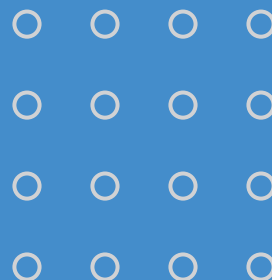




WIRELESS DIGITAL STETHOSCOPE

WSE

User's Manual



Index.

Sunmeditec Co., Ltd, who thinks of only health and happiness for its customers, will approach customers with the best products and rapid After-Sales Service.



WSE

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01. Product and Features

- This product is "Medical device," which is registered KFDA (No. 11-716).
- Our Wireless Digital Stethoscope makes it possible to analyze heart, lungs or intestines sounds from a body and make a diagnosis through these data.
- This stethoscope makes it possible to select 3 sound measurement modes (Bell, Diaphragm, Wide) depending on the bandwidth.
- This stethoscope is easy to use while making measurements on the body. Also, while this stethoscope is connected USB dongle, you can easily monitor the progress by wireless connection. This connection is effective at a five-meter distance, and because of its micro processor and filter, the signal strength and reliability of the wireless connection is enhanced.
- This stethoscope removes the inconvenience of battery replacement by equipping a built-in large capacity secondary battery.
- This stethoscope can be used for a long time (approximately 54 hours in continuous use) with a single charge due to the low voltage and low power circuit design.
- This stethoscope makes it possible to monitor and save stethoscope sounds through the "VPM3000W" software. This software also makes it possible to analyze, replay and edit stethoscope sounds by spectrogram, detect and display inaccurate data using LCR algorithm, and input basic information for medical diagnostics (body temperature, blood pressure, pulse and oxygen saturation level) conveniently.
- This stethoscope is very good for usability and portability as it is designed for ergonomics.

02. Preparation before Use

Preparation before use

- Make sure to stabilize the person and be measured in correct status before use.
- Check if the ear phones (or speakers) connection works well.
- Check if the volume is suitable for using the stethoscope.
- Check if the battery is recharged.
- Install "VPM3000W" software on the computer to be used.
- Check if the receiver is normally connected to the computer.

Warnings for product use

- When an abnormality is found in the equipment, stop using it and ask us to inspect it.
- If you disassemble, repair or modify this stethoscope at your own discretion, it may cause malfunction, and that will make After-Sales Service unavailable.
- Do not use this stethoscope while recharging of the battery.

How to keep and manage it

- Do not expose it to direct sunlight.
- Keep it in a dry place.
- Be careful not to be shocked, especially when it moves.
- Do not keep it where chemicals and gas are emitted.
- Terms of use : Temperature 0℃~+40℃, humidity under 30~70%.
- Storage condition : Temperature -10℃~+60℃, humidity under 90%.

※ Notice : the program, VPM3000W may be changed without notification for improvement.

03. Product Name and its Functions

Stethoscope

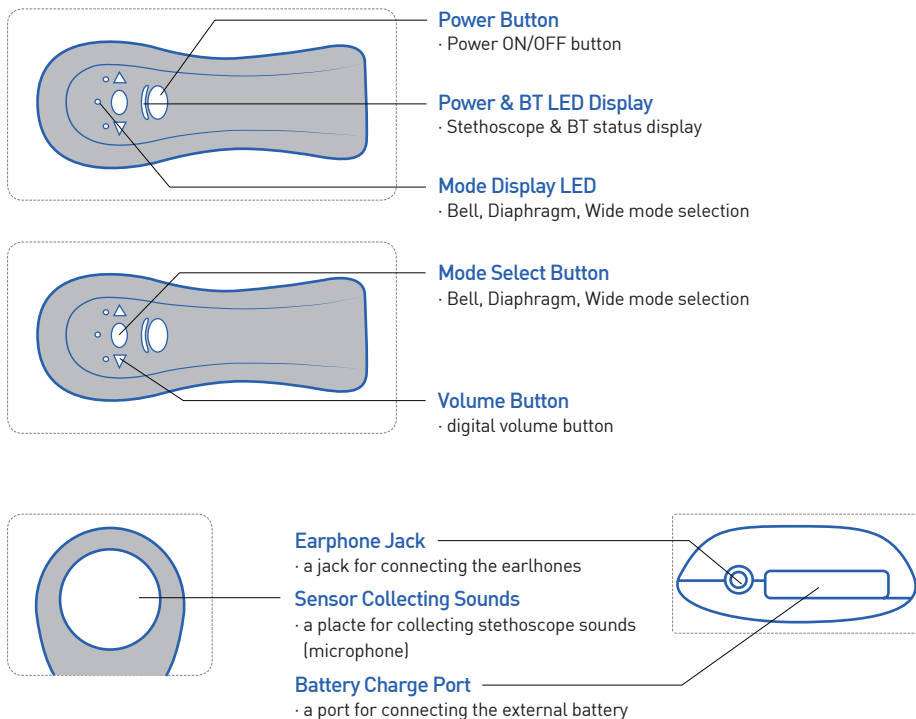


Figure 1 - Transmitter

04. How to Use Stethoscope

Power ON/OFF



- When you push the "M/O" button one time, a green light is displayed on LED Display, and at the same time, the power is turned on.
- If you had the "M/O" button for 2 seconds, the LED green light which was turned on will turn off, and at the same time, the power will be turned off.
- If a button is not pushed in 3 minutes after the power is turned on, it is automatically turned off.

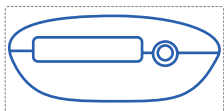
Mode selection (Bell, Diaphragm, Wide)

- After checking if the equipment is running, whenever you push the "M/O" one time, the selection mode is changed in this order **D** → **W** → **B** → **D**, and the green light in LED display window moves to selection location.

Volume control

- After you check if the equipment works properly, set the volume you want by pushing "◀ ▶" button.
- Once the volume is set up, the previous value is memorized even when you restart it after turning off the power [The volume is set up for 10 steps from +1 to +10].

Stethoscope sound hearing



- If you want to directly hear sounds from the stethoscope, then connect the earphones to the jack and then you can hear the sounds.

Battery recharging

- When you recharge the battery, connect the battery to the recharging port while the transmitter is not in use.

05. How to use it with a computer

Installation for VPM3000W

Recommended installation environment for VPM3000W

- CPU: over 1.5GHz
- OS: Windows 7 or higher
- Memory: over 256MB
- Hard Disk: over 80GB
- Graphic Card: over 1280x960(Notebook over 1024*768), 24 bits for color

VPM3000W Installation

- Insert the VPM3000W USB memory into a computer.
- The program is installed automatically.

[Refer to "Figure 1- VPM3000 Installation Screen"] for the install procedure. If the program is not executed automatically, run setup.exe directly.)

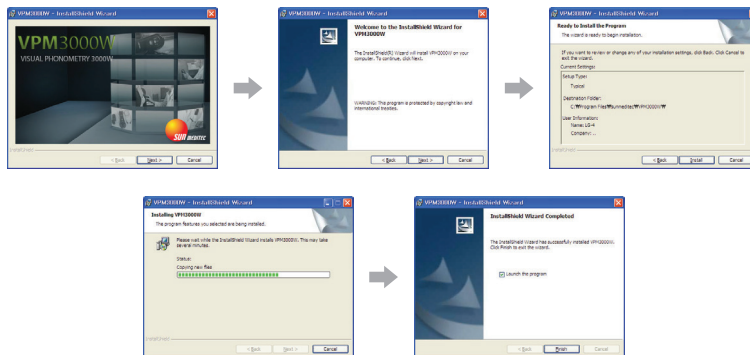


Figure 1 - VPM3000W Installation Screen

Set up for VPM3000W Sound Device

- In the case of the output device, the sound card inside the computer is set to 'speaker' by default and If the speaker is not connected, the program does not run.
- If you can not hear the sound of the output device speaker, check as follows.
- When you connect the output terminal for the sound card to the speaker, you need to check if the sound device in "VPM3000W" Main screen(Setup→Device selection) is the device which the computer provides.
- If the device is set up for another device, change sound cards for the computer and then push the 'selected' button.

Stethoscope program installation (USB Dongle)

- Connect the USB Dongle to the USB port of the computer.
- For window 10, a driver is automatically provided to start the connection.
(For window 7, install the 'USB Dongle driver' in Sunmeditec USB memory.)
- When the driver installation is complete, 'Settings'→'Device'→Bluetooth or any device selection and execute
→sunmeditec selection[At this time, the stethoscope must be turned on.]

06. VPM3000W Intro Screen Description



Figure 2 - Intro Screen

1 Input Info

Enter new patients and existing patients to retrieve information

2 Main Screen

Go to the next Screen (Main Screen)

3 Minimize Button

VPM3000W program screen to m1nim1ze.

4 Exit Button

VPM3000W program exit.

07. VPM3000W Input Info. Screen Description

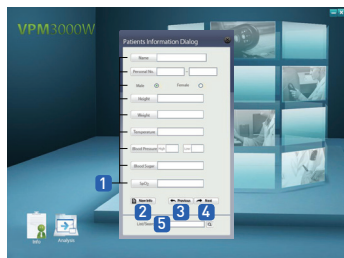


Figure 3 - Input Info. Screen

1 Input Info. for Patient Window

Input information for patient.

(Name, Personal identification number, Sex, Height, Weight, Body temperature, Blood Pressure, Blood Sugar, Oxygen Saturation)

2 New Info

Patient information currently being created to initialize.

3 Previous Button

Move to the previous step.

4 Next Button

Move to the next step.

5 List/Search Window

To retrieve patient information is stored.

08. VPM 3000W Main Screen Description

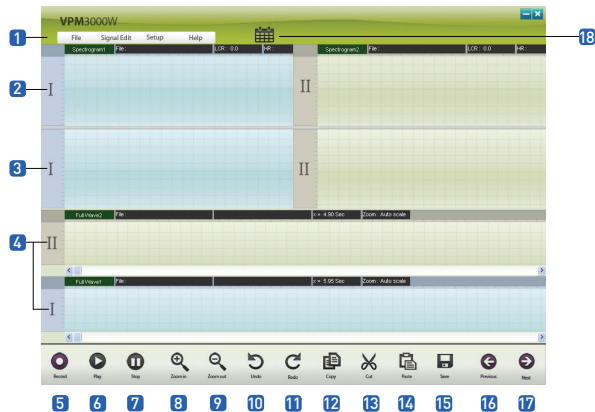


Figure 4 - Main Screen

1 Menu

It consists of File(New file, Open, Export, Import, Patients data, Print, Exit), Signal Edit(Whole Pulse Enlargement, Partial Pulse Enlargement, Selected Section Copy, Selected Section Cut, Paste, Paste it at the end, Testing Print), Device selection(Output Device Connection) and Help(Help, Program info).

2 I, II Spectrogram Window

'I' displays spectrogram (frequency range) for a selected section.

'II' displays spectrogram (frequency range) for a selected section.

3 I, II Enlarged Pulse Window

'I' displays an enlarged pulse for selected sections.

'II' displays an enlarged pulse for selected sections.

4 I, II Whole Pulse Window

'I' displays the whole pulse window for recorded stethoscope sound.

'II' displays the whole pulse window for recorded stethoscope sound or data base(DB).

5 Record

It is used to re-enter the Input information for patient

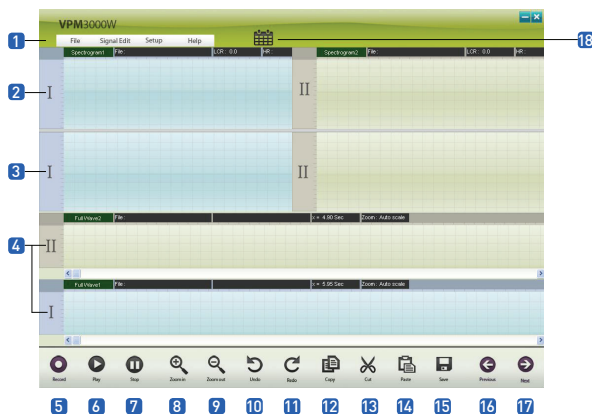


Figure 4 - Main Screen

6 Play

It is used to play(start) stethoscope sounds.

7 Stop

It is used to stop replay.

8 Zoom In

It is used to expand for stethoscope sounds.

9 Zoom Out

It is used to reduce for stethoscope sounds.

10 Undo

It is used to cancel or edit for stethoscope sounds.

11 Redo

It is used to rerun or edit for stethoscope sounds.

12 Copy

It is used to copy in the Signal Edit.

13 Cut

It is used to cut in the Signal Edit.

14 Paste

It is used to paste in the Signal Edit.

15 Save

It saves recorded stethoscope sounds in a file

16 Previous

Move to the previous step.

17 Next

Move to the next step.

18 Calendar Button

It is used to search a last data, patients list, and sample data base(DB).

09. VPM3000W Result Screen Description

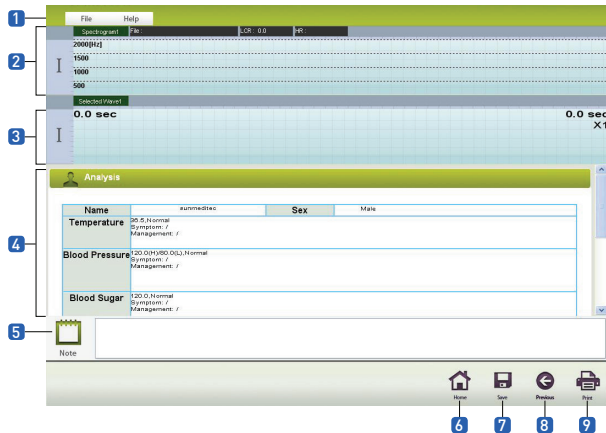


Figure 5 - Result Screen

1 Menu

It consists of File(New file, Open, Export, Import, Patients data, Print, Exit) and Help(Help, Program info).

2 'I' Spectrogram Window

'I' displays spectrogram (frequency range) for a selected section.

3 'I' Partial Pulse Window

'I' displays partial pulse (time range) for a selected section.

4 Analysis Result Window

It displays the patient's analysis result by patient information.

5 Note Window

Doctor writes about for patient condition with a diagnosis.

6 Home

Move to the Main Screen.

7 Save

It saves recorded stethoscope sounds in a file.

8 Previous

Move to the previous step.

9 Print

Analysis result of the patient and doctor's note can be output.

10. How to Record Stethoscope Sound

Device Connection

- Stethoscope power ON.
- Connect the USB Dongle to the USB port of the computer.
- For window 10, a driver is automatically provided to start the connection.
(For window 7, install the 'USB Dongle driver' in Sunmeditec USB memory.)
- When the driver installation is complete, 'Settings'→'Device'→Bluetooth or any device selection and execute →sunmeditec selection.
- Connect the speaker to the computer's speaker terminal(Green).
- Double click the VPM3000W program icon on your computer to run.
- Enter the patient's information and go to the main screen.
- Click the 'Record' button at the bottom of the main screen to pop up the recording window.
- When the recording window is displayed, the signal is automatically monitored and displayed.
- Click the 'Record' button at the bottom of the recording pop-up window to record.
- You can 'Record', 'Stop', and 'OK' by clicking. Data is displayed in 'I' area.



Figure 6 - Record Dialogue Window

Record dialogue function window

1 Monitoring waveform

It is used to monitor for heart sound and lung sound.

2 Monitoring & Recording states

Green color: monitoring, red color : recording

3 LCR(Level Crossing Rate)

LCR is displayed depending on patients disease.

4 Time

The record or monitor time is shown currently.

5 'Record' Button

When recording a stethoscope sound, press the button to record.

6 'Stop' Button

Press the button to stop.

7 'OK' Button

After you are finished recording, push the "OK" button and then recorded data is displayed on the 'I' region.

8 "esc" Button

If you push the "esc" button, then recording is canceled and this window closes.

9 Recording waveform

It is displayed the recording heart and lung sound.

11. How to See VPM3000W Pulse and Spectrogram

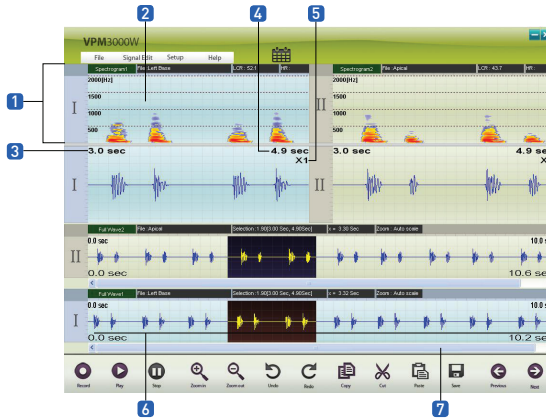
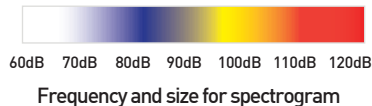


Figure 7 - Spectrogram, Enlarged Pulse, Whole Pulse Window

Description for 『Figure7- Spectrogram, Enlarged Pulse, Whole Pulse Window』

- 1 It displays the frequency bandwidth vertically from 0 to 2000 Hz.
- 2 It displays the size of signal as dB line color.



- 3 It displays the starting time for replay selection section.
- 4 It displays the ending time for replay selection section.
- 5 It displays the scaling for replay selection section.
- 6 The horizontal axis represents variation for time, and recorded pulses appear every 10 seconds.
- 7 Recorded stethoscope sound can be checked by scrollbar continuously.

Pulse enlargement, reduction

If you put your mouse on the whole pulse window while the data are displayed in the whole pulse window of VPM3000W and press the left button of the mouse, and drag the mouse up to a section you want to see, and adjust the mouse wheel while you press "Ctrl ", the dragged section is enlarged or reduced.

Pulse editing

You can edit the pulse data by cutting, copying and pasting the pulses in the whole pulse window of VPM3000W.

If you press the right button of the mouse after selecting a section you want to edit from the whole pulse window, 『 Figure9 - Pulse edit popup menu』 appears. You can edit it by selecting activated functions.

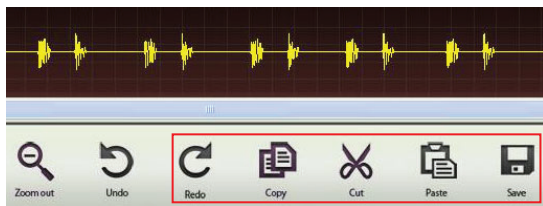


Figure 8 - Pulse Edit Menu

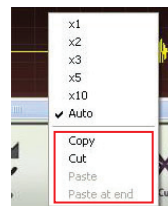


Figure 9 - Pulse edit popup menu

· Cut and copy in the selected section

It cuts or copies the selected section from the whole pulse window.

· Paste

It selects the copied pulses and pastes them on the starting point of the section.

If the section is not automatically selected, it pastes it at the end.

· Paste it at the end

It pastes the copied pulse on the end of the whole pulse.

12. How to Manage Data

You can create separate directory using **Menu, File→Export** where you can export patient data. ("tsa" File include e patient's information, whole pulse and sound in the VPM3000W program. On the other hand, wave file could be heard the sound using general sound system.)

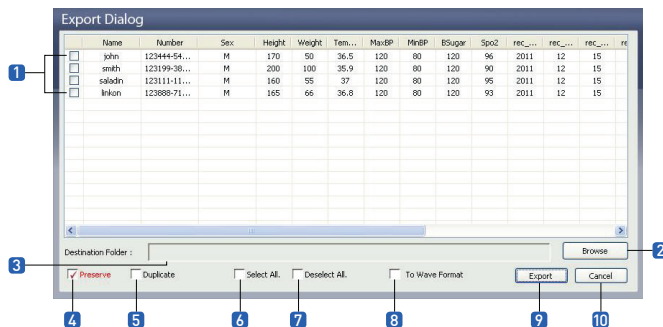


Figure 10 - Pop Up Window For Export

Data Export to "tsa" or wave file

- Check the items you want to export in the list **1**.
- Select a folder where the data will be transferred by pressing **2**.
(It shows a folder path for the data **3** to be transferred.)
- If you check **4**, the original data will be preserved and the copies are transferred.
- If you check **5**, overwriting, the data move while no data is left on the current window for export.
- If you select **6**, every item is selected in the list
- If you check **7**, then all selected data will be unchecked.
- If you select **8**, Wave data will be transferred to a designated folder.
- If you push **9**, the selected data will be transferred or copied to a designated folder.
- If you push **10**, Cancel button, then export is canceled and this window closes.

13. Data Import

You can create separate directory using **Menu, file→import** where you can import patient data.

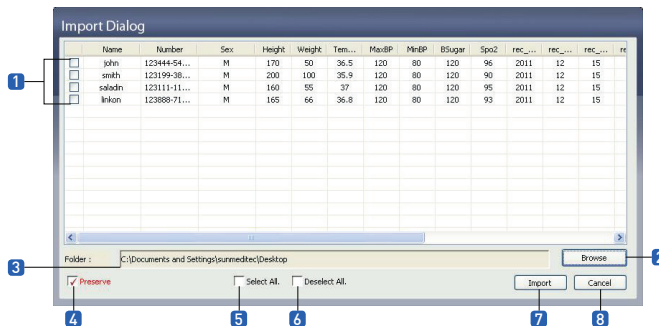


Figure 11 - Import Pop Up Window

Data import

- Select the folder **2** having data to be imported. If you select the folder, the data in list **1** are displayed.
- If you check **4** for preservation of original file, the data are copied when imported. And if you check all selection **5**, all data in the list are selected. And if you select **6**, then all selected data are unselected.
- If you push **7** import button, then the selected data from the designated folder are copied to a "VPM3000W" program DATA folder.
- If you push **8**, Cancel button, all progressing things will finish and you return to the main screen.

14. FAQ for Product

Q: Does not the power turn on?

A: If the built in battery for stethoscope is discharged, connect the USB charging cable to the computer's USB port to charge it.

Q: Is not the sound available in the earphones?

A: Check if the power of the stethoscope is turned on, and check if the earphone is properly connected to the earphone jack of the stethoscope.

Q: Is not the sound coming out from the speaker?

A: Check if speaker is properly connected to the speaker jack.

『Set up for VPM3000W Sound Device.』 of Page 9 for more detail

Q: Although the stethoscope sound is available, is not it recorded?

A: Check if the power of the stethoscope is turned on. And also check if the USB dongle is properly connected to the computer's USB port.

Q: Cannot the computer recognize the device?

A: If the instruction "The device is not found, run the program again after connecting the device " then separate the USB dongle from the USB port and wait for 10 seconds and reconnect it.

(If "The device is not found" appears again, make a phone call to After-Sales Service center of Sunmeditec (+82-63-2222-085). Or send me the trouble message by email(master@sunmeditec.com).

Q: Can't you recharge the battery?

A: Check if the battery is properly connected to the recharging port of the stethoscope.

If the built in battery for stethoscope is discharged, connect the USB charging cable to the computer's USB port to charge it.

Q: Has the Battery life become shorter?

A: When the wireless stethoscope is used after fully recharged in the stethoscope, it lasts approximately 54 hours.

15. Product Speciation

Product name	WISE
Model name	LIFE W10
Length	144 X 63 X 72.9
Weight	120g (including the battery)
Power	DC 3.7V
Power consumption	107mW
Continuous using time	54hours
Battery recharging time	1 hour and 30 minutes



Accessories

Stethoscope	LIFE W10
Earphone	1.2m, 104dB/mW
USB Extended cable	USB 5p cable

Address : Sunmeditec Co., Ltd.

Manufactory, 3rd floor, 29 Songchenon-ro, Deokjin-gu, Jeonju-si, Jeollabuk-do, 54839, KOREA

Tel : +82-63-2222-085

Fax : +82-63-2222-086

E-mail : master@sunmeditec.com

Home page : <http://www.sunmeditec.com>



Product Specification & Warranty

Company Name	Sunmeditec co., Ltd.
Product Name	Wireless Digital Stethoscope
Model Name	LIFE W10
Manufacturer	Sunmeditec co., Ltd.
Origin	Korea
Dimensions	144 x 63 x 72.9mm
Operation Voltage	DC 3.7V
Power Consumption	107mW

Product Name	Wireless Digital Stethoscope	Warranty Period
Model Name	LIFE W10	1 year
Serial Number		

Purchase Date	
Customer	Address : Tel :
Sales Store	Address Tel :
A/S Manager	

- + Please have the date of purchase written on the warranty card and keep it in a secure place as you have to present the card to get good service from us when asking for repair.
- + When this product goes out of order under the normal use of customer, we will repair it free of charge during the warranty period.
- + The damages prescribed below are NOT to be covered by warranty
 - Users faults by lack of care
 - Unauthorized electric currency connection defaults
 - Damages caused by natural disaster
 - Replacement to new parts
- + Please keep the warranty card securely as it is not reissued, and show us the warranty card when you ask for repair service.

