ZBA Inc.

Pocket-Sized Personal
Data Collector

User's Manual

without written approval.

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Laser Safety

The portable data terminal complies with safety standard IEC 60825 for a Class I laser product. It also complies with CDRH as applicable to a Class II laser product. Avoid long term staring into direct laser light.

Radiant Energy: The advanced portable data terminal uses a low-power visible laser diodes operating at 650nm in an opto-mechanical scanner resulting in less than 3.9µW radiated power as observed through a 7mm aperture and averaged over 10 seconds.

Do not attempt to remove the protective housing of the scanner, as un-scanned laser light with a peak output up to 0.8mW would be accessible inside.

Laser Light Viewing: The scan window is the only aperture through which laser light may be observed from this product. A failure of the scanner motor, while the laser diode continues to emit a laser beam, may cause emission levels to exceed those for safe operation. The scanner has safeguards to prevent this occurrence. If, however, a stationary laser beam is emitted, the failing scanner should be disconnected from its power source immediately.

Adjustments: Do not attempt any adjustments or alteration of this product. Do not remove the protective housing of the scanner. There are no user-serviceable parts inside.

Caution: Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous laser light exposure.

Optical: The use of optical instruments with this product will increase the possibility of eye hazard. Optical instruments include binoculars, magnifying glasses, and microscopes but do not include normal eye glasses worn by the user.

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1. General Information

1.1. Introduction

Congratulations on your purchase of the Personal Data Collector (PDC) with LCD display. The PDC features a real-time clock, a buzzer, a dual-color status LED, an option for a laser barcode scanning engine or CCD based barcode scanning engine, and a UART port with optional Bluetooth or various communication cables for connection to external equipment.

The on-board 32K non-volatile EEPROM (with an option to upgrade to 64K) provides ample, stable memory space dedicated to storing scanned data. The PDC can retain more than 2000 UPC records including a timestamp.

The Personal Data Collector comes with built-in data collection firmware, called FREETASK, which can scan, store barcodes, and do simple edits on the stored data. Data can be uploaded to a PC through a Bluetooth connection, RS-232 cable, or a USB cable.

WinTaskGen, a software program on the included CD-ROM can be used to create customized programs (Tasks) for download and use with the PDC. A Task can have up to four operation procedures to manage four data forms each with 16 separate data fields.

For more advanced requirements, there are available libraries for developing programs under the Keil C environment. Contact your agent if you are interested in this approach.

1.2. Unpacking
The PDC package should contain:

- 1 ea. Pocket-Sized Personal Data Collector

-1 ea. DB-9(F) serial communication cable (For data upload and download)

- 3 ea. AAA NiMH rechargeable batteries
- 1 ea Power Adapter

-1 ea. CD-ROM support disk

If any package contents are damaged or missing, please contact your dealer immediately.

Optional Accessory

-Bluetooth USB Dongle

-USB-232 or USB-HID cable (To transfer data from PDC to a PC)

1.3. Device Outline

Figure 1: Pocket-Sized Personal Data Collector

1.4. Battery Care

In the interests of providing the best product performance possible, the Personal Data Collector comes with high quality, rechargeable Nickel Metal Hydride (NiMH) batteries and a Power Adapter. After NiMH batteries are installed,

connect the Power Adapter cable and the batteries charge right in the unit.

When installing NiMH batteries for the first time you should charge them fully prior to using the PDC. Please note that new NiMH batteries need to go through three to five charge and discharge cycles before they reach peak performance and capacity. For the first few times that you use new NiMH batteries, you may find that they discharge fairly quickly during use. This is normal until the batteries mature.

It is highly recommended that NiMH batteries always be operated until fully discharged before recharging. If you recharge NiMH batteries before they are fully discharged the long term battery capacity will slowly decrease.

Under favorable conditions, NiMH batteries can last through hundreds of recharges. You will get better performance if you keep the same batteries together. It is not good practice to mix new and old batteries.

Note:

1.   The PDC comes with 3 AAA 700mAH NiMH rechargeable batteries (Use ZBA supplied rechargeable batteries only)
2.   If the PDC remains unused for an extended period (two months or more) the batteries should be removed. Even when the PDC is turned off, there is a very small amount of power consumed, which can, over time, have an adverse effect on batteries.
3.   At the first time using Personal Data Collector (after installing the NiMH batteries), please press and hold both v and ^ keys for 30 sec. to turn on the PDC.

1.5. Bluetooth® Communication

The PDC supports Bluetooth® radio connections via Serial Protocol Profile (SPP). Once the connection between two Bluetooth devices is established then the pair works just like a virtual serial cable

Please make sure the Bluetooth® function is operational on the host device, as well as an application program is installed. If an optional Bluetooth USB dongle is purchased, please refer to a separate product manual in CD for IVT software instruction. For further enquiries, please contact your dealer.

1.5.1. Connection Mode:

Before establishing a Bluetooth® connection between two devices, it is necessary to define which device to be the "Master" during the communication. The "Master" Bluetooth unit is the only device that can initiate a "connect" or "disconnect" command to the "Slave" device. Upon initial power-on the "Slave" device waits for the command from "Master".

1.5.2. Bluetooth Device Address:

Each Bluetooth® device has a unique hex number with 12 digits to identify itself during communication, as so called Bluetooth Device (BD) address. It is essential to set up a target BD address before making a pairing of SPP connection.

1.5.3. Personal Identify Number Code:

A Personal Identify Number (PIN) code is used as a validation password.

1.5.4. Pairing PDC as SPP Master:

When a pairing process is initiated by the PDC, the PDC is known as the SPP Master. The PDC has to know the BD address of a target device to establish a proper communications link.
The PDC will send out the pairing request to the target device. The target device has to reply by the correct PIN code set by the PDC in order to establish a successful pairing connection.

The PDC will show a successful pairing status after receiving positive response from the target device, or a failed connection with negative response. If there is no response then a timeout status will be shown.

1.5.5. Pairing PDC as SPP Slave:

When the PDC is powered on and Bluetooth® is activated, the PDC is ready for the pairing process as a SPP Slave device. A PIN code has to be set in the PDC. During the pairing process, the host device must enter the right PIN code to make a successful pairing.

1.5.6. Connect/Disconnect with Target Devices:

The Bluetooth Master device can initiate connect or disconnect with target (Slave) devices.

1.5.7. Reliable RF Communication:

During transmission, follow a specific protocol. There is a response to each transmission packet which is either, ACK or NAK. ACK indicates "acknowledged", data is received and decoded properly. NAK indicates "non-acknowledged", which corresponds to the fact that data was received but it cannot be recognized. The data protocol is backed by the use of STX and ETX. A data checksum is used to verify if data is valid.

Data Format Packet:

To send a data (record) to the remote application, the data is

7

STX	SEQ	Data	Terminator	CKS	ETX
1 Byte	1 Byte	Variable	1 or 2 Byte	1 Byte	1 Byte

TITLE	**DEFINITION**
STX	Start of packed data 02H
SEQ	Sequential number of packed, Use 020H to 07FH
DATA	Record data
Terminator	Data terminator
CKS	Checksum, valid between 020H to 07FH
ETX	End of packed data 03H

1.5.8. Packet Example:

If a record data is "ABCD" with STX/ETX, SEQ and CKS enable, assume SEQ is '0' (030H) the send out data is format as:

02H + 030H + "ABCD "+ 03AH + 03H

030H + 041H (A) + 042H (B) + 043H (C) + 044H (D) = 013AH

Checksum = 013AH – 080H= **0BAH** ← Still greater than 07FH so repeat

Checksum = 0BAH – 080H= **03AH**

The Checksum is calculated by adding all data bytes in the packet except STX and ETX. If the result is over 07FH (ASCII extend) subtract the result by 080H, if the result is less than 020H (ASCII control code) add 020H to the result. This will make sure that the checksum will be in the range of visually recognizable ASCII characters.

1.5.8 ACK/NAK Control
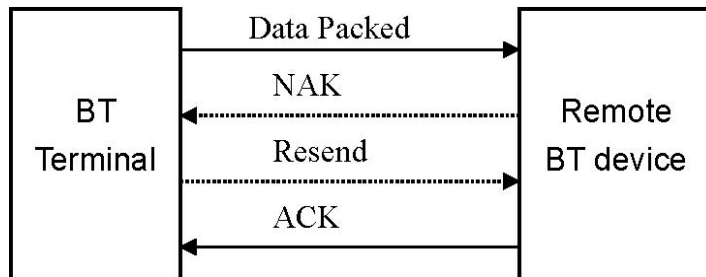
1.5.9. Connection Lost:

If during the communication period there is an extended time where there is no response, the PDC assumes that the connection is lost as would be the case for a TIMEOUT. The PDC will display "Connection Lost".

Ti view the full instructions for Bluetooth® operation, please refer to Device Setup, Communication.

1.6. Use Bluetooth® Dongle

If an optional Bluetooth USB dongle is purchased with PDC, you will find a CD with software from IVT Corporation know as BlueSoleil. If the CD is missing you can go to www.ivtcorporation.com to download the trial version of BlueSoleil.

1.6.1. Software Installation:

From the CD run the setup.exe file and follow the instructions. After the software is installed Plug the dongle into USB port, the dongle should detect the system and the Bluetooth icon will turn blue.

1.6.2. Bluetooth Device Address:

Double click the Bluetooth icon to open BlueSoleil's main window. Place the mouse cursor over the red ball in the center of the window to display the local Bluetooth device's name and address.
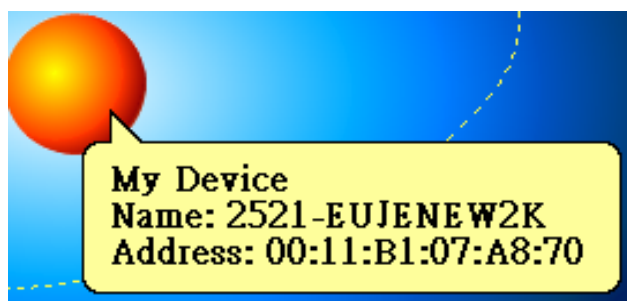

1.6.3. Pairing with SPP Master PDC:

Set the dongle address with PIN code to PDC then start pairing. (Refer to the description "**PDC as Master**" of "**Communication**" of "**Device Setup**" section of this manual.). While pairing a Bluetooth passkey window will pop out. Type the PIN code as passkey to enable remote connection pair. See below picture.
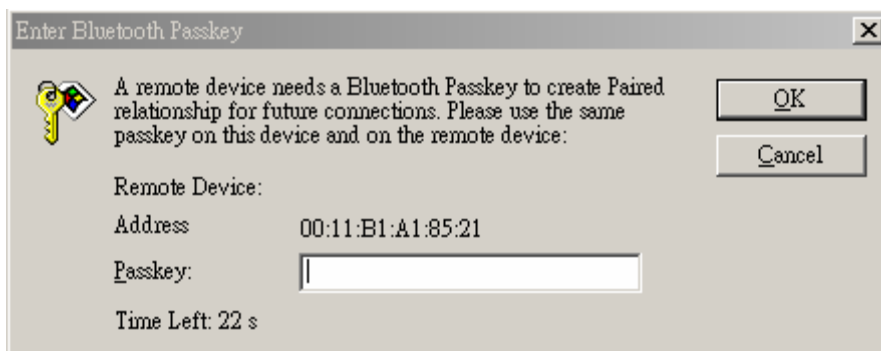
A Bluetooth service Authorization window will pop out. Set always allows the device access to enable and click "Yes".
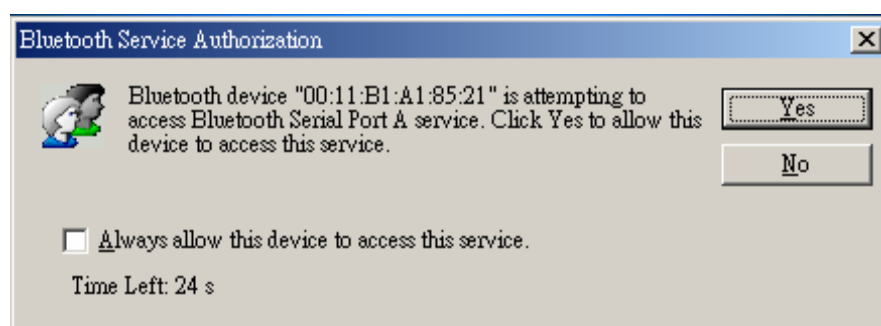
Upon completion of the pairing procedure then you can commence the connect function. The connect message appears at the right corner to indicate the COM port number to connect. Set the COMM port number to the software you used.

*Remote Device (00:11:B1:A1:85:21) has connected to my Serial Port A(COM6) service!

The PDC can start communication with the PC by "WinTaskGen" software or "Upload" mode. Please refer to section "**Use Windows Task Generator**" and "**Upload Data**"

1.6.4. Pairing and Connect to a SPP Slave PDC:

To pair and connect a SPP slave PDC, the slave mode and PIN code must be set prior to operation. Power on the PDC and press **FN** to show "Remote Screen", follow by press **^** to start connect. The PDC operating as a Slave is now waiting for the master dongle to commence communications.
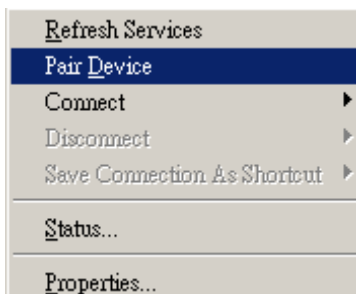
Single-click the red ball in the main window of BlueSoleil, This will start the inquiry process of all Bluetooth devices within radio range. All devices located

within range will have an icon appear in the main window.

Right click the PDC icon to enable device service list, select "Pair Device" to start the pairing operation.
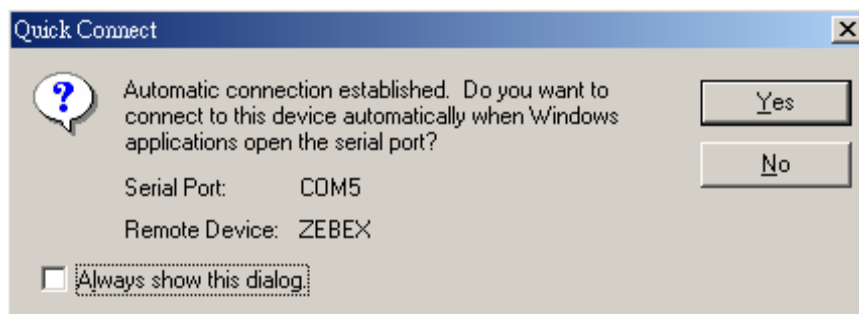

The Bluetooth passkey window will pop out. Type the PIN code as passkey to finish the pair.
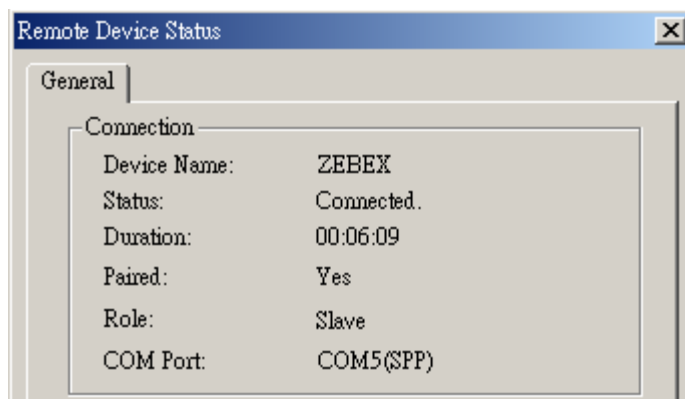
Right click PDC icon and select connect to "Bluetooth Serial Port Service.

A "Quick Connect" window will pop out after a successful connect.

Use PC software to connect with PDC, set the COMM port shown in the "Quick Connect" window. Right click the device icon and select "status" can find the connected COM port number.

2. Getting Started

2.1. Installing Batteries

Press the battery cover lock to remove the battery cover.

Insert batteries according to the orientation picture in the battery cavity

Replace the cover and lock it into place.

Figure 2c: Inserting Batteries

2.2.   Charging Batteries

⚠️**Warning!**

Use the Power Adapter with NiMH batteries ONLY! Connecting the Power Adapter with any other type of batteries in the PDC voids the warranty, damages batteries, can burn up the Personal Data Collector, and could possibly cause harm to persons or property! You may use regular disposable alkaline cells to operate the PDC, but **never mix NiMH with alkaline batteries**, and never connect the Power Adapter when there are disposable (alkaline) batteries in the

unit.

To charge NiMH batteries:

1. With NiMH rechargeable batteries (ONLY!) in the PDC unit, connect the PDC with the Communication Cable.
2. Plug the power adapter connector into the socket on the side of the large end connector of the Communication Cable.
3. Plug the power adapter into an outlet. While charging, the LED on the PDC lights up red. The LED turns off when the batteries are fully charged. Charging takes 3 to 5 hours.

Figure 3: Connecting the Power Adapter

It is normal that the Power Adapter and the NiMH battery cells become warm during charging.

Note: If needed, when NiMH batteries are low, the PDC may be operated with the power adapter connected. Never use the Power Adapter with other types of batteries inside the PDC unit!

2.3 Power On Device to Collect Data

The Personal Data Collector is pre-programmed with a basic data collection program, FREETASK that can read and store barcodes, do simple edits, and upload data to a PC through the Communication Cable.
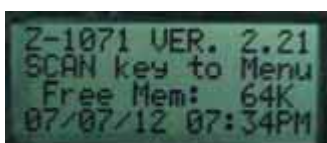
2.3.1. Power On Device

Press and hold the **v** and **^** keys together to turn on the Personal Data Collector. The screen will direct jump to the Power-On scan screen.
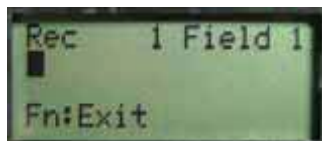
Figure 4: Power On Scan Screen - Press the **FN** key to Remote Screen.

Figure 5: Remote Screen - Then, press **SCAN** to the Main Menu.

Figure 6: Main Menu

2.4. Menu Operation

The menu items show on the LCD in reverse format indicates the current selection. Use **^** and **v** keys to change the item selection and confirm by pressing the **SCAN** key.

Menu Tree List

1. Run Task
2. Delete Data
3. Setup
    1. LCD Contrast
    2. Beep Volume
    3. System Clock
    4. Barcode Set
    5. Communication
    6. Auto Power Off
4. Upload Data

Select the **Run Task** under Main Menu. The LCD shows <Rec>, for record number, and is ready to scan and collect data.

2.5. Scan Barcode

Select **1. Run Task**   →Enter into data input

Press **SCAN** key under Main menu mode.

Scan barcode.
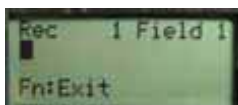
Aim the PDC at the targeted barcode. It is good practice to slowly sweep the red light vertically across the barcode
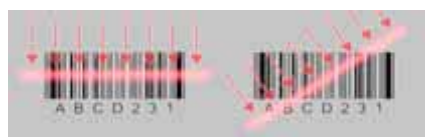
Correct   wrong

Upon a successful decode, the PDC will emit a short beeping* sound and release the Scan key and the good read LED flashes green, the data will display on the LCD for a short period and then the scanner will prepare for the next scan.
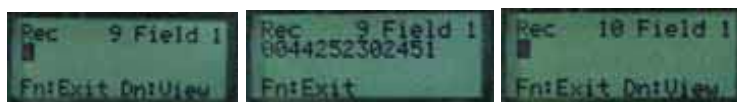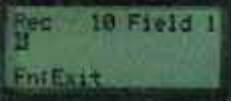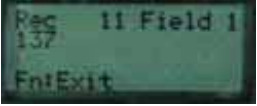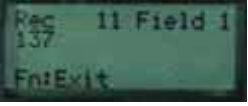

* Only if Beep Volume is activated. Please refer to Device Setup, Beep Volume.

Figure 7: FREETASK Screen

2.6. Keying in Data

When requiring to key in data manually, there are two modes of data, press the ^ key.

Mode One:		
Press **^** key once start edit numeric	Cursor digit add by one each **^** key	Press **v** to move cursor right 1 digit
Empty digit cause cursor back to start	Press **Scan** key to confirm input data	Press **FN** to give up and back to "input"
Mode Two:		
Press and hold **^** key to run numbers	Release to stop	Press **^** keys to increase data

Press **v** keys to decrease data	Press **Scan** key to confirm input data	Press **FN** to go mode one
Rec 11 Field 1 137 Fn:Exit	Rec 11 Field 1 137 Fn:Exit	Rec 11 Field 1 13■ Fn:Exit

| **Data Storage**
 The PDC can retain more than 2,000 records.
 To review stored data, press the **^** key.
 To end review of stored data, press the **FN** key.
 To exit scanning mode, press the **FN** key.
 To view scanned data: |||

Press **v** key in input mode to start view	Use **^** key move to previous record	Use **v** keys move to next record
Rec 10 Field 1 4000 <CURRENT REC.>+	Rec 9 Field 1 0044252302451 Fn:Exit S+F:Help	Rec 10 Field 1 4000 <CURRENT REC.>+
Use **Scan + ^** key edit field data, **FN** to exit	Use **Scan + v** key for 2 seconds to delete record data	Press **FN** key to exit to input mode Record 10 deleted
Rec 10 Field 1 5000 Fn:Exit Edit	Rec 9 Field 1 0044252302451 <CURRENT REC.>+	Rec 10 Field 1 ■ Fn:Exit Dn:View

2.7. Upload Data

There are three kinds of interfaces to upload data, Bluetooth®,
RS-232 and HID. Once a communication device is set up (please refer to Device Setup, Communication), PDC will automatically detect its readiness before starting uploading data.
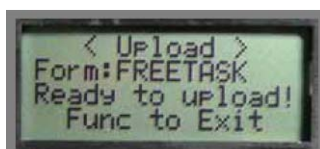
```
< Upload >
Form:FREETASK
Ready to upload!
   Func to Exit
```

Figure 8: Upload Data

2.8. Upload Data with Windows Software

You can also upload data by specified PC software, please refer to section Use WinTaskGen.

2.9. Delete Data

Use **v** and **^** keys to commend "Y" (yes) or "N" (no) to delete data. Follow by **SCAN** key to confirm.
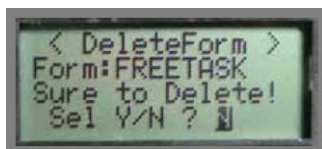

Figure 9**: Delete Data**

Use **v** and **^** keys to adjust the LCD contrast from 1 to 22. Follow by **SCAN** to confirm.

2.10. Power Off Device

1.   To turn off the Personal Data Collector, press and hold **FN**

3. Device Setup

Select **3.** Setup under Main Menu to enter Setup sub-menu.

3.1. LCD Contrast

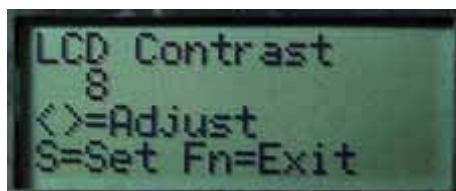Use **v** and **^** keys to adjust LCD contrast from 1 to 22. Follow by **SCAN** to confirm.

Figure 10: LCD Contrast

3.2. Beep Volume

Use **v** and **^** keys to select Volume from Low, Medium, Loud and Quiet. Follow by **SCAN** to confirm.

Figure 11: Beep Volume

3.3. System Clock

Set Date Set Time Use **^ and v** key

3.4. B*arco*de Setup

Use **SCAN** key to confirm setting and to go through different types of barcode, EAN/UPC, Code 39, Codabar, ITF 25, Code 128, Code 93, RSS14, RSS14 Expanded, RSS14 Limited. Press **v** and **^** keys to select On/Off.
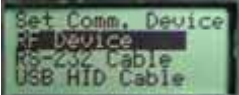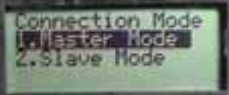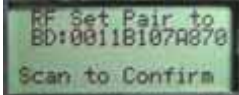
Figure 12: Barcode set-up

3.5. Communication

3.5.1. Select Communication Device

There are three kinds of interface for communication, Bluetooth®,
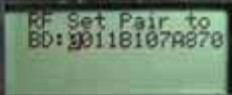
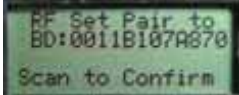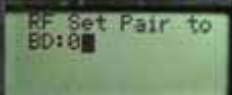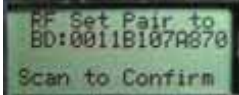RS-232 and HID. The Bluetooth® includes master and slave mode SPP profile will simulate a wired RS232 interface or USB-HID. The USB-HID Profile is the same as USB keyboard can easy adapt to any host computer like any standard keyboard.
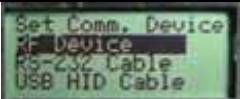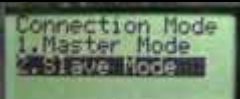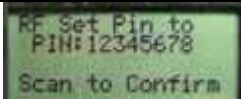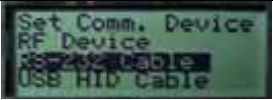
3.5.2.RF Device – PDC as Master
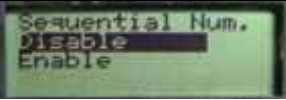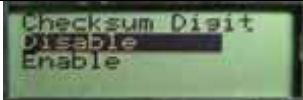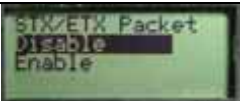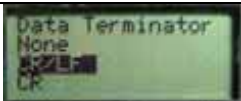
Select **RF Device**	Select **1. Master Mode**	Previously paired BD is shown
Set Comm. Device / RF Device / RS-232 Cable / USB HID Cable	Connection Mode / 1.Master Mode / 2.Slave Mode	RF Set Pair to / BD:0011B107A870 / Scan to Confirm
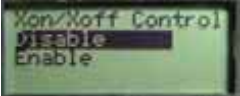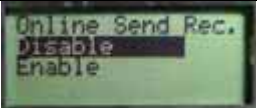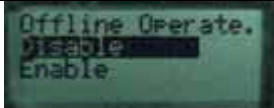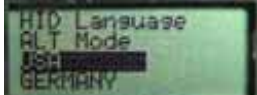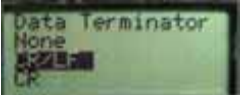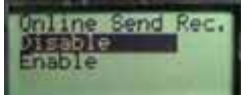
.**Modify existing BD:**

Press **^** key to modify BD at Edit mode.	Hexadecimal character **v**: move cursor **FN**: undo all **SCAN**: confirm	Press SCAN to confirm again, or v, ^ or FN to edit mode.
RF Set Pair to / BD:0011B107A870 / Up:Edit DN:Clr / SC:Scan FN:Exit	RF Set Pair to / BD:0011B107A870	RF Set Pair to / BD:0011B107A870 / Scan to Confirm
Enter new BD		
Press **v** key to clear existing BD at Edit mode.	**^**: Hexadecimal **v**: move cursor **FN**: undo all **SCAN**: confirm	Press **SCAN** to confirm again, or **v**, **^** or **FN** to edit mode.
RF Set Pair to / BD:0011B107A870 / Up:Edit DN:Clr / SC:Scan FN:Exit	RF Set Pair to / BD:0■	RF Set Pair to / BD:0011B107A870 / Scan to Confirm
SCAN new BD:		
Press **SCAN** key to enter scanning mode	Point at a targeted barcode and press **SCAN**	Press **SCAN** to confirm

RF Set Pair to BD:0011B107A870 Up:Edit DN:Clr SC:Scan FN:Exit	*ABCO201*	RF Set Pair to BD:0011B107A870 Scan to Confirm

Set PIN code:		
Previously paired PIN is shown. Press **v**, **^** or **FN** and enter to edit mode.	Same as setting BD. **^** key to modify existing PIN. **v** key to clear existing PIN. **SCAN** key for scanning a new PIN. Followed by **SCAN** to confirm.	
RF Set Pair to PIN:12345678 Scan to Confirm	RF Set Pair to PIN:12345678 Up:Edit DN:Clr SC:Scan FN:Exit	
Pairing to Slave Device:		
BD and PIN are shown. Press **SCAN** to confirm. RF Set Pair to BD:0011B107A870 PIN:12345678 Scan to Confirm	Press **SCAN** to start pairing or **FN** to exit. RF Pairing to BD:0011B107A870 PIN:12345678 Scan Key Start	Starting pairing to slave device RF Pairing to BD:0011B107A870 PIN:12345678 Wait...
Pairing fail RF Pairing to BD:0011B107A870 PIN:12345678 Fail...-4	Pairing Success Try connect RF Connect Please Wait... Func Key Exit	Connect to slave Success RF Connect Connect OK!

3.5.3. RF Device – PDC as Slave

Select **RF Device**	Select **2. Slave Mode**	Previous PIN is shown.
Set Comm. Device RF Device RS-232 Cable USB HID Cable	Connection Mode 1.Master Mode 2.Slave Mode	RF Set Pin to PIN:12345678 Scan to Confirm
The communication parameter is same as the RS-232 setting.		

3.5.4. RS-232 Cable

Select **RS-232 Cable**	Disable/Enable **Sequential Num.** Press **SCAN** to select	Disable/Enable **Checksum Digit**. Press **SCAN** to select
Set Comm. Device RF Device RS-232 Cable USB HID Cable	Sequential Num. Disable Enable	Checksum Digit Disable Enable
Disable/Enable **STX/ETX Packet**. Press **SCAN** to Select	If enable STX/ETX you will asked set Add Terminator.	Select **Data Terminator**. Press **SCAN** to confirm
STX/ETX Packet Disable Enable	Add Terminator Disable Enable	Data Terminator None CR
Disable/Enable **Xon/Xoff Control**. Press **SCAN** to select	Dis/Enable **Host ACK/NAK**. Press **SCAN** to select	Set **Host Response** time. Press **SCAN** to select

(Xon/Xoff Control / Disable / Enable)	*(Host ACK/NAK / Disable / Enable)*	
Dis/Enable **Online Send Rec.** Press **SCAN** to select	Disable/Enable **Offline Operate.** Press **SCAN** to select	
(Online Send Rec. / Disable / Enable)	*(Offline Operate. / Disable / Enable)*	

3.5.5. USB HID Cable

Select **USB HID Cable**	Set **HID Language**. Press **SCAN** to select	Set **Delay Setup**. **^**: numbers and letters **v**: move cursor **FN**: undo **SCAN**: confirm
(Set Comm. Device / RF Device / RS-232 Cable / USB HID Cable)	*(HID Language / ALT Mode / USA / GERMANY)*	*(Delay Setup / 00050 / Scan:Set FN:Exit)*
Set **Data Terminator**. Press **SCAN** to select	Disable/Enable **Online Send Rec.** Press **SCAN** to select	Disable/Enable **Offline Operate.** Press **SCAN** to select
(Data Terminator / None / CR/LF / CR)	*(Online Send Rec. / Disable / Enable)*	*(Offline Operate. / Disable / Enable)*

3.6. Auto Power off

Use **v** and **^** keys to select the wait time of Auto Power off. Select to the setting of 1, 3, 5, 10, 30 minutes or Disable. Follow by **SCAN** key to confirm.
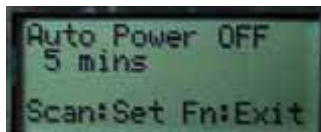

Figure 13: Auto Power Off

3.7. Default Parameters

The default settings will be restored whenever performing the "**User reset**" operation. The "**Comm. Device**" parameter will not be changed by the reset operation and the parameter tables are different according to different communication devices.

Parameter	Default
Basic parameter	
LCD Contrast	8
Beep Volume	Loud
Auto Power OFF	5 min.
Barcode Set	
EAN/UPC	Enable
CODE 39	Enable
Codabar	Enable
ITF 25	Enable
Code 128	Enable
Code 93	Enable
MSI Code	Enable
RSS14	Disable
RSS14 Expanded	Disable
RSS14 Limited	Disable

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Communication	
RF Device	
Communication Mode	Master
Sequential Num.	Disable
Checksum Digit	Disable
STX/ETX Packet	Disable
Send Terminator	Disable (STX/ETX on only)
Data Terminator	CR/LF
Host ACK/NAK	Enable
Host Response	300 mS (ACK/NAK on only)
Online Send Rec.	Disable
Offline Operate	Disable (Online enable only)
RS-232 Cable	
Sequential Num.	Disable
Checksum Digit	Disable
STX/ETX Packet	Disable
Add Terminator	Disable (STX/ETX on only)

Data Terminator	CR/LF
Host ACK/NAK	Enable
Host Response	300 mS (ACK/NAK on only)
Online Send Rec.	Disable
Offline Operate	Disable (Online enable only)
USB-HID Cable	
HID Language	USA
Delay Setup	50 mS
Data Terminator	CR
Online Send Rec.	Disable

Offline Operate	Disable (Online enable only)

3.8 User Reset

While the PDC is powered off, press and hold the **SCAN** key for more than 1.5 Sec. As soon as the green LED lights-up, press the **FN** key. Then, the user reset screen will appear. Press **SCAN** key to confirm reset.
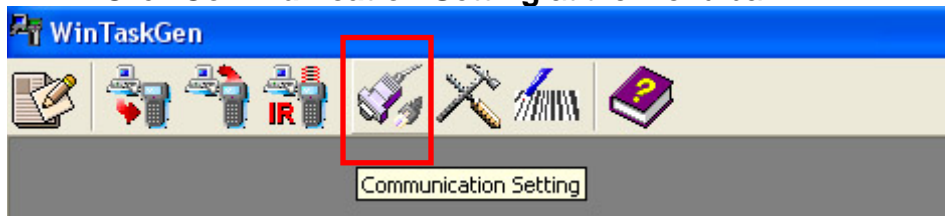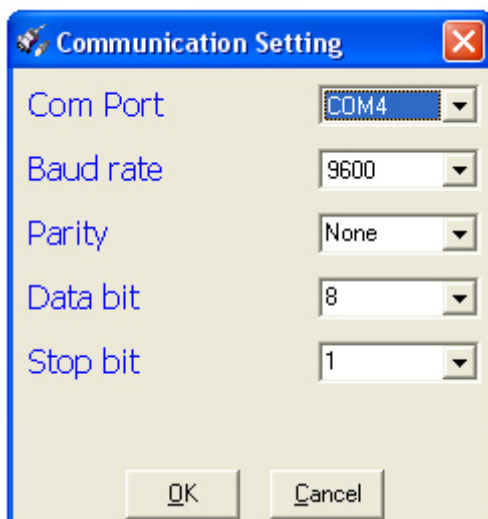
4. Use Windows Task Generator

Before using WinTaskGen for communication, power on the PDC and press FN to enter the "Remote Screen". Press ^ key to connect or disconnect with host, the green LED indicates the connect status.
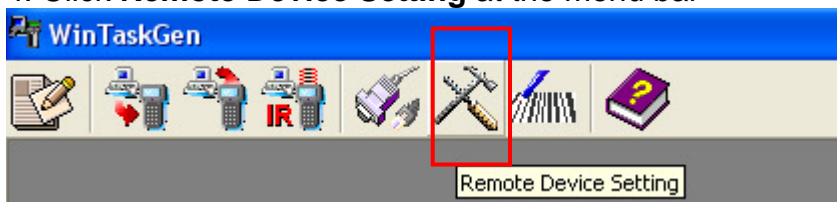
1.   Click **Communication Setting** at the menu bar.

2.   A setting window pops up. Select the correct Com Port that the PDC is connected to.
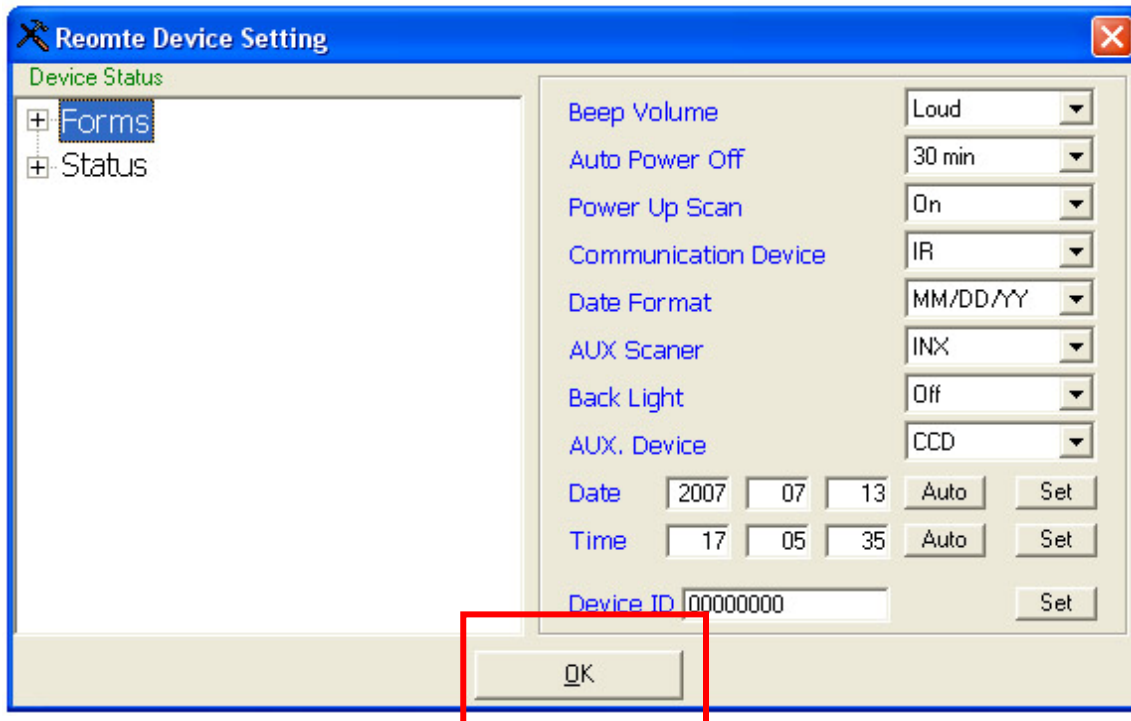
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3.   Press **OK** to confirm

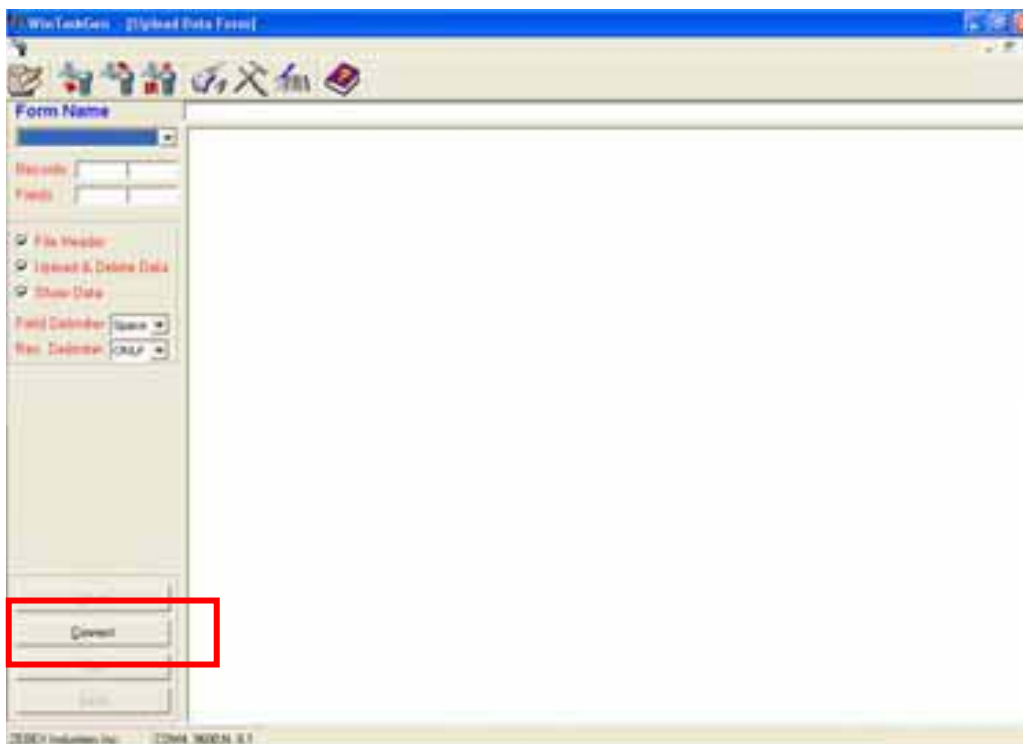4. Click **Remote Device Setting** at the menu bar

Another setting window pops up. In this window, you can remotely change PDC settings. Press **OK** to confirm any changes.
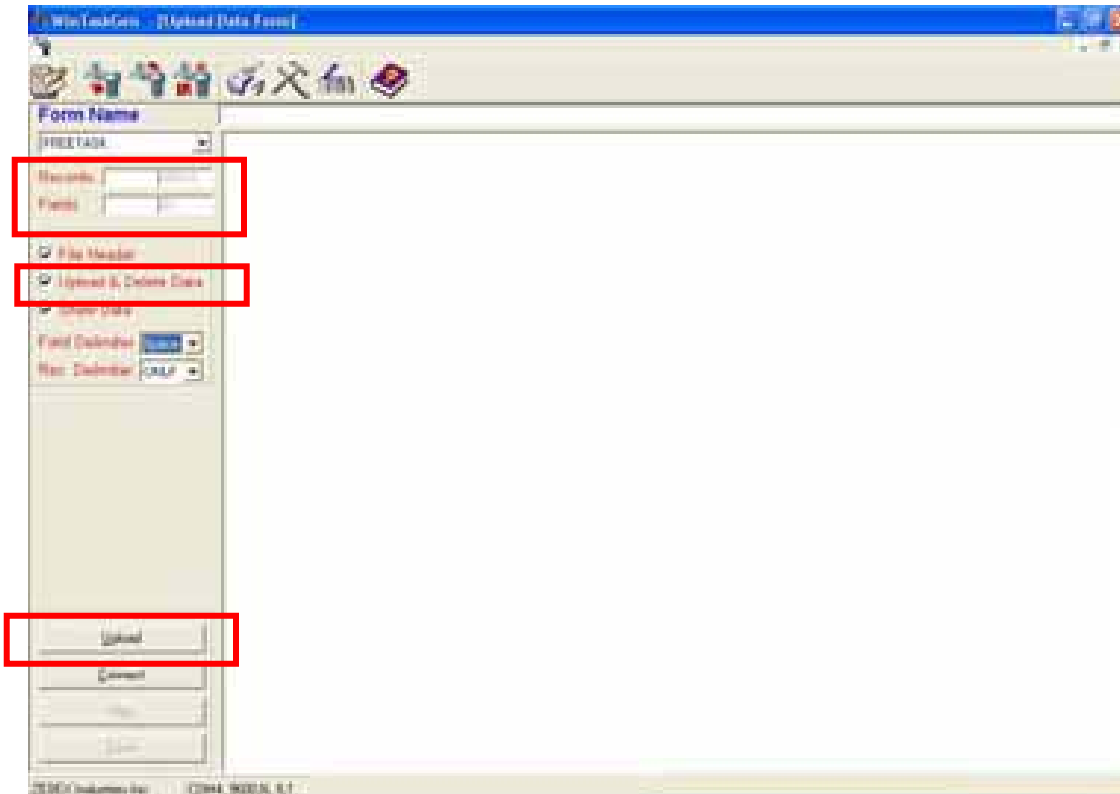
5. Click **Upload Data**.

6. Press **Connect** to connect the PC with the PDC.

7. Once connected, the numbers of Records and Fields inside the PDC are shown on the left top. If **Upload & Delete Data** is selected, those stored data will be deleted soon after uploading to a PC. Press **Upload** to start uploading.

8. When uploading is completed, all data will be displayed in the main window, and **Upload Finished** pops up.
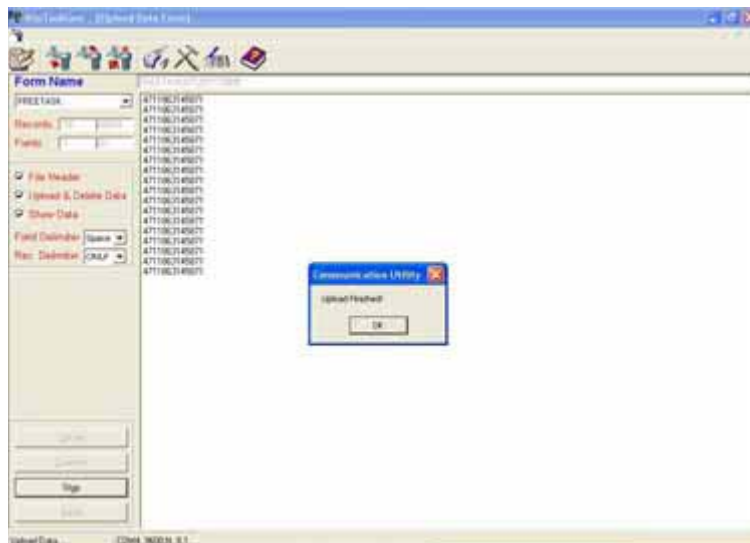
5. Maintenance

This device provides reliable and efficient operation with minimum amount of care. Although specific maintenance is not required, the following precautions need to be ensured.

5.1. Cleaning the Window and Housing

Any visible dirt, or scratch on the scan window will degrade reading performance, therefore do not use abrasive wipes or tissues on the window. When the device is not operating, use a soft cloth or lens tissue and gently wipe the scanning window lens.

Do not spread liquid or submerge into liquid under any circumstance.

Never use solvents (e.g., acetone, benzene, ether, or any kind of phenol-based agents) on the housing or window, solvents may damage the housing finish and the window.

5.2. Inspecting on Interface Cables

Regularly inspect the interface cables and its connectors, a badly worn or damaged cable or connecters may interference with the devices operation. Contact your distributor for information on cable replacement.

5.3. Battery

The lifetime of rechargeable batteries is related to the total number of times the batteries are recharged. In general, we recommend charge the device at the regular intervals depending on the amount of usage. Heavily used units may need to be charged at the end of each working day, or sooner as indicated by a low battery warning. Lightly used units may go several days between charging.