SpO$_2$ Assistant

USER MANUAL

2014-02-21
CONTENTS

1. Foreword ................................................................. 1
2. Main technique specification ........................................... 1
   2.1. Performance specification ........................................ 1
   2.2. Suit device ...................................................... 1
3. System environment Requirements .................................... 1
4. Installation .............................................................. 2
   4.1. Software installation ............................................ 2
   4.2. Hardware device connection .................................... 2
5. Instructions for use .................................................... 4
   5.1. Start SpO₂ Assistant .............................................. 4
   5.2. Choose language ................................................. 5
   5.3. Real time espial mode ............................................ 6
      5.3.1. Brief introduction .......................................... 6
      5.3.2. Start the demo ............................................. 7
      5.3.3. Collect data ................................................. 8
      5.3.4. Set display parameter ..................................... 9
      5.3.5. Alarm ....................................................... 10
         5.3.5.1 Alarm setting ......................................... 10
         5.3.5.2. Alarm prompt ......................................... 11
      5.3.6. Freeze and unfreeze waveform ............................ 11
         5.3.6.1. Freeze waveform .................................... 11
         5.3.6.2. Unfreeze waveform .................................. 12
      5.3.7. Information setting ....................................... 12
         5.3.7.1. User information ..................................... 12
         5.3.7.2. Unit setting .......................................... 13
      5.3.8. Device stored data ....................................... 13
      5.3.9. Set device information .................................... 14
      5.3.10. Pulse sound setting ...................................... 14
      5.3.11. Real time data store ..................................... 15
      5.3.12. Synchronize device time ................................ 15
      5.3.13. automatic storage of real time data .................... 15
6. Review analyse mode .................................................. 15
   5.4.1. Brief introduction for window ................................ 15
   5.4.2. Exclude data ................................................ 17
      5.4.2.1. Excluding operation .................................. 17
      5.4.2.2. Undo excluding operation .............................. 18
   5.4.3. Query user file ............................................ 19
   5.4.4. Analysis parameters ....................................... 19
      5.4.4.1. Parameter setting ..................................... 19
      5.4.4.2. Parameter explanation ................................ 20
   5.4.5. Set display parameters .................................... 20
   5.4.6. Information setting ....................................... 20
5.4.7. Report display..................................................................................................................21
  5.4.7.1. Strip chart report..........................................................................................................21
  5.4.7.2. Full study report..........................................................................................................21
  5.4.7.3. Oximetry report..........................................................................................................21
  5.4.7.4. Summary report........................................................................................................22
  5.4.7.5. Report title setting.......................................................................................................23
  5.4.8. Print report.....................................................................................................................23
  5.4.9. Interpretation..................................................................................................................24
  5.4.10. Set SpO₂ distribution...................................................................................................24
  5.5. Mode switch.....................................................................................................................24
  5.6. Custom Colors..................................................................................................................24
6. Appendix..................................................................................................................................25
  6.1. Configuration color scheme..............................................................................................26
    6.1.1. File contained the color scheme....................................................................................26
    6.1.2. Color configuration files...............................................................................................26
    6.1.3. Configuration steps.......................................................................................................27
1. **Foreword**

SpO₂ Assistant Software (called "Software" hereinafter) can real time monitor, review and analyse SpO₂, pulse rate and perfusion index (need support of device). In real time mode, the software collect the data uploaded from pulse oximeter to monitor such parameters as SpO₂, pulse rate and perfusion index (called "PI" for short); In review analysis mode, it can review and analyse the stored data, display analysis results and the trend charts. This manual will introduce all the features of the software and the detailed operation guidance.

Features:
- Automatic scanning device, the user can connect the pulse oximeter device according to their own actual conditions.
- Real time displaying the data uploaded from pulse oximeter, including waveform, trend, bar chart and parameter value.
- With alarm prompt for the parameter value from pulse oximeter.
- Freezing waveform, and reviewing the frozen waveforms by paging up or paging down.
- Controlling pulse oximeter to send, delete the stored data in the device, and set the ID and synchronous device time.
- With saving and altering user information function
- Supporting the setup of user information and units, multi-language saving and changing.
- Supporting data storage, review and analysis for up to 72 hours, showing four kinds of analysis reports and the editing of diagnostic information.
- Supporting the report printout.
- Supporting searches for user historical documents and "Save as..." operation for files.
- Supporting multi-country languages.

2. **Main technique specification**

2.1. **Performance specification**

- Display: Lowest resolution 800*600, true colour, right LCD
- Language: Chinese, English
- Trend: Review and analyse trend for all data
- Alarm: Limit alarm for SpO₂ and pulse, alarm of finger out, search alarm
- SpO₂ display range: 0% - 100%
- Pulse rate display range: 0bpm - 300bpm
- Perfusion Index display range: 0.0%~25.0%

2.2. **Suitable device**

Pulse oximeter

3. **System environment Requirements**

- processor: Pentium IV 1.8G or above
- OS: Microsoft Windows XP / Vista / 7
- Memory: 256MB or above
- Mother board: Intel chipset recommended
- Disk drive: 40GB or above
Display: 800*600, RGB24 or above
Video adapter: 64MB Memory or above
Font: Normal fonts
Keyboard: standard keyboards
Mouse: standard keyboard
Port: USB port wireless connection

4. Installation

4.1. Software installation
Double click the installation file “SpO2 Setup Assistant.exe” and follow installation guide (the filename may be different because of edition difference). When installing, you may find the indication as figure 4.1.1, please click “Continue Anyway” to finish. (If you connect the device for the first time, you may also find the indication as figure 4.1.1, please click “Continue Anyway”). You have to confirm whether to reboot the computer after installation. It’s recommended that you restart your computer for the first installation.

![Software Installation](image)

*figure 4.1.1*

4.2. Hardware device connection
The software hold serial interface connection and wireless connection. Please refer to correlative pulse oximeter user manual for detailed connection method.
The progresses of checking bluetooth driver:
1. Open the equipment manager. Choose "my computer", then choose "manage" by right key, and the figure 4.2.1 will pop-up, then choose "Equipment manager".
2. Choose the "Bluetooth Radios" with sign , and choose "Generic Bluetooth Radio", then choose "attribute" by right key, and the window as figure 4.2.2 will pop-up. Click the "Driver" in the window to examine the supplier of the driver (Recommend the use of the official version of Bluetooth drivers).

![Figure 4.2.1](image1)

![Figure 4.2.2](image2)

**Note:** When wireless connection, if used Microsoft Bluetooth drivers, then install and uninstall third-party Bluetooth driver restore using Microsoft Bluetooth drivers, please manually set the computer to delete the paired device, otherwise the problem of software can not connect wireless devices may occur.
5. Instructions for use

5.1. Start SpO₂ Assistant

After installing, there is a red shortcut named “SpO₂ Assistant” on your desktop. Double click the red icon to start “SpO₂ Assistant” software, you can also start the software from start menu.

If you use the software for the first time, there will be a dialog box as figure 5.1.1. If not, the program will enter the main interface as figure 5.1.2 directly.

![Figure 5.1.1](image)

The user could choose the language according to need. After choosing language, the program will enter the main interface. The main interface is divided into five parts: main window frame, menu bar, tool bar, client section and status bar as figure 5.1.2.

![Figure 5.1.2 main interface](image)
Main interface introduction:

- **Tool bar**

<table>
<thead>
<tr>
<th>Icon</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>Switch to main window</td>
</tr>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>Turn on the device, and switch to the real time espial mode</td>
</tr>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>Open the file, switch to review analyse mode</td>
</tr>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>Review analyse mode: print</td>
</tr>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>Review analyse mode: exclude data</td>
</tr>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>Display parameter setting</td>
</tr>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>Choose Language</td>
</tr>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>Real time espial mode: Thaw wave</td>
</tr>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>Real time espial mode: Freeze wave</td>
</tr>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>Real time espial mode: move along 5 seconds wave in freezing wave state</td>
</tr>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>Review analyse mode: page forwards (general analyse report)</td>
</tr>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>Real time espial mode: move backward 5 seconds wave in freezing wave state</td>
</tr>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>Review analyse mode: page backward (general analyse report)</td>
</tr>
</tbody>
</table>

- **State bar**

In real time espial mode, current device informations are displayed in state bar, including: device connection type, device type, company name, device ID.

  - **Two buttons in client section:**

![Icon](image): turn on the device to enter real time espial mode

![Icon](image): open the file to enter review analyse mode

### 5.2. Choose language

The user could change interface display language at any moment as follow:

- **Click "Options_Select Language"**

- **Click button ![Icon](image) in tool bar**

Selecting language dialog box will appear if the user carry through above operation as figure 2. The user could select language according to need. Click "OK", and the interface will display corresponding language; click "cancel" to cancel operation.
5.3. Real time espial mode

5.3.1. Brief Introduction

The steps to real time espial mode are as follow:

- Click "File-Connect Device"
- Click the button in tool bar
- Click the button in the main window interface

The dialog box of the device connection which can display the device's correlation information will appear after doing the above operation as figure 5.3.1.1.

![Device Connection Dialog Box](image)

**figure 5.3.1.1** The dialog box of the device connection

When there are some devices which have the same ID, the user could choose one device to set ID for avoiding confusion. Select one device in the list, and click "connect" to connect the device, then it will enter the real time espial interface which comprises four areas as Figure 5.3.1.2.

- Trend chart area: trend chart display
- Waveform area: waveform display
- Parameter area: display the SpO2 and pulse rate value, the upper and lower limit of the alarm and the alarm small bell.
- Function area: display perfusion index, bar chart, heart shape, user name, the data storage type and state.

The data storage type: single user and single segment, single user and multi-segment, multi-user and single segment, multi-user and multi-segment.

The data storage state: having the storage data, no storage data.
Figure 5.3.1.2 main window of the real-time espiol

5.3.2. **Start the demo**

In the main interface, click "File-DEMO" to enter the demo interface as Figure 5.3.2.1, the device connection type in the state bar displays "Demo". The user cannot set the ID and send the storage data in demo mode.
5.3.3. Collect data

The device could collect the data after the device was connected as Figure 5.3.3.1.
The display information includes:
- Display the SpO2 and pulse rate trend chart for two hours at best.
- Display the SpO2, pulse rate and perfusion index real time data information.
- Real time alarm information display for SpO2 and pulse rate
- Waveform display
- Frozen waveform and frozen time display. About freezing waveform operation, refer to 5.3.6 for details
- Bar chart and heart shape display
5.3.4. Set display parameter

Click "Options-Display Parameters" or toolbar button 📈 to enter display parameter dialog box as figure 5.3.4.1:
5.3.5 Alarm

5.3.5.1 Alarm setting

Click "Options-Alarm setting" to set the upper and lower limit of SpO₂ and pulse rate in alarm setting dialog box as figure 5.3.5.1.1.

![Alarm Setting Dialog Box](image-url)
5.3.5.2. Alarm prompt

The alarm information can prompt the user by two modes of seeing and hearing. As the alarm information is important and requires timely response, this software provides the following modes to prompt the user that the alarm has happened as figure 5.3.5.2.1.

- Alarm information
  The alarm information which provides the disobeyed alarm limit is displayed in trend chart area. Such as "Alarm: SpO₂ > 90", it means that the alarm happens for the reason of SpO₂ value exceeding the upper limit 90.
- Alarm sound
  The software can prompt user by sound when alarm happens.

**Note:** Click "Edit-Pause alarm sound(10s)" to suspend the current alarm sound 10 seconds. Set alarm sound pause time by alarm setting.

- flicker
  When some physiological parameter alarm happens, the small bell icon and value in parameter display area will flicker to prompt the parameter is alarming.

![SpO₂ Assistant](image)

Figure 5.3.5.2.1 Alarm display interface

5.3.6. Freeze and unfreeze waveform

5.3.6.1. Freeze waveform

Method as follows:

- Click "Edit-Freeze Wave"

- Click the button in tool bar

After the waveform is frozen, foregoing five seconds waveform, starting time and ending time for the frozen waveform will be displayed in the waveform area as figure 5.3.6.1.1.
Click the button ← to move along the waveform five seconds, and Click the button → to move backward the waveform five seconds.

**5.3.6.2. Unfreeze waveform**

Method as follows:

- Click "Edit-Unfreeze Wave"

- Click the button ☀ in tool bar

After the waveform was unfrozen, waveform real-timespiul state will be resumed.

**5.3.7. Information setting**

**5.3.7.1. User information**

Click "Options-User Information" to enter user information dialog box, then the user can examine, edit or change the current user's name, height, age, weight, sex, nationality and comment as figure 5.3.7.1.1.
5.3.7.2. Unit setting

Click "Options-Unit Setting" to set the unit of user's height and weight as figure 5.3.7.2.1.

5.3.8. Device stored data

In real time espial mode, click "File-Device Stored Data", and the device stored data dialog box will appear, including user index number, user name, data index, data length, start time as figure 5.3.8.1 (the data storage type for figure 5.3.8.1 is "multi-user and single segment ")
Figure 5.3.8.1 Device stored data dialog box

- Store device data
  Choose the stored data which is wanted to send (choose check box of user index number and you can choose many segments stored data), then click "receive data", and the schedule of receiving stored data will appear. The software could store the data automatically. The naming method of file is as follow: user name + user index number + data segment number + current store time. Click "cancel" button of schedule to cancel sending.

- Delete stored data (need device support)
  Choose the data which is wanted to delete, then click "delete data" to delete the data segments which are chosen. Click "clear user data" to delete all stared data of appointed user.

### 5.3.9 Set device information

In real time espiad mode, click "Options—Set Device Info" to set device information as figure 5.3.9.1.

Figure 5.3.9.1 Setting device information dialog box

There is current device ID in dialog box. The user could edit device ID (input 7 characters at most). Click "OK" to set current device ID, and the device ID in state bar of main window will change.

### 5.3.10 Pulse sound setting

In real time espiad mode, click "Options—Pulse Sound" to turn on/off the pulse sound. When the menu is in chosen state, there is pulse sound, whereas there is no pulse sound.
5.3.11. Real time data store

When closing the real time espial mode, the software will prompt whether to store real time data as figure 5.3.11.1. The user could edit user information and file name, then click "save" to save information.

![Save To File dialog box](image)

Figure 5.3.11.1 Store data dialog box

**Note:** The software could save **72 hours data at most**.

5.3.12. Synchronize device time

In real time espial mode, click "Options-Synchronizing Device Time" to set synchronizing device time and system time.

5.3.13. Automatic storage of real time data

In order to avoid losing data because of software stopping, the software have automatic storage function of real time data. The software could save the received data every other minute. When finish gathering, if the user save data, the saved data will be covered; if not, the saved data will be deleted.

5.4. Review analyse mode

There are two kinds of review analyse data: the data with PI and the data without PI. If the data includes PI, the interface will display the trend charts of SpO₂, pulse rate and PI when the data file is opened in review analyse mode. If the data doesn't include PI, the interface will display the trend charts of SpO₂ and pulse rate, and the setting operation about PI isn't used. This section use the review data without PI as example.

5.4.1. Brief introduction for window

There are four kinds of methods to enter the review analyse mode.

- Click menu "File-Open File"
- Click button "" in tool bar
➢ Click button " " in main window interface

Opening file dialog box will appear if above operation is carried out. Open the file to enter the review analyse mode.

➢ Click menu "File-Query User File", and the query user file dialog box will appear as figure 5.4.1.1.

![Query User File Dialog Box](image)

Figure 5.4.1.1 Query user file dialog box

Choose one file in file list, then click "Open File" or double click the file to enter the review analyse mode.

The review analyse interface is divided into three areas mostly: caption area, user information display area, trend chart display area as figure 5.4.1.2.

![Review Analyse Interface](image)

Figure 5.4.1.2 The review analyse mode interface (zonal chart report)

**Note:** The default report type is "Strip chart report" after opening the file.
5.4.2. Exclude data

In default circumstance, the software could analyse all data, cancel some useless data analysis by excluding data to make analysis result more real. Excluding data operation could only be carried out in zonal chart report. Other report only display the analysis result after excluding operation.

5.4.2.1. Excluding operation

Pressing left key of the mouse and drag mouse will draw piece of excluding area in trend chart area as figure 5.4.2.1.1.

![Figure 5.4.2.1.1 Exclude data](image)

Click menu "Edit-Exclude Data" or click button "Exclude" to exclude the chosen data, and pop-up all time segment information of all excluding data as figure 5.4.2.2.1. Or click right key of the mouse to pop-up menu, then click "exclude" to exclude the selected data directly as figure 5.4.2.1.1. The background of excluding area is filled in, and the data of excluding area isn't analysed as figure 5.4.2.1.2.
5.4.2.2. Undo excluding operation

In the state of having not chosen excluding data, click menu "Edit-Exclude Data" or click tool bar button "EI". Or click right key of the mouse to pop-up menu, then click "exclude" to exclude the selected data directly as figure 5.4.2.1.1. The excluding data dialog box will appear as figure 5.4.2.2.1. There are all time segments of having excluding data in the dialog box. Choose one time segment (could choose more), and click "Undo" to undo excluding operation for this segment and clean out the display of this time segment in the list. Click "Undo All" to undo all excluding time segment and clean out excluding data list in excluding data dialog box. After completing the operation of undoing excluding, the software will analyse data and display over again as figure 5.4.1.2.

Or click right key of mouse in excluded data area of client area to pop-up menu. Click "Undo current" to undo excluding of current excluded data, and click "Undo all" to undo undo excluding of all excluded data.

Figure 5.4.2.1.2 The review analyse interface after excluding data

Figure 5.4.2.2.1 Excluding data dialog box
5.4.3. Query user file

Click menu "File-Query User File", and the query user file dialog box will appear. In this dialog box there are all data filename under data file as figure 5.4.3.1.

The user could input the correlative character string in filename which is wanted to queried, then all filenames including this character string will be displayed in list as figure 5.4.3.1.

Note: When querying, the inputed character string don't match case. If there is blank in character string, the software could deal with both sides character of blank according to the "and" relation and query corresponding file.

![Figure 5.4.3.1 Query user file dialog box](image)

About "Open File" operation, please refer to 5.4.1 for details.

5.4.4. Analysis parameters

Analysis parameters include: SpO₂ parameter and pulse rate parameter. The software could analyse review data according to the analysis parameter value

5.4.4.1. Parameter setting

Click menu "Options-Analysis Parameters", and analysis parameters dialog box will appear as figure 5.4.1.1.1.
Figure 5.4.1.1 Analysis parameters dialog box

The user could set analysis parameters by this dialog box and click "OK" to make setting success. The software could analyse review data over again according to the setting value and display analysis result. Click "cancel" to cancel setting, and the software doesn't do any disposal.

5.4.4.2. Parameter explanation

SpO₂ parameters:
- Percent Drop For Event (%) : the input value uses "%" as unit to label SpO₂ Event.
- Minimum Event Duration (sec) : the input value uses "second" as unit, it is the time limit of "Percent Drop For Event" for SpO₂.
- Desaturation Criteria Level (%) : the input value uses "%" as unit. When the SpO₂ level is under the values which have been set, the software could count solely, and use red dashed to express in display area of SpO₂ data.

Pulse Rate parameters:
- Rate Change For Event (bpm) : the input value uses "bpm" as unit to set pulse rate event.
- Minimum Event Duration (sec) : the input value uses "second" as unit, it is the least time limit of "Rate Change For Event" for pulse rate.

5.4.5. Set display parameters

Please refer to 5.3.4 for details. The display parameter dialog box in this mode has memory function, and could record former setting. After restarting the program, the display parameter dialog box will display the former setting still.

Note: The display parameters of review analysis mode and the display parameters of real time espiial mode don't affect each other. Because the parameters are different under the two kinds of display modes, the corresponding interfaces of display parameter dialog box are a little different as figure 5.4.5.1.

Figure 5.4.5.1 Display parameter dialog box

5.4.6. Information setting

Please refer to 5.3.7 for details.
After setting, click "OK", and the result will be displayed in the interface and saved to the current data file. Click "Cancel" to cancel setting, and the information will keep former setting.

5.4.7. Report display

5.4.7.1. Strip chart report

Click menu "Report-Strip Chart Report", and the interface will display strip chart report as figure 5.4.1.2. In the strip chart report, the user could carry out a series of operations such as excluding data, displaying parameter value, moving trend wave and time axis and so on.

About excluding data operation, please refer to 5.4.2.

The methods of moving time axis and trend wave are as follows.

- Drag scroll bar to move by the left key of the mouse.
- Move by the around keys of keyboard.

Click the left key of the mouse in the effective data area of the trend chart to display the data collection time, SpO₂ value, pulse rate value for the position.

**Note:** If the position of left key is noneffective data, the software will not display any numerical value.

5.4.7.2. Full study report

Click menu "Reports-Full Study Report", and the interface will display full study report as figure 5.4.7.2.1.

![Figure 5.4.7.2.1 Full study report](image)

When the total number of pages is more than one, the user could carry paging operation according to the methods as follow.

- Click ← or → to left page or right page.
- Press "Page Down" or "Page Up" on the keyboard to page.

5.4.7.3. Oximetry report

Click menu "Report-Oximetry Report", and the Oximetry report will appear in interface. The user couldn't set time length for this report. The report display all data acquiescently as figure 5.4.7.3.1.
Substantival explanation in report

- Total Event: find total of event in value.
- Time in event (min): time that all affairs are completed
- Avg. Event Dur. (sec): the event average time equals that "Time in event" is divided by "Total Event".
- Index (1/hr): the event number per hour.
- Artifact (%): contrived reason makes some areas data inefficacy. Noneffective data includes that zero value area and excluding data area.
- Adjusted index (1/hr): the event number per hour. It may unequal to "Index", because it often use "effective" time length to divide "Total Event" (except "Artifact"). In general, its value equals to "Index" (the "Artifact" is 0) or is less then "index" (the "Artifact" isn't 0).
- Basal SpO2 (%): the average of the SpO2 readings that are not included in any event.
- Time (min)<88%: the time length of "SpO2<88". Note: 88 is a desaturation criteria level (set in analysis parameter dialog box).
- Events<88%: the event total of "SpO2<88".
- Minimum SpO2 (%): the minimum of all SpO2 value.
- Avg. Low SpO2 (%): this value relates to event, is the average value of "Minimum SpO2" for all SpO2 events.
- Avg. Low SpO2<88%: the same as above, only count the average value of "Minimum SpO2<88". 88 is a desaturation criteria level (set in analysis parameter dialog box).
- Avg. Pulse Rate (bpm): the average value of all pulse rate data.
- Low Pulse Rate (bpm): the least value of all pulse rate data.

5.4.7.4. Summary report

Click menu "Report-Summary Report", and the interface will display summary report. The user couldn't set time length for this report. The report display all data acquiescently as figure 5.4.7.4.1.
Substantial explanation in report:
Please refer to 5.4.7.3 for details.

5.4.7.5. Report title setting

Click menu "Report-Report Title Setting", and the report title setting dialog box will appear as figure 5.4.7.5.1.

The user could set report title by this dialog box. After setting, click "OK", and the title will be displayed. Click "cancel" to cancel setting, and the report title will not changed.

5.4.8. Print report

The software support printout of the reports. The print format is the same as the displayed report format. The print methods are as follows.

- Click menu "File-Print".
- Click button  

The user could cancel print operation in the process of print.
5.4.9. **Interpretation**

Click menu "Report-Interpretation", and the interpretation dialog box will appear. The user could edit interpretation information, and the information display in the summary report as 5.4.9.1.

![Interpretation dialog box](image)

Figure 5.4.9.1 Interpretation dialog box

5.4.10. **Set SpO2 distribution**

Click menu "Report-Set SpO2 distribution" to enter Set SpO2 distribution dialog box as figure 5.4.10.1. The user could set SpO2 Event distribution and SpO2 distribution. After setting, the corresponding chart will change.

![Set SpO2 distribution dialog box](image)

Figure 5.4.10.1 Set SpO2 distribution dialog box

5.5. **Mode switch**

If the user wants to switch mode, the user need to close current mode according to the methods as follows.

- Click menu "File-Close"
- Click button 🏠

After closing the current mode, the software returns to the main window interface as figure 5.1.2. The user could enter the review analysis mode and real time espial mode according to introductive methods in front.

5.6. **Custom Colors**

Waveform color trend color and numerical color all can be set in real-time interface. Custom colors needed to configure custom color schemes (Refer to the 6.1 Configuration color scheme for details), Then click "option-
color scheme" in the main interface (as Figure 5.1.2)to enter color scheme dialog box, select the custom color scheme. Click the "OK" button.

![Color Scheme Dialog Box](image)

Figure 5.6.1 The dialog box of the color schemes
6. Appendix

6.1. Configuration color scheme

6.1.1. File contained the color scheme

<table>
<thead>
<tr>
<th>File Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Config.ini</td>
<td>//Color scheme</td>
</tr>
<tr>
<td>Decimal_point.bmp</td>
<td>//The picture of decimal point in PI value</td>
</tr>
<tr>
<td>PImap.bmp</td>
<td>//The display picture of PI value</td>
</tr>
<tr>
<td>pulse_alarm.bmp</td>
<td>//The display picture of pulse rate alarm bell</td>
</tr>
<tr>
<td>Pulsemap.bmp</td>
<td>//The display picture of the normal pulse rate value</td>
</tr>
<tr>
<td>spo2_alarm.bmp</td>
<td>//The display picture of SpO2 alarm bell</td>
</tr>
<tr>
<td>spo2map.bmp</td>
<td>//The display picture of the normal SpO2 value</td>
</tr>
</tbody>
</table>

6.1.2. Color configuration files

The content of the config.ini file

```
[prbmapcolor]
prbmapR=255
prbmapG=255
prbmapB=0
spo2R=0
spo2G=255
spo2B=255
PIR=0
PIG=255
PIB=255
waveR=255
waveG=255
waveB=0
textColorSpo2R=0
textColorSpo2G=255
textColorSpo2B=255
textColorPulseR=255
textColorPulseG=255
textColorPulseB=0
```

explanation:
- prbmapR, prbmapG, prbmapB This three values decide the text color in the pulse rate parameters area.
- spo2R, spo2G, spo2B This three values decide the text color in the SpO2 area.
- PIR, PIG, PIB This three values decide the text color in the PI area.
- waveR, waveG, waveB This three values decide the waveform color in the waveform area.
- textColorSpo2R, textColorSpo2G, textColorSpo2B This three values decide the text color in SpO2 trend area.
- textColorPulseR, textColorPulseG, textColorPulseB This three values decide the text color in pulse rate trend area.

Note: The setting range of these value is 0-255 (containing 0 and 255).
6.1.3. **Configuration steps**

Open the the "colourscheme" folder under the installation directory, copy and rename the "Default_Scheme" folder. According to their needs to modify the color configuration of the "config.ini" in the renamed folder. If you want to modify the value display picture, please use own picture to replace the original picture.

Note: Do not change the name, width, height of the picture, and each value in the picture have the same width.