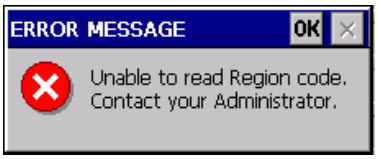
Chapter 7
Error Messages

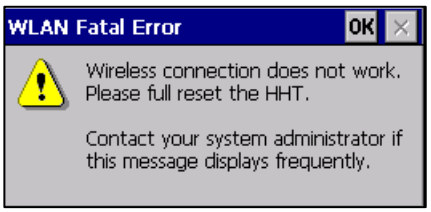
This chapter describes causes and countermeasures for error messages that display during BHT use.
Refer to the BHT API Reference Manual “Section 17.4.4 Error Codes” for the errors while the application is running.

7.1 System Errors

The error messages that display on the screen and the causes and countermeasures to be taken if an error occurs when the power is turned ON or while running a program are shown below. The error message is displayed by the application language in the specific country.

Message	BHT Response	Cause	Countermeasure
	The beeper sounds 5 times (each beep lasts for 0.1 seconds) and then the power turns OFF.	System program abnormality	Notify the system administrator.
	The BHT displays a warning for approximately 2 seconds while sounding the beeper 3 times (each beep lasts for 0.1 seconds) before returning to its normal operational status.	The battery voltage has dropped to a level that requires charging or battery replacement when turning the BHT ON, OFF or while running a program.	The battery will soon need charged. Replace or charge the battery promptly. If the BHT is left with the battery discharged, data including files and settings stored in the RAM may be lost.
	The beeper sounds 5 times (each beep lasts for 0.1 seconds) and then the power turns OFF. Depending on the battery consumption status, the beeper may not sound 5 times.	The battery voltage has dropped to a level that prevents BHT operation when turning the BHT ON, OFF or while running a program.	Replace or charge the battery immediately. If the BHT is left with the battery discharged, data including files and settings stored in the RAM may be lost.

Message	BHT Response	Cause	Countermeasure
	The screen on the left displays when the power is turned ON. – **Note** – The screen on the left does not display. (default setting) Refer to "Chapter 4 System Operation 4.4.3 [8] Startup Config" to change the display setting.	The backup battery discharge count has exceeded the specified number of times and the battery power level has dropped below the stipulated level.	Replace the backup battery. Refer to “Chapter 6 Maintenance” for details.
	The screen on the left displays when the power is turned ON. – **Note** – The screen on the left does not display. (default setting) Refer to "Chapter 4 System Operation 4.4.3 [8] Startup Config" to change the display setting.	If the Registry is lost, it is automatically restored by the OS. The error message on the right displays if the OS fails to restore the Registry (because the Registry has not been backed up).	Reset the registry as required. Follow the section “Chapter 2 BHT Preparation” – “2.5.2 Turning the Power OFF after Registry Backup”, and, backup registry so that the registry value is not lost.
	The screen on the left displays when wireless device is open without setting up wireless region code.	The screen on the left displays when wireless device is open without setting up wireless region code.	Notify the system administrator.

Message	BHT Response	Cause	Countermeasure
	The screen on the left displays when wireless device is working.	Fatal error most likely caused by hardware occurred.	Notify the system administrator.

Chapter 8
Specifications

This chapter describes the BHT specifications.

8.1 Specifications

8.1.1 Hardware Specifications

Power supply (main power):	Rechargeable lithium-ion battery (3.7 V DC)		
Dimensions (W) x (L) x (H):	77 x 235 x 51 mm		
Weight:	Approx. 370g (including standard battery)		
Ambient operating temperature:	-10° to 50° C		
Ambient operating humidity:	20 to 85% (with no dew condensation)		
Ambient operating brightness:	20 to 10,000 lx. Depth of field: 110 mm, EAN-13: 0.33 magnification, PCS value: min. 0.9, Reflection intensity: min. 85% for white and max. 5% for black		
Controller:	CPU:	32-bit RISC	
	RAM:	512MB	
	Flash memory:	2GB	
Keypad:	Numerical keys etc.:		36
	Trigger keys:		2
Display:	Type:	Color TFT LCD (with touch panel and backlight)	
	Formation:	320 dots wide by 480 dots high	
Calendar clock:	Year, month, day, hour, minute, and second		
	Year:	2 digits Auto leap year correction up until 2099	
Scan confirmation:	Indicator LED (red & green & blue), speaker, and vibrator		

(Note) Some of the pixels on the LCD may not illuminate or stay permanently illuminated. Furthermore, there may also be inconsistencies in color and brightness. None of these aspects represent an LCD defect.

8.1.2 Barcode Specifications

Supported Barcode Types

Barcode Type	Bar Dimensions	Scan Magnification
Universal product codes JAN-13 (EAN-13) JAN-8 (EAN-8) UPC-A UPC-E JAN-13 (EAN-13) with add-on JAN-8 (EAN-8) with add-on UPC-A with add-on UPC-E with add-on 2-dgit add-on 5-dgit add-on	Min. 0.26 mm	Min. 0.8
Interleaved 2of5 (ITF) Standard 2of5 (STF) Codabar (NW-7) Code 39	Min. 0.125 mm PCS value ≥ 0.9 Black/white bar reflection intensity difference ≥ 0.8 Min. 0.15 mm (PCS value ≥ 0.45)	
Code 93 Code 128, GS1-128 (EAN-128, UPC-128)	Min. 0.15 mm (PCS value ≥ 0.45)	
MSI	Min. 0.20 mm (PCS value ≥ 0.45)	
GS1 DataBar™ (RSS) GS1 DataBar Omnidirectional GS1 DataBar Truncated GS1 DataBar Stacked GS1 DataBar Stacked Omnidirectional GS1 DataBar Limited GS1 DataBar Expanded GS1 DataBar Expanded Stacked	Min. 0.15 mm (PCS value ≥ 0.9) Black/white bar reflection intensity difference ≥ 0.8	

Required Optical Properties

White bars: Reflection intensity of 45% or higher
Black bars: Reflection intensity of 25% or lower
PCS value of 0.45 or higher

Thickness of Bars and Depth of Field

Minimum Narrow Bar Width	Depth of Field
0.125 mm	100 to 200 mm *1
0.33 mm	20 to 640 mm *2
1.0 mm	to 1300 mm *3

*1 Under the following conditions:
- Ambient brightness: 500 lx. (Xenon arc lamp)
- Code 39, 19-digits
  Narrow bar: Wide bar = 1 : 2.2
- Reflection intensity of white bars: min. 85%
  Reflection intensity of black bars: max. 5%

*2 Under the following conditions:
- Ambient brightness: 500 lx. (Xenon arc lamp)
- EAN-13
- Reflection intensity of white bars: 85% min.
  Reflection intensity of black bars: 5% max.

*3 Under the following conditions:
- Ambient brightness: 500 lx. (Xenon arc lamp)
- ITF conforming to UPC Shipping Container Code
  Narrow bar : Wide bar = 1 : 2.2
- Reflection intensity of white bars: 85% min.
  Reflection intensity of black bars: 5% max.
- 1.0 magnification

8.1.3 Interface Specifications

Connector Interface

Communication method:	USB OTG 2.0, Full-speed compliant RS-232C interface

Bluetooth® Interface

Specification:	Bluetooth® Ver. 2.0 + EDR compliant
RF output:	Class 2 (2.5 mW max.)
Supported profiles:	- DUN-DT - Generic Access - Serial-DevA - Serial-DevB - Service Discovery - FTP - OPP - A2DP - HSP

Wireless Interface

Specification:	IEEE 802.11b/g/n
Frequency bands:	2.412GHz – 2.472GHz
Data rate:	IEEE802.11b: 11/5.5/2/1Mbps IEEE802.11g: 54/48/36/24/18/12/9/6Mbps IEEE802.11n: 65/58.5/52/39/26/19.5/13/6.5bps (The data rate is automatically controlled.)

Chapter 9
Appendices

This chapter describes the CU-1100 Series.

9.1 CU-1100 Functions

The CU-1100 Series communication unit is available in two models: the CU-1111 and CU-1133.
The CU-1100 Series is equipped with the following functions.

1) Data exchange function

The CU-1111 exchanges data and programs between the BHT and host computer via Ethernet.

The CU-1133 exchanges data and programs between the BHT and host computer via USB / RS-232C.

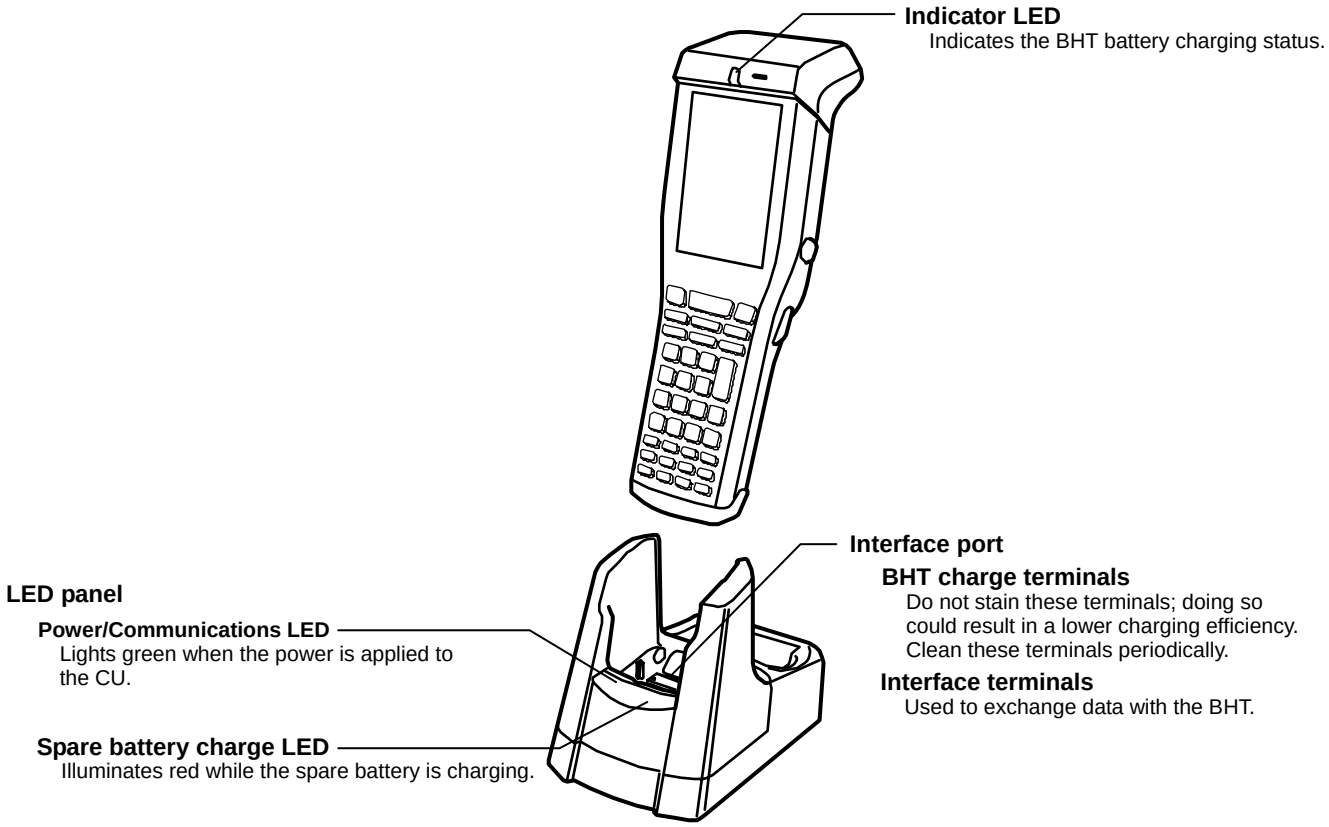
2) BHT charging function

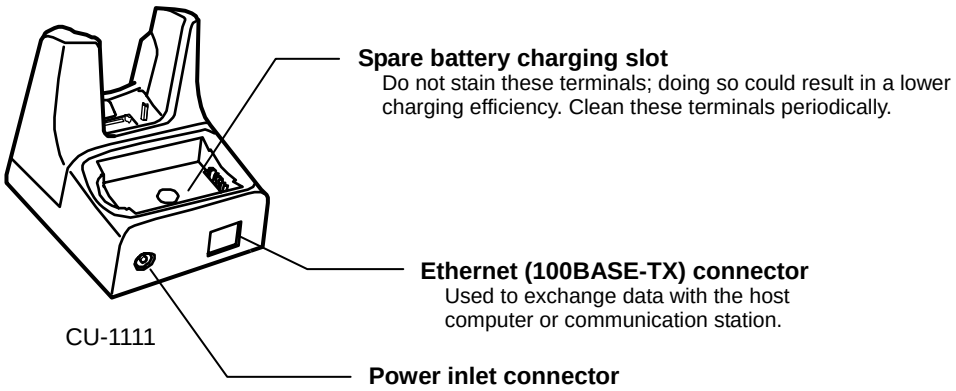
The battery is charged while loaded in the BHT.

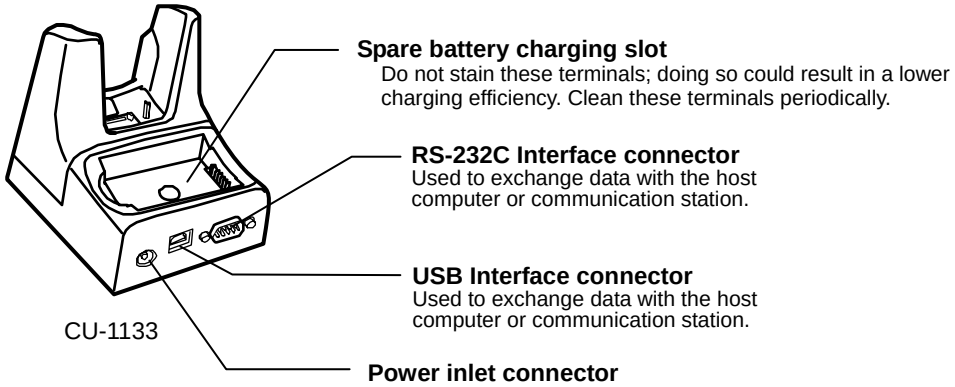
3) Battery charging function

The spare battery is charged on the spare battery charging slot,

9.2 Components and Functions

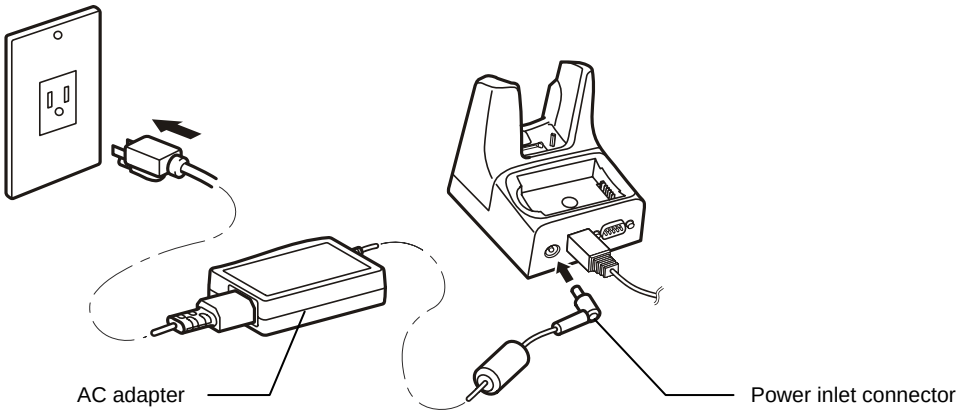






9.3 CU-1100 Power Supply

Power for the CU is supplied from a wall socket via the dedicated AC adapter.
Connect the outlet plug of the AC adapter to the power inlet connector of the CU, and then plug the other end into the wall socket.



⚠ WARNING

Mishandling of the CU may result in electric shock, overheating or smoke generation. Please read the following items prior to use.

- Never disassemble or modify the CU.
- Never place the CU in a microwave oven or high-pressure container.
- Never use the CU if smoke, abnormal noises or odors are being emitted.
- If any of the above abnormalities occur, immediately unplug the AC adapter.
- If foreign material or water gets into the CU, immediately unplug the AC adapter from the wall socket or CU.
- If the CU housing is damaged after being dropped, immediately unplug the AC adapter from the wall socket or CU.
- Never use the CU to charge a battery other than the stipulated battery.
- Never connect the output terminals with metal objects and so on.
- Use the dedicated AC adapter only.
- Never use the CU on the line voltage other than that specified.
- Never use the AC adapter if the power cord is damaged (e.g., exposed or broken lead wires).

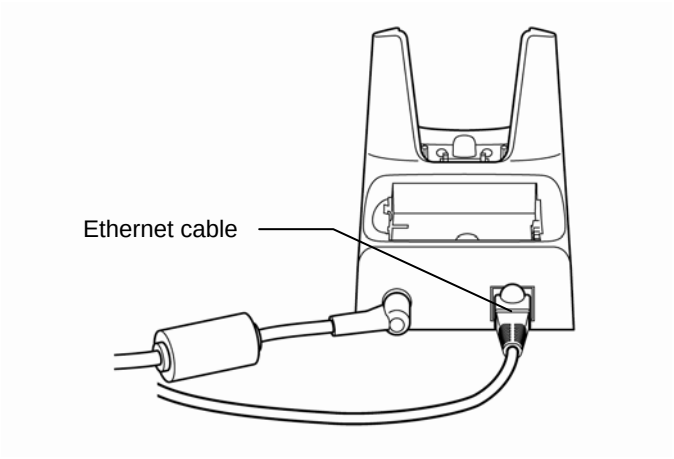
9.4 Communicating with the Host Computer

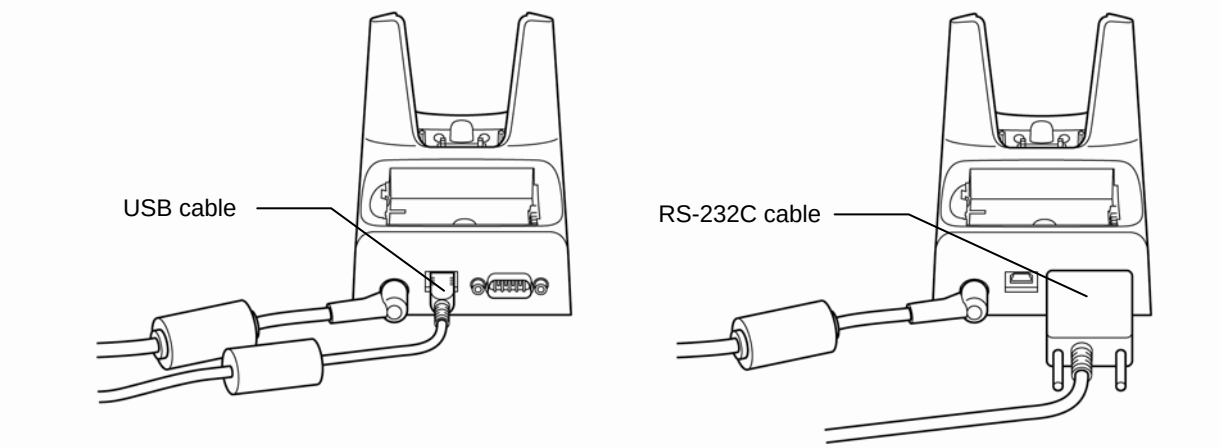
9.4.1 Interface cable connection

1. Unplug the CU-1111 / 1133 AC adapter from the wall socket.

2. Turn OFF the power to the host computer.

3. CU-1111: Connect the Ethernet cable to the CU-1111 Ethernet connector.
   CU-1133: Connect the USB or RS-232C cable to the CU-733 interface connector.



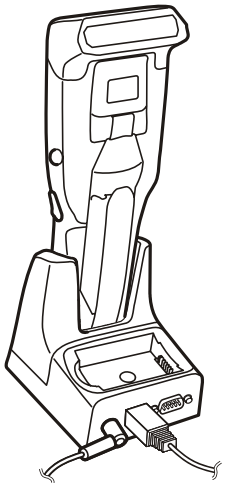


4. CU-1111: Connect the other end of the Ethernet cable to the corresponding port at the Ethernet hub.
   CU-1133: Connect the other end of the RS-232C/USB interface cable to the corresponding port at the host computer.
   The USB interface cable can also be connected to the host computer via a USB hub.

9.4.2 Communication with the Host Computer

This section describes how to communicate with the host computer from the System Menu. The same method applies when communicating using user programs.

1. Turn ON the host computer to run Windows.
2. Plug the AC adapter into the wall socket.
3. Ensure that the BHT power is turned OFF and place it on the CU.



4. At the host computer, start up a communication server program (HTTP, FTP).
5. Turn ON the BHT, and start client software.

   HTTP: Internet Explorer (Desktop)
   FTP: FTP Client (BhtShell - 2: Communication - 3: FTP Client)

6. Communicate in the respective client software.

   (Refer to “Chapter 4 System Operation” – “4.2 for Internet Explorer. Refer to “Chapter 4 System Operation” – "4.4.2 communication menu" for FTP Client.)

   The Power Communication LED on the CU-1111 will start flashing when LAN communication is possible.

9.5 Charging the BHT and the Spear battery

9.5.1 Charging the BHT

The battery is charged while loaded in the BHT.

– Note – Perform charging after turning OFF the BHT.
While turning ON the BHT, charge time sometimes becomes long.

– Note – Battery Service Life

The capacity of the lithium-ion battery used in the battery will gradually deteriorate during the repeated cycles of charging and discharging, even under normal use. Replace the battery with a new one if the power consumption period becomes shorter even after charging for the specified length of time. Generally, battery replacement is early time of required after approximately 300 cycles of charging and discharging or one year later.

1. Turn ON the CU power.

The Power/Communications LED illuminates in green.

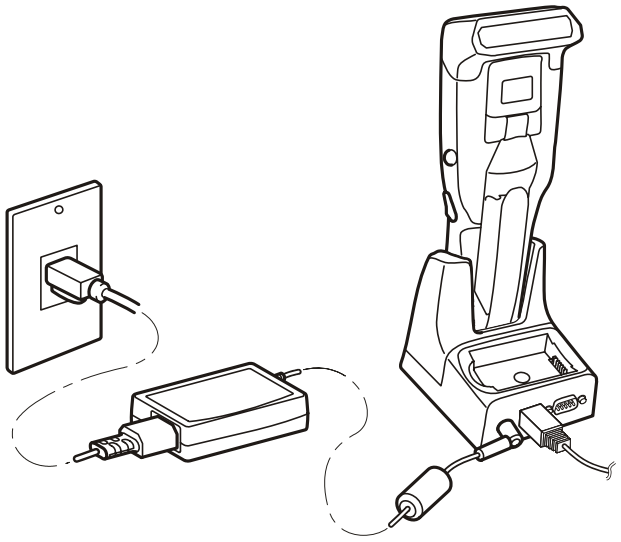
2. Turn OFF the BHT power before placing on the CU.

The Indicator LED on BHT illuminates in red and charging is commenced.

Charging Time

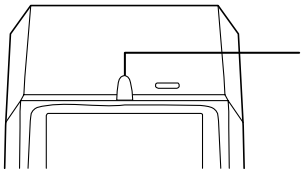
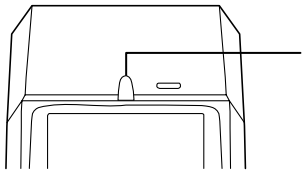
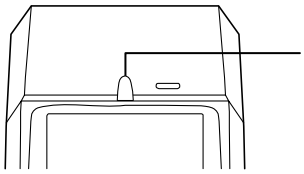
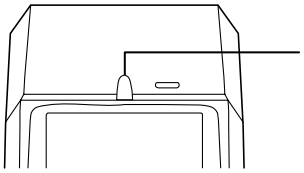
Standard rechargeable battery (BT-110LA)	Approx. 3 hours
Large-capacity rechargeable battery	Approx. 4.5 hours

The Indicator LED on BHT turns green when charging is complete.



3. Remove the BHT from the CU.

9.5.2 Charging Operation and LED Indicators

Operator Action	Charging Status	Indicator LED on BHT
	Standby ⇓	 OFF
Place the BHT on the CU. ⇓	Charging ⇓	 ON (red)
After approx. 3 hours (standard rechargeable battery) or 4.5 hours (large-capacity rechargeable battery) ⇓	Charging complete ⇓	 ON (green)
Remove the BHT.	Standby	 OFF

– Point –

- Charging takes approximately 3 hours (standard rechargeable battery) or 4.5 hours (large-capacity rechargeable battery).
- An only slightly discharged battery should take this time to become fully charged.
- The indicator LED flashing in red indicates the following causes. The proper action stated below must be taken.

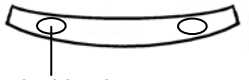
・Abnormal temperature of the battery is detected.
  ・Charge the battery under the proper temperature (10° to 40° C).
  ・Avoid places where there are objects generating heat nearby or exposed to direct sunlight.
  ・Terminate charging and replace the battery if there are no objects generating heat nearby.

・The charge terminals contact failure
  ・Wipe any dirt or dust from the charge terminals as described in “Chapter 6 Maintenance” – “6.4 Daily Maintenance”.

・Charging is not completed even after the specified time has elapsed.
  ・Terminate charging and use a dedicated AC adapter to charge the battery.

・The battery is broken or the battery life has ended.
  ・Replace the battery.

CU
Power/Communications LED



Flashing in green
(1 second interval)

The over current protection circuit stops the charging output current when the charging current exceeds current limit during charging.

The CU Power/Communication LED keep blinking in a 1 second time interval until the AC adapter is unplugged and replugged to reset the over current protection circuit.

Unplug and plug the AC adapter to reset the over current protection circuit.

If the over current protection circuit is activated again, stop using and consult with the system administrator.

9.5.3 Charging the spare battery

The battery is charged in the CU.

1. Turn ON the CU power.

The Power/Communications LED illuminates in green.

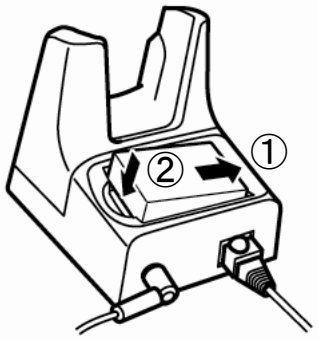
2. Load the battery in the spare battery charge slot of the CU.

The Spare battery charge LED on CU illuminates in red and charging is commenced.

Charging Time

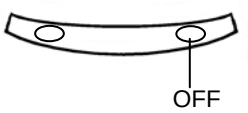
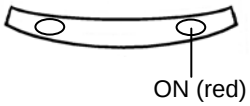
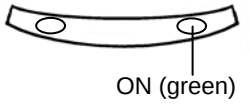
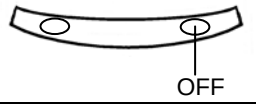
Rechargeable battery	Approx. 3 hours
Large-capacity rechargeable battery	Approx. 4.5 hours

The Spare battery charge LED on CU turns green when charging is complete.



3. Remove the battery from the CU.

9.5.4 Charging Operation and charge LED for Spare battery

Operator Action	Charging Status	Spare battery charge LED
	Standby	 OFF
Load the battery in the spare battery charge slot of the CU.	Charging	 ON (red)
After approx. 3 hours (standard rechargeable battery) or 4.5 hours (large-capacity rechargeable battery)	Charging complete	 ON (green)
Remove the battery	Standby	 OFF

– Point –

- Full charging takes approximately 3 hours (standard rechargeable battery) or 4.5 hours (large-capacity rechargeable battery).
- A slightly discharged battery takes less than 3 hours to fully charge.
- The spare battery charge LED flashing in red indicates the following causes. The proper action stated below must be taken.

・Abnormal temperature of the battery is detected.
 ・Charge the battery under the proper temperature (10° to 40° C).
 ・Avoid places where there are objects generating heat nearby or exposed to direct sunlight.
 ・Terminate charging and replace the battery if there are no objects generating heat nearby.

・The charge terminals contact failure
 ・Wipe any dirt or dust from the charge terminals as described in “Chapter 6 Maintenance” – “6.4 Daily Maintenance”.

・Charging is not completed even after the specified time has elapsed.
 ・Terminate charging and use a dedicated AC adapter to charge the battery.

・The battery is broken or the battery life has ended.
 ・Replace the battery.

9.6 CU Specifications

9.6.1 Hardware Specifications

Power supply:	100/240 V AC, 50/60Hz (12 V DC: Using dedicated AC adapter)
Rated input voltage / current :	12 V DC, 1.8 A
Dimensions (W) x (L) x (H):	94 x 133 x 111 mm
Weight:	Approx. 235 g
Ambient operating temperature:	0 to 40° C
Ambient operating humidity:	20 to 85% (with no dew condensation)

9.6.2 Charging Requirements

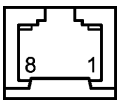
Charge current: Approx. 1150mA

Charge time: Approx. 3 hours (Standard rechargeable battery)

Approx. 4.5 hours (large-capacity rechargeable battery)

9.6.3 Interface Specifications

The CU-1111 has an IEEE802.3-compliant Ethernet interface port (100Base-TX).



Ethernet Port (RJ45 jack) on the CU-1111

Pin No.	Signal	Functions
1	TD+	Send data
2	TD-	Send data
3	RD+	Receive data
4	N.C.	No connection
5	N.C.	No connection
6	RD-	Receive data
7	N.C.	No connection
8	N.C.	No connection

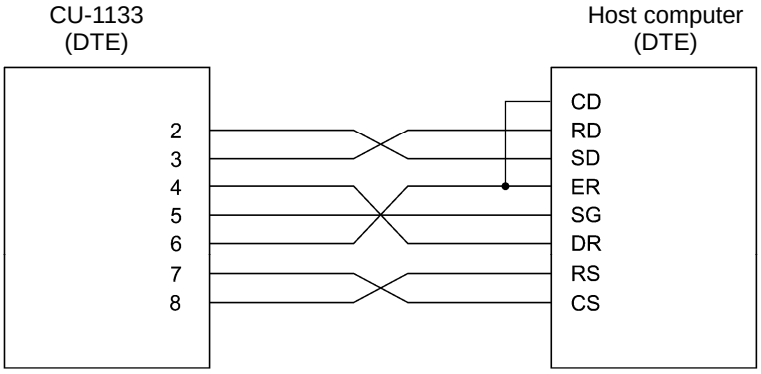
The MAC address of the CU-1111 is printed on the product back side.

9.6.4 Interface Cable

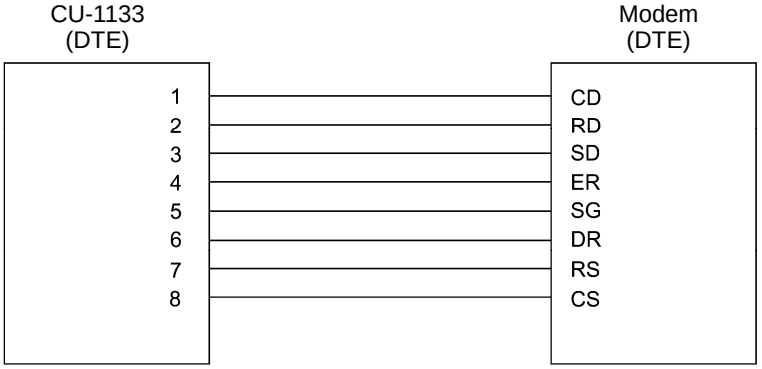
Ethernet: Use a TIA/EIA Category 5 cable or higher one.

USB: Use an interface cable that conforms to USB specifications.

RS-232C: As shown in the diagram below, connect the CU-1133 to the host computer with a cross-mode cable, and to the modem with a straight-mode cable.



Cable connection between CU-1133 and host computer



Cable connection between CU-1133 and modem

DTE and DCE

With RS-232C specification, DTEs (Data Terminal Endpoint) are generally connected by a cross-mode cable, and the DTE and DCE (Data Circuit Endpoint) are connected by a straight-mode cable.
The DTE is a device connected at both ends of a communication line as a sender or receiver of data. This refers to devices such as the BHT placed on the CU-1133 and the host computer.
The DCE is a device connected between the DTE and communication line and terminates communication lines. The DCE converts the respective signals without any change in content. This applies to devices such as a modem or TA.

Barcode Handy Terminal

BHT-1170BWB-CE / BHT-1171BWB-CE

User's Manual

First Edition, February 2012

DENSO WAVE INCORPORATED

The purpose of this manual is to provide accurate information in the handling and operating of the BHT-1170BWB-CE / BHT-1171BWB-CE. Please feel free to send your comments regarding any errors or omissions you may have found, or any suggestions you may have for generally improving the manual.

In no event will DENSO WAVE be liable for any direct or indirect damages resulting from the application of the information in this manual.