

ECG Viewer Manager

User Manual

Introductions to User

Dear Users,

Thank you very much for purchasing our Easy ECG Monitor series products. This manual is intended to assist the user in uploading ECG Data from Easy ECG Monitor to PC in a safe and effective manner. Please read this manual carefully before running the system, and follow it to operate.

The Manual is published in English and we have the ultimate right to explain the Manual. No part of this manual may be photocopied or modified without the prior written consent. We reserve the right to improve and amend it at any time without prior notice.

Version of the Manual: Ver1.7

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ECG Viewer Manager is an application software running on a personal computer with Microsoft Windows operating system, so the user should be acquainted with some knowledge to operate computer.

3502-3430003

Information for Operation

- **Please make sure that there is at least one ECG record saved in the Easy ECG Monitor before data upload.**
- **Power up Easy ECG Monitor and enter into "Connecting to PC" screen by menu operation before uploading data.**
- **While installing printer driver, please quit the ECG Viewer Manager software if it's running.**

Note: Connect/Disconnect data cable to the monitor gently and carefully, do NOT wring or shake the data cable plug with force to insert into or unplug from data interface port.

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1 Overview

1.1 Functional features

The waveforms and data saved in **Easy ECG Monitor** which have been uploaded to PC through ECG data cable can be managed and measured by ECG Viewer Manager. It is convenient for user to view records, measure and save data (including waveform, heart rate and analysis result).

1.2 Operating Condition

Requirement for Hardware:

PC configuration:

PC main board with Intel Pentium III CPU, 800MHz clock or higher; 256MB or higher memory; CD-ROM drive; at least 1GB space available in the hard disk to install ECG Viewer Manager software.

Requirement for Operating System:

Microsoft Windows XP, Windows 2000 or Windows Vista

1.3 Procedure of Data Acquisition

1. Install "ECG Viewer Manager" soft ware and "USB Driver" (see section 2 Installation, Connection and Settings for details).
2. Set the resolution of screen display as "1024×768" pixel.
3. Start the **Easy ECG Monitor** and enter into upload data screen, as shown in Figure 1-1.

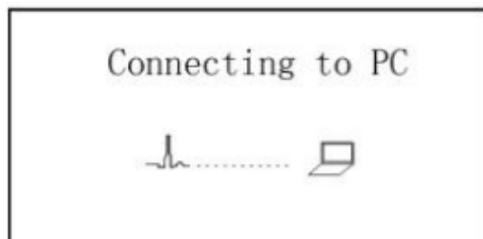


Figure 1-1

4. Device connection (refer to Figure 2-14).
5. Double-click ECG Viewer icon " " to start running ECG Viewer Manager Software and on the main menu screen click "Archive Management" to add a new user archive.
6. Click "Data Acquisition" button to acquire ECG data, and then add the data to user archive for saving.
7. Click "ECG Review" button to review and browse ECG records.

2 Installation, Connection and Settings

2.1 Installation of ECG Viewer Manager

Insert the CD-ROM which contains the installation software into CD-ROM drive, the software installation will be automatically running or directly running the program "setup.exe" in the root directory of CD-ROM drive, then the window of "ECG Viewer Setup" will be prompted on the screen as shown in Figure 2-1A. Selecting the installation equipment of PC80A B/Prince 180A B to enter into the installation screen, as shown in figure 2-1B.

Note:

The model name of PC80A B/Prince 180A B is applied to the model of PC-80A, PC-80B, Prince 180A and Prince 180B.

The model name of PC80D/ Prince 180D is applied to the model of PC-80D and Prince 180D.

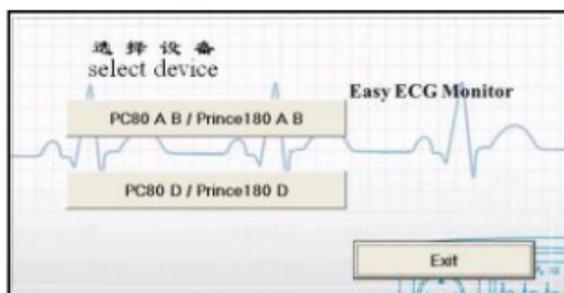


Figure 2-1A ECG Viewer Setup Screen



Figure 2-1 ECG Viewer Setup Screen

According to your need select corresponding language version to install software. Click "English" installation program to install software of English version, please follow the instruction to install, installing screens are shown below:

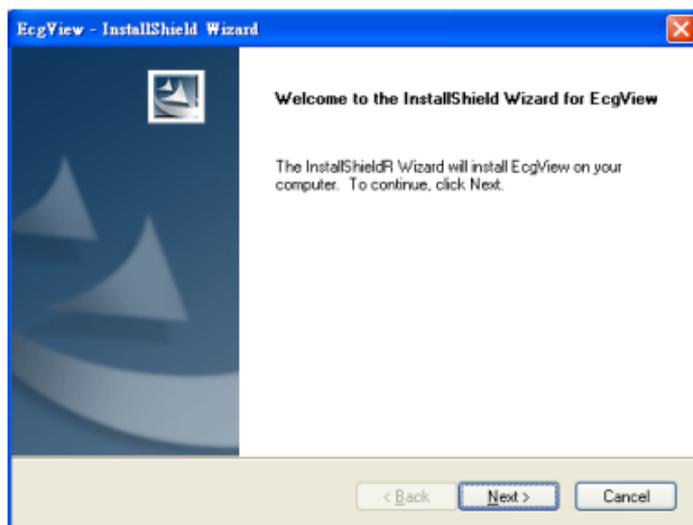


Figure 2-2

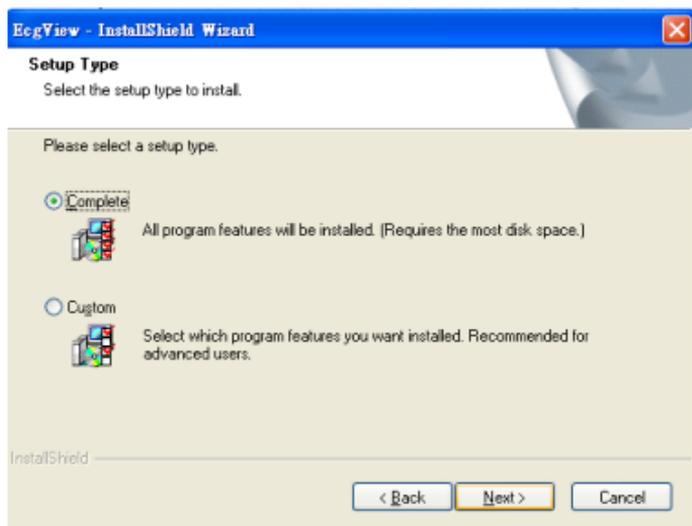


Figure 2-3

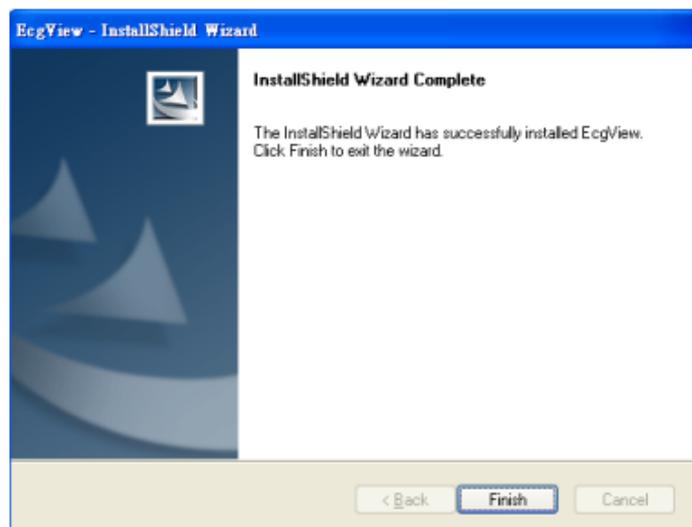


Figure 2-4

Note: If user use default installation "Complete", the installation file saved in operating system disk "\Program File\ECG Viewer". If user doesn't want to use default installation, please select "Custom" and click "Next" to choose the root for saving installation file on the screen as shown in Figure 2-3.

2.2 Installation of USB Driver

When clicking the "Finish" button to finish the installation of ECG Viewer Manager, the initial operation of USB driver procedure will run automatically, the initial screen is as shown in the following Figures.



Figure 2-5

Follow the instructions to install USB Driver, as shown in Figure 2-6, Figure 2-7 and Figure 2-8.

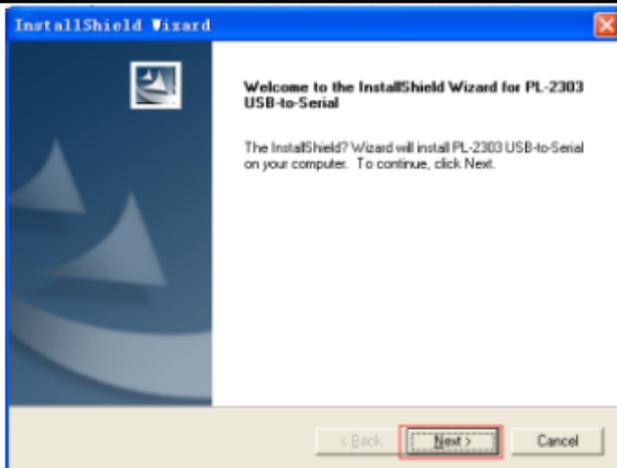


Figure 2-6

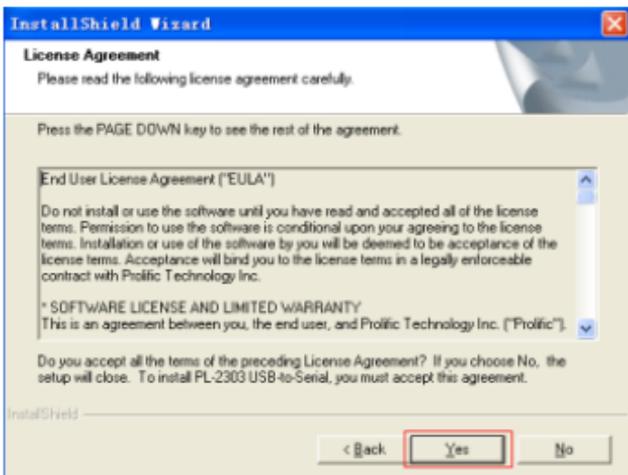


Figure 2-7

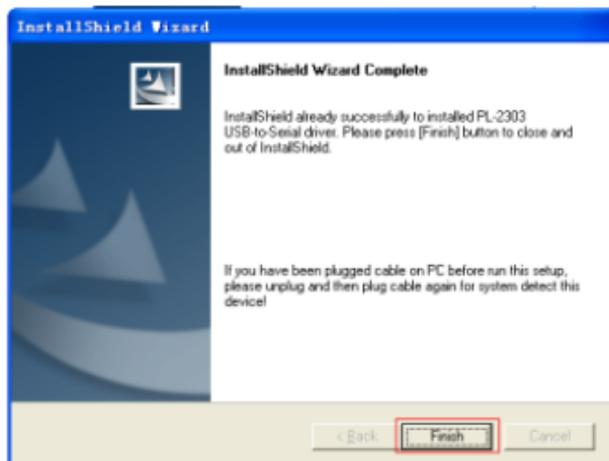


Figure 2-8

If the USB driver is installed, the window as shown in Figure 2-9 prompts. Choose "Re-install (Upgrade)" "or" Exit Setup" and then follow the instructions.



Figure 2-9

2.3 Setting Display Properties of PC

After entering into Windows operating system desktop, click the right key of the mouse, the desktop springs a quick menu, then move the cursor to select "Properties". Choose "Settings" on the "Display Properties" window, then set the "Screen resolution" option as "1024 by 768 pixels", and set the "Color quality" option as 16bit at least, as shown in Figure 2-10.

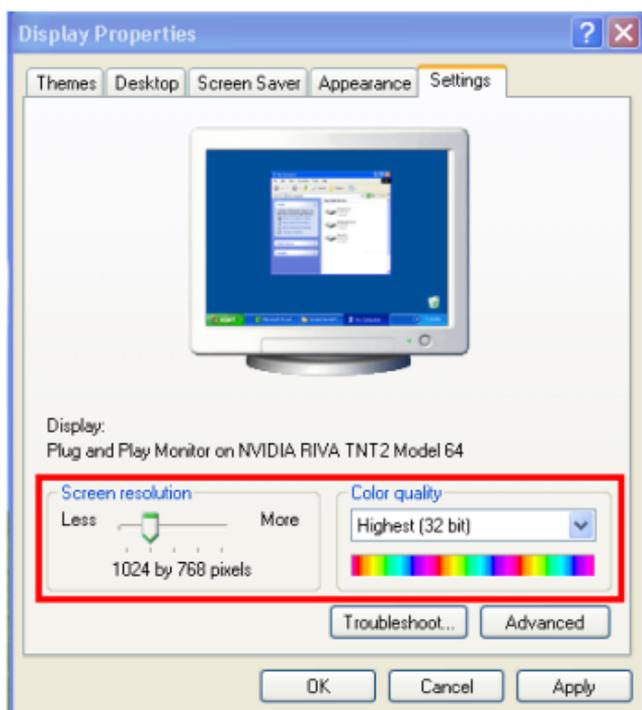


Figure 2-10 Display Properties Setup

2.4 Notices for Using "Windows Vista" Operating System

For normal operation of the software, you need to disable "User Accounts Control" (UAC) function by the following steps:

1. Open "Control Panel" from the start menu, as shown in Figure 2-11;

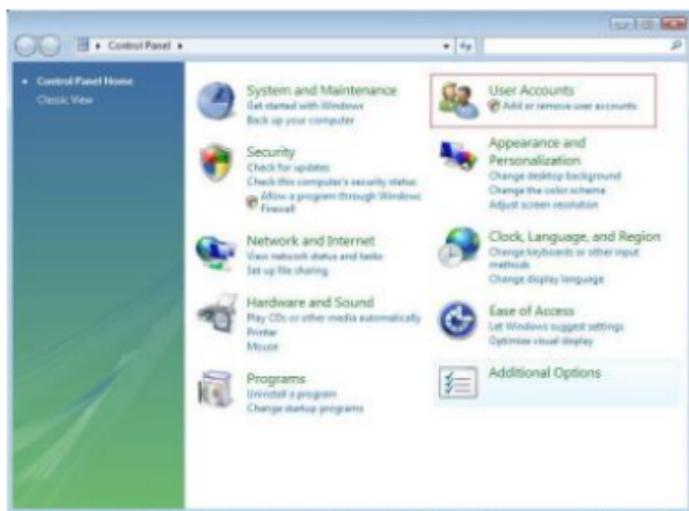


Figure 2-11

2. Double click on the icon "User Accounts" to open the account setting window (as shown in Figure 2-12);

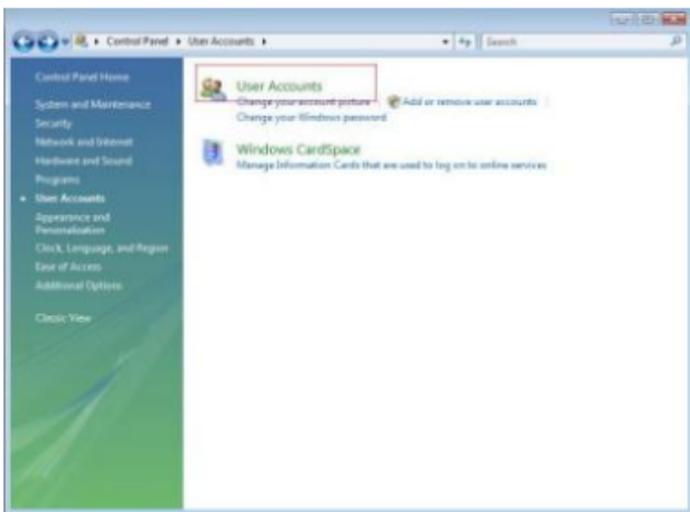


Figure 2-12

3. Double click on the icon "User Accounts" to open "Make changes to your user account" window (as shown in Figure 2-13);

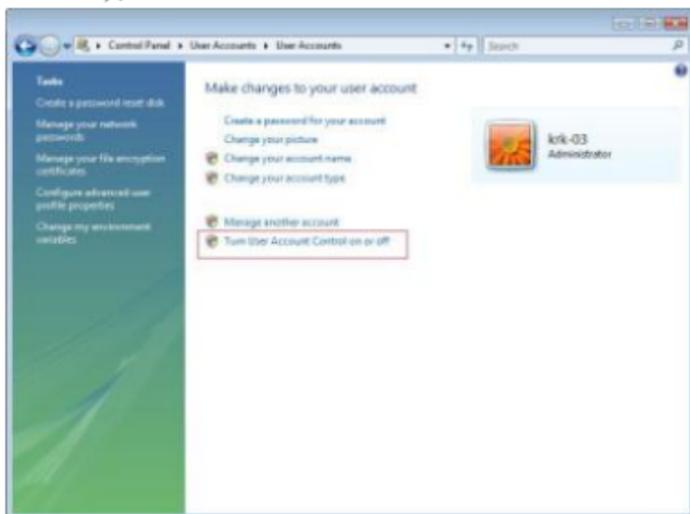


Figure 2-13

- Click on the option "Turn User Account Control on or off ", and then "Turn on User Account Control (UAC) to make your computer more secure" window (as shown in Figure 2-14) will be displayed on the screen, next deselect "Use User Account Control (UAC) to help protect your computer", finally click on "OK" button.

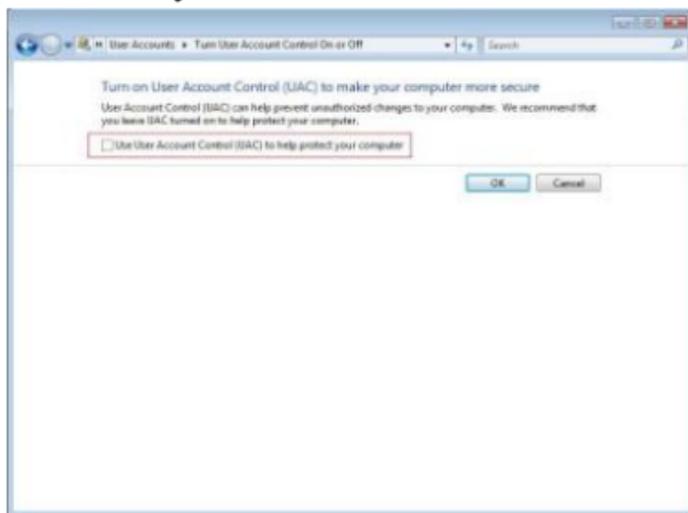


Figure 2-14

2.5 Device Connection

After ECG Viewer installation, refer to Figure 2-15 to perform connection:

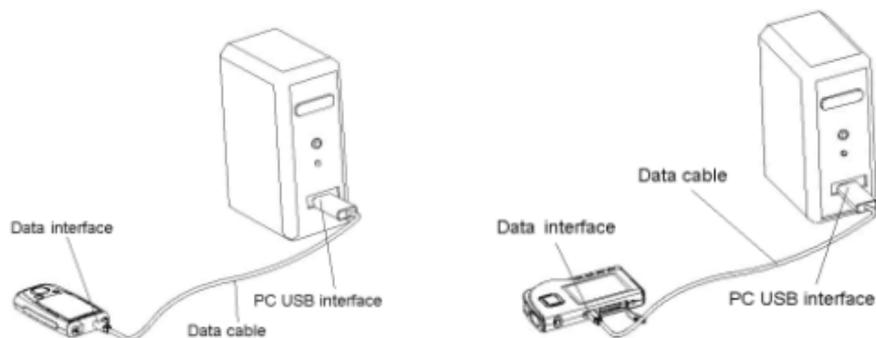


Figure 2-15 Connection Demonstration

Note: connect the device at first time, the system prompts that "Found New Hardware Your new hardware is installed and ready to use." on the lower right, as shown in Figure 2-16, it means that USB Driver is installed successfully.

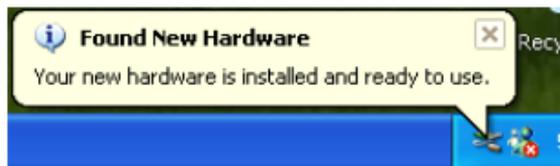


Figure 2-16

3 Operations

3.1 Main Menu

Double-click ECG Viewer "  " icon on the desktop with the Mouse, then the ECG Viewer will run automatically and springs the main menu screen, as shown in Figure 3-1.



Figure 3-1 Main menu

Six functional buttons in main menu, click it with the Mouse:

- ✧  **Patient Record:** to enter patient record screen, in this screen a new file can be set up, the operations of file modification and file deletion can be done.

- ✧  **Data Upload:** to perform the upload data and waveform recall, and view list. See section 3.3 for details.
- ✧  **ECG Review:** to perform viewing data operation.
- ✧  **ECG Knowledge:** to introduce the ECG general knowledge and basic notice when detecting ECG waveform.
- ✧  **About:** to enter about system screen.
- ✧  **Quit:** to exit from the ECG Viewer.

3.2 Archive Management

On main menu screen click "Archive Management" button, then springs archive management window on the desktop.

Archive name list

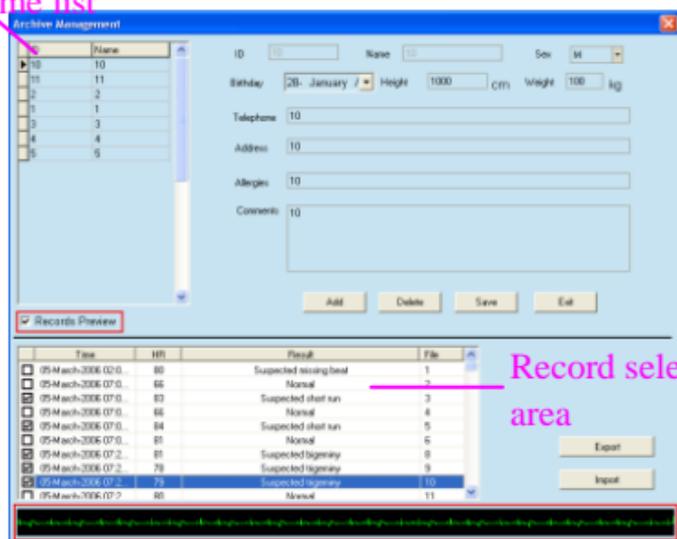


Figure 3-2 Archive Management Screen

Screen Description:

On archive management screen, adding new archive, modification and deleting archive can be performed. On the left of screen is archive name^① list; on the right of screen is detailed information of the selected archive, entering personal data is operated in this area.

✧ **ID:** detecting number; display or enter detecting number; length of ID is less than 6 bytes.

✧ **Name:** Testee's^② name; display or enter testee's name; length of ID is less than 10 bytes.

- ✧ **Sex:** Choose Male/Female in submenu.
- ✧ **Birthday:** Testee's birthday; display or enter testee's birthday. You can choose birthday in its submenu, or click year value and use keyboard to enter birthday. The operation of Month and Day set are the same with Year set.
- ✧ **Height:** Testee's height; display or enter testee's height.
- ✧ **Weight:** Testee's weight; display or enter testee's weight.
- ✧ **Telephone:** Testee's telephone number; length of phone number is less than 16 bytes.
- ✧ **Address:** Testee's address; length of address is less than 40 bytes.
- ✧ **Allergies:** allergic symptom description of testee after using **Easy ECG Monitor**; if no allergies appear, just enter "No"; length of words is less than 40 bytes.
- ✧ **Comments:** Description of ECG diagnostic result; length of words is less than 100 bytes.
- ✧ **Records Preview:** pitch on this option by clicking the "□" before "Records Preview", the record list of the current testee (can be selected in archive name list, a "▶" mark will appear before the selected archive) will be displayed in Record Selecting Area. Click a piece of records, its corresponding ECG waveform will be shown below for preview.

Annotation:

- ① Name: Members' name in archive list (i.e. the testee's name).
- ② Testee: People who have used this monitor to measure ECG

Functional button:

- ✧ **Add:** new file setup button; if user needs to add a new file, please click this button and then enter testee's detailed data in blank.
- ✧ **Delete:** delete the selected file in archive list.
- ✧ **Save:** press it to confirm and save the new file or modification about testee's^② information.

Note: ID and Name can not be modified.

- ✧ **Exit:** Exit from archive management screen.
- ✧ **Export:** save the selected records of the current patient as a file in the format of "*.EEF" to an appointed folder (Figure 3-3). Up to 20 pieces records can be selected in record selecting area. If the file has already existed, the system will prompt "This file has exits, overlaid? ". Click "OK" for overlaying, and click "Cancel" for canceling this operation.

Note: "*.EEF" is the only format of the file saved.

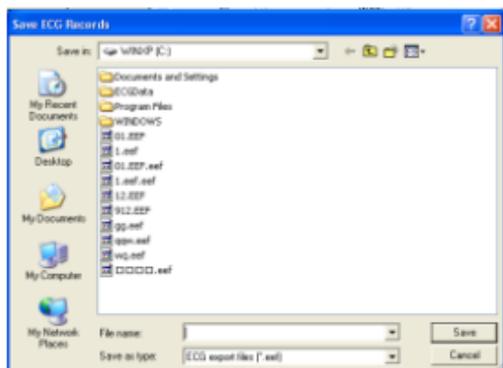


Figure 3-3

- ❖ **Import:** import the file from the appointed folder for review (Figure 3-4). Choose the format "*.EEF" as "Files of type". If the record has been saved in the ECG Viewer, the system will pop up a window to remind user (as shown in Figure 3-5).

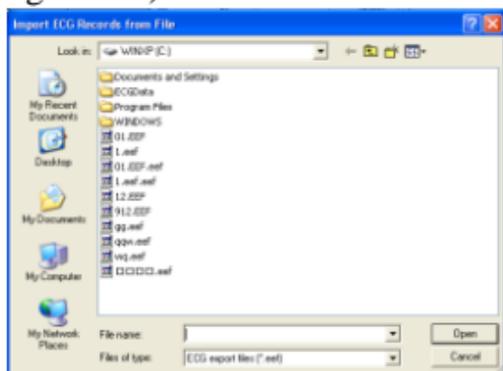


Figure 3-4



Figure 3-5

3.3 Data Acquisition

On main menu screen click "Data acquisition" button, then springs "Select the Device's Port" dialog box on the screen, as shown in Figure 3-6.

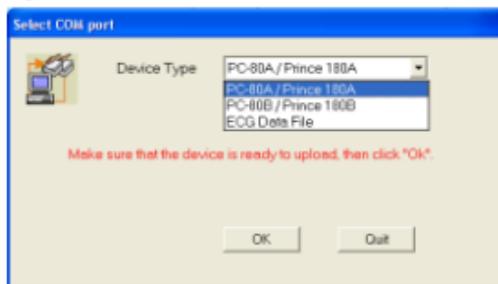


Figure 3-6 Selecting Device port

Operation Instructions:

1. Select device type.

- ✧ **Device Type:** Select it according to the type of your unit. (if your selection of Device Type is wrong may lead to uploaded data error);

Note: If you choose the option "ECG Data File" of Device Type, the list box of ECG file path will be opened, and then choose the file path (as shown in the following figure)



Figure 3-7

2. After clicking "Ok" button in "Select Device Port" window, ECG Viewer starts acquiring data from the monitor. Then, the data from monitor will be displayed in list form on the screen, as shown in Figure 3-8.

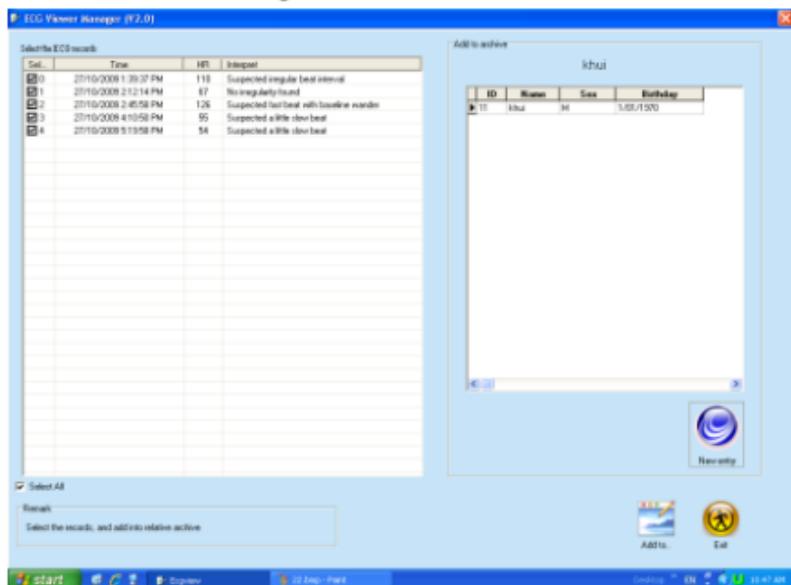


Figure 3-8

3.  **"Add to..."**: select the data records in record list and select a file name in archive list to save records. A "▶" mark will appear before the selected archive, then click "Add to... " button to save the selected records to the selected archive. The adding process bar displays on screen.

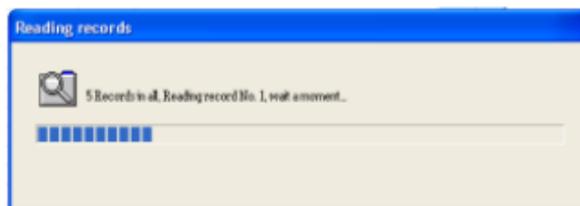


Figure 3-9

When this operation is finished successfully, the system will indicate that "Data added successfully" in dialog box, after clicking "OK" button the system will return to record list screen.

Note: "√" means this record is selected; "□" means unselected.

If user has not set up a new archive, click "New entry"  button to perform entering archive operation. See section 3.2 Archive Management for details.

3.4 ECG Review

On main menu screen, select "ECG Review" to enter into ECG review screen. On the top of it, there are three options: Review and Browse, Record Management and HR Trend. Each option function will be covered in details, as follows:

3.4.1 Review and Browse

You can review the uploaded ECG records and analyze measuring result on Review and Browse screen (as shown in Figure 3-10).

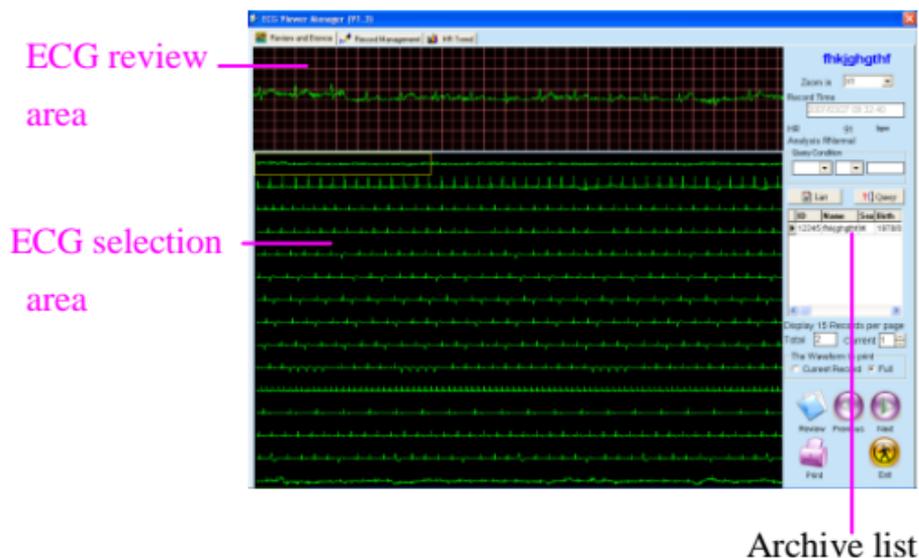


Figure 3-10 Review and Browse screen

Screen Description:

In ECG selection area, there is a yellow selection box, you can shift it with mouse to choose the waveform for review and the selected waveform displays in ECG review area. On the right of ECG review area displays corresponding information (including amplified scale of ECG waveform, record time, heart rate and result description).

Operation Introduction:

- ✧  **View:** Review the selected record in file list. If the file record is over 7 pieces, please use "query condition" or scroll down the list to look for and select the needed

file record. All the saved records of the selected file record will be displayed in waveform area.



- ❖ **Previous:** Turn to former page. If the selected member's records can not be displayed in one page, it will be displayed in several pages. The total page number, how many records will be displayed in one page and the current page number display bellow the file list.



- ❖ **Next:** Button Turn to next page

Note: In "Current" check box you can choose the printed page quickly.



- ❖ **Print:** Print the waveforms and data reviewed and browsed. If the selection of "the waveform to print" is "current record", the printer will print all the waveforms of the selected record, if the selection is "Full", all the information of the current page will be printed.



- ❖ **Exit:** Return to main menu screen.

3.4.2 Record Management

On ECG review screen, select "Record Management" screen, it will display as shown in Figure 3-11.

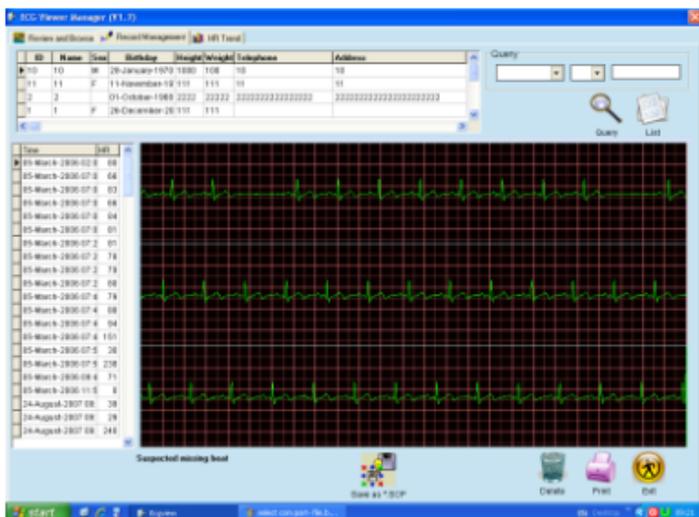


Figure 3-11 Record Management Screen

Screen description:

On the top of record management screen is file list. After choosing a member in the file record, the lower left area displays all the records of this member including recording time, heart rate value and result description, it is record list. Select one piece of record in record list, and then click "show waveform" button, all the waveforms corresponding to this record will be displayed in waveform area.

Operation Introduction:

- ✧  **Save as *.SCP:** save the current displayed record as *.SCP file for better review.
- ✧  **Waveform:** Select the target record and click "show waveform", the whole waveforms of this record

will be displayed in waveform area.



- ✧ **Delete:** Delete record, select the useless record and click "Delete" to delete this record(all the information of it including time, HR, ECG waveform and result description)



- ✧ **Print:** Print all the information of the selected record.



- ✧ **Exit:** Return to main menu screen.

3.4.3 HR Trend

On ECG review screen, select HR trend screen, it will display as shown in Figure 3-12.

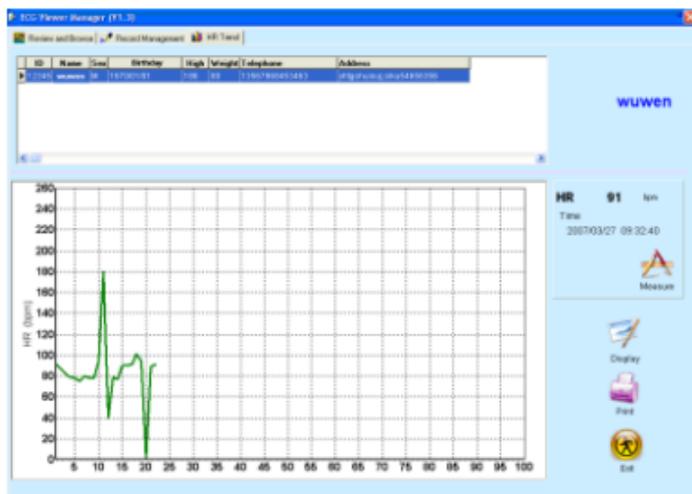


Figure 3-12 HR Trend graph

Screen Description:

The patient file table is above HR trend curve. Select the target in it, and then click "Draw" button, according to mean heart rate value a trend curve is drawn in trend curve area (as shown in Figure 3-12). The ordinate value of heart rate trend curve expressed heart rate value, its unit is "bpm"; the abscissa value expressed record number. The area on the left of trend curve is for parameter display and functional button operation.

- ✧ **wuwen:** Member name in patient file
- ✧ **HR 76:** Heart rate value, "76" is the mean heart rate

value of the first record in the current file

- ❖ **Time 2007-01-23 14: 03: 02:** Measuring time of current record



- ❖ **Measure:** Click this button, a red staff line occurs in the heart rate trend graph area. Shift mouse and click any dot in trend curve can scale its corresponding record (its heart rate value and measuring "Time" of the original record which displays above "Analysis" button). Only after drawing the trend curve the Analysis button is effective.



- ❖ **Display:** Draw trend curve. When one's record is over 100 pieces, the trend curve will be compressed to display and the number value corresponding to the mark in abscissa will increase at the interval of 10 steps. If the last record number isn't the multiple of 10, the curve only records the corresponding point of its mean heart rate value.

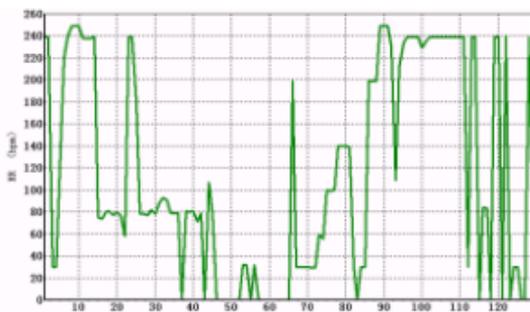


Figure 3-13 Trend Curve



- ❖ **Print:** Print waveforms and data of trend graph. It takes effect after drawing the trend curve.



- ❖ **Exit:** Return to main menu screen.

3.5 ECG Knowledge

On the main menu screen, click "ECG Help" to enter into ECG Help screen, as shown in Figure 3-14.

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1. FAQ of Prince 180 Easy ECG Monitor

1) Why does the ECG waveform look small and weak?

Answer: Maybe the electrodes are not kept close to the skin. And it may also relate to individual difference, for example, someone has high impedance of hand skin.

Solution: Wet skin and place electrode correctly or choose another way to measure, for example, use feet measurement, chest measurement and lead wire measurement. There into, feet measurement (buttons left foot and right hand) buttons to

Figure 3-14 ECG Knowledge Screen

The information in ECG help: FAQ of **Easy ECG Monitor**, Common sense of ECG, Heart health care knowledge and Relative webs. If user wants to fast browse the needed help

information, please click the corresponding section in the content. Scroll down to review all the ECG help information one section by one section.

3.6 About

On the main menu screen, clicking "About" to enter into system information screen, as shown in Figure 3-15.



Figure 3-15 System Information

This screen displays the version number of ECG Viewer Manager and useable disk space. Click "OK" to return to main menu screen.