



# WatchBP Analyzer

WatchBP Analyzer

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## Software User Manual

Document No: UMWBPA01-EN  
Rev. Date: 2023-09-04  
Revision: 05

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# 1 Introduction

WatchBP Analyzer is the dedicated blood pressure software of Microlife professional blood pressure monitoring product series. It can connect and transfer data from WatchBP Office device series, WatchBP Home device series and WatchBP O3 device series.

## 1.1 Environment Requirements

### 1.1.1 Compatible Devices

Devices Series	Model	Connection Method
WatchBP Office	2G (BP3SK1-3B)	USB & BT
	Vascular (TWIN200VSR)	USB & BT
	ABI (TWIN200ABI)	USB
	AFIB (TWIN200AFS)	USB
WatchBP O3	Ambulatory 2G (BP3SZ1-1)	USB & BT
	AFIB Ambulatory (BP3MZ1-1A)	USB
	Ambulatory (BP3MZ1-1)	USB
WatchBP Home	WatchBP Home (BP3MX1-1)	USB
	WatchBP Home A (BP3MX1-3)	USB
	WatchBP Home A BT (BP3MX1-3C)	USB (only support USB communication)

**Note: Bluetooth connection doesn't support with Windows 7 & 8.**

### 1.1.2 Computer Requirements

Item	Requirements
OS of Windows	Windows 10/ 11
Processor	1GHz and above

Ram	512 MB and above
Disk Space	4.5GB free hard disk space and above
Data communication Interface:	(1) USB2.0 and above (2) Bluetooth 4.0 and above <b>Note: Bluetooth communication doesn't support with Windows 7 &amp; 8.</b>

## 1.2 Abbreviations and Terms

The below abbreviations are shown in the software and explained as below

#	Abbreviations	Interpretations
1	<b>SYS</b>	Systolic blood pressure
2	<b>DIA</b>	Diastolic blood pressure
3	<b>MAP</b>	Mean arterial pressure
4	<b>PP</b>	Pulse pressure
5	<b>cSYS</b>	Central systolic blood pressure
6	<b>cDIA</b>	Central diastolic blood pressure
7	<b>cPP</b>	Central pulse pressure
8	<b>ABI</b>	Ankle brachial index
9	<b>PWV</b>	Pulse wave velocity
10	<b>Limb</b>	The specific limb of the measurement (only for simultaneous double cuffs measurements)
11	<b>HR</b>	Heart rate (beats per minute)
12	<b>AFIB</b>	Atrial fibrillation
13	<b>PVP waveform</b>	Pulse waveform of the measurement
14	<b>CODE</b>	Events or errors
15	<b>ABPM</b>	Ambulatory blood pressure monitor

### 1.3 Installation

Download the WatchBP Analyzer software from the Microlife website:

<http://www.microlife.com/support/software-professional-products>.

Double click on the downloaded installation program, the installation wizard dialog box will be shown.

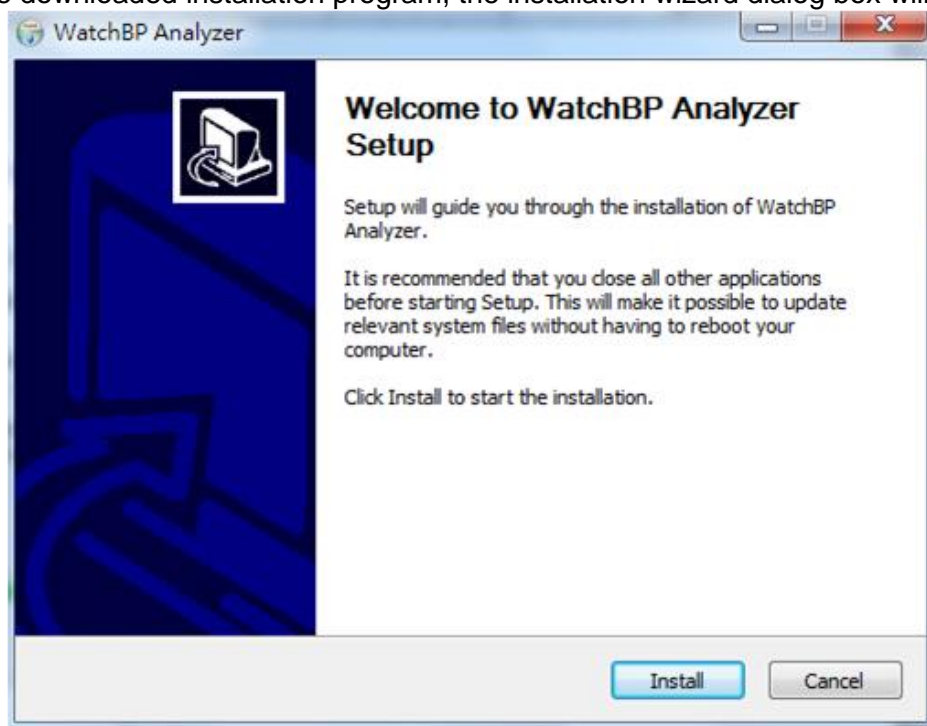


Fig. 1 The installation wizard dialog box.

Click "**Install**" to start the installation of the WatchBP Analyzer. After successful installation, the dialog box will be shown as Fig 2.

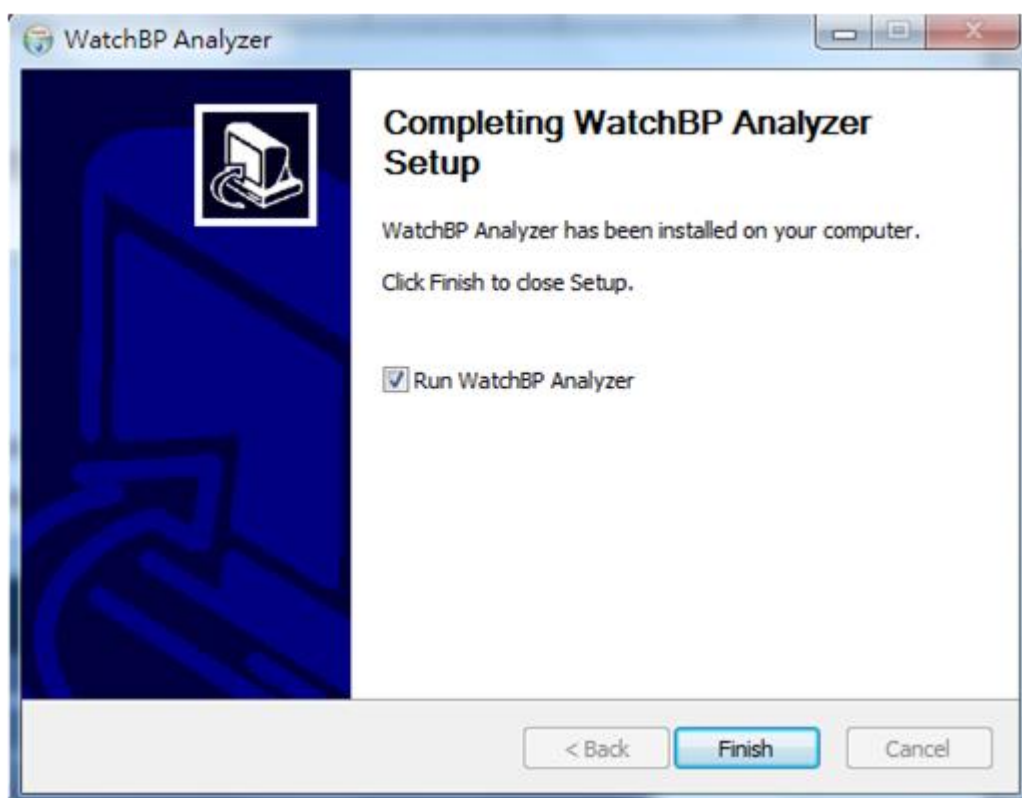


Fig. 2

Then click "Finish" to complete the installation.

## 2 User Interface

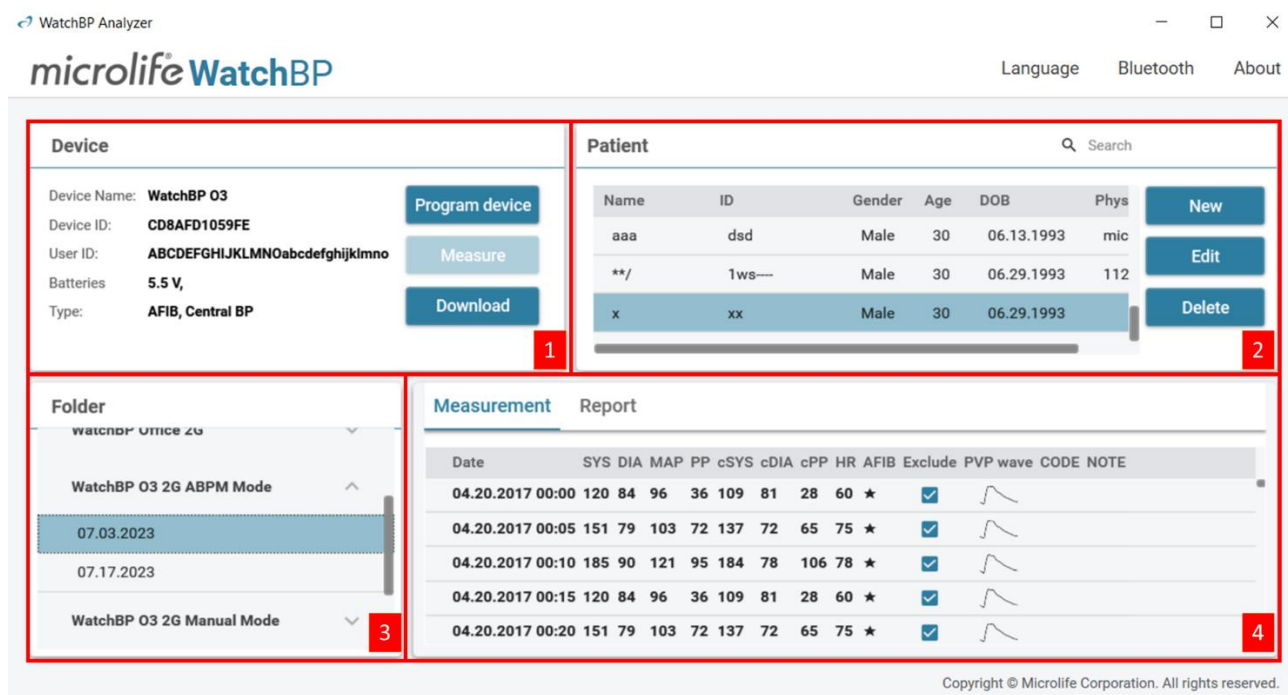


Fig. 3

The user interface of WatchBP Analyzer is divided into four main areas and introduced as below.

### 2.1 Device Area

Device information will be shown when a WatchBP device is connected. The fields are interpreted as below.

#### [Fields Interpretation]

Fields	Interpretation
Device name	The name of the WatchBP model.
Device ID	A unique device ID of the unit.
User ID	The patient ID that has been programmed to the device.
Batteries	The area displays the voltage and status of batteries of the WatchBP O3. If the voltage is low and thus may not last for 24-hour session, the “ <b>Renew battery</b> ” message will be highlighted.
Type	It shows the version of the device.
Options	It shows the extra options of the device. AFIB – device with AF detector; Central BP – device with the possibility of taking central blood pressure measurement, PWV - device with the possibility of taking pulse wave velocity measurement

#### [Button Functions]

The button functions are interpreted as below.

Buttons	Interpretation
Program device	For WatchBP O3 and Office, program the settings to the device. The button is enabled when a compatible WatchBP device is connected. Click the button to program the device. Note: This button cannot be pressed in WatchBP Vascular.
Measure	Start or Stop measurement (Only supported in WatchBP Office only) Set the measurement parameters, and then start a measurement. Note: This button is only supported in WatchBP Office.
Download	Download BP data from the device to the software.

## 2.2 Patient Area

Operators can register the patient in this area. Operators can manage the patient information in this area. Before programming settings to the device, initiating a measurement or downloading measurement data from device to PC, operators need to select a patient from the patient list first.

### [Button Functions]

The button functions are interpreted as below.

Buttons	Interpretation
<b>New</b>	Press the “New” button to register a new patient account.
<b>Edit</b>	Press the “Edit” button to edit the selected patient account.
<b>Delete</b>	Press the “Delete” button to delete the selected patient account.
<b>Search</b>	Users could input the “name”, “ID” or the “date of birth” to find out the specific patient.

## 2.3 Folder Area

When users select the specific patient, the corresponding historical measurement folder of the patient will be shown. The folder name is created by data types and displayed by the sequence of date. Measurements in the same date will be merged into the same folder.

All of the folders are interpreted as below.

Folder	Interpretation
<b>WatchBP O3 1G ABPM Mode</b>	Measurements of ABPM Mode of WatchBP O3 1G
<b>WatchBP O3 1G Casual Mode</b>	Measurements of Casual Mode of WatchBP O3 1G
<b>WatchBP O3 1G Home Mode</b>	Measurements of Home Mode of WatchBP O3 1G
<b>WatchBP O3 2G ABPM Mode</b>	Measurements of ABPM Mode of WatchBP O3 2G
<b>WatchBP O3 2G Manual Mode</b>	Measurements of Manual Mode of WatchBP O3 2G
<b>WatchBP Home Diagnostic Mode</b>	Measurements of Diagnostic Mode of WatchBP Home
<b>WatchBP Home Usual Mode</b>	Measurements of Usual Mode of WatchBP Home
<b>WatchBP Home A Diagnostic Mode</b>	Measurements of Diagnostic Mode of WatchBP Home A
<b>WatchBP Home A Usual Mode</b>	Measurements of Usual Mode of WatchBP Home A
<b>WatchBP Office Vascular</b>	Measurements of WatchBP Office Vascular
<b>WatchBP Office 2G</b>	Measurements of WatchBP Office 2G
<b>WatchBP Office Afib</b>	Measurements of WatchBP Office Afib
<b>WatchBP Office ABI</b>	Measurements of WatchBP Office ABI

## 2.4 Measurement Area

When the specific folder is selected, the corresponding readings will be displayed. The different fields are displayed when the different folder is selected.

Note: The abbreviation interpretation of the field could be referred to Ch. 1.2.

Fig.4 shows the measurement list of WatchBP O3. Fig.5 shows the measurement list of WatchBP Office. Fig.6 shows the double arm measurement of WatchBP Office ABI. Fig.7 shows the WatchBP Office Vascular measurement list. Fig.8 shows the usual mode readings of the WatchBP Home. Fig.9 shows the diagnostic mode readings of the WatchBP Home.







Measurement Report											Exclude	PVP wave	CODE
Date	SYS	DIA	HR	MAP	PP	cSYS	cDIA	cPP	AFIB				
3 07.30.2018 10:21	119	76	68	82	43	119	73	46			<input type="checkbox"/>		4,8
4 07.30.2018 10:22	119	78	68	86	41	120	75	45			<input type="checkbox"/>		4,8
5 07.30.2018 10:23	117	82	76	93	35	116	77	39	★		<input type="checkbox"/>		4,8
6 07.30.2018 10:25	115	78	72	87	37	116	75	41			<input type="checkbox"/>		4,8

Fig. 4




Measurement Report													
<input type="checkbox"/> Average without first measurement													
Date	SYS	DIA	HR	MAP	PP	cSYS	cDIA	cPP	AFIB	PVP wave	CODE	NOTE	
Average	120	76	69	86	44	121	72	49					
1 04.17.2019 10:44	128	77	66	85	51	130	71	59					
2 04.17.2019 10:45	114	73	70	79	41	115	71	44					
3 04.17.2019 10:47	118	78	70	93	40	119	75	44					

Fig. 5







Measurement Report													
Date	SYS	DIA	MAP	PP	ABI	Limb	HR	AFIB	Exclude	PVP wave	CODE	NOTE	
1-1 05.20.2020 15:14	131	79	87	52		RightArm	93		<input type="checkbox"/>				
1-2 05.20.2020 15:14	140	92	98	48	1.07	RightLeg	93		<input type="checkbox"/>				
2-1 05.20.2020 15:15	129	72	82	57		RightArm	88		<input type="checkbox"/>				
2-2 05.20.2020 15:15	136	88	99	48	1.05	RightLeg	88		<input type="checkbox"/>				
3-1 05.20.2020 15:18	128	73	82	55		LeftArm	90		<input type="checkbox"/>				
3-2 05.20.2020 15:18	142	88	98	54	1.11	LeftLeg	90		<input type="checkbox"/>				

Fig. 6 Double arm measurement of WatchBP Office ABI

Note: The first number indicates the order of recording. The dash and number after the first number indicate that the blood pressure of different limbs was measured at the same time. (The examples are framed by red blocks)





Date	SYS	DIA	MAP	PP	cSYS	cDIA	cPP	ABI	PWV	Index of cycle	Limb	Posture	HR	AFIB	Exclude	PVP wave	CODE	NOTE
1 2020.12.02 15:29										1	LeftArm	---	124		<input type="checkbox"/>		ER 5,	Abnormal result,
2 2020.12.02 15:31	104	61	70	43	107	61	46			2	LeftArm	---	65		<input type="checkbox"/>			
3-1 2020.12.03 13:22	93	52	71	41				1.58	123	1	LeftArm	Supine	56		<input type="checkbox"/>			
3-2 2020.12.03 13:22	147	92	115	55				1.58	123	1	LeftLeg	Supine	56		<input type="checkbox"/>			
4-1 2020.12.03 13:24	92	51	63	41				1.59	123	2	LeftArm	Supine	58		<input type="checkbox"/>			
4-2 2020.12.03 13:24	146	87	106	59				1.59	123	2	LeftLeg	Supine	58		<input type="checkbox"/>			
5 2020.12.03 13:37	152	98	110	54	135	88	47			1	LeftArm	Supine	58		<input type="checkbox"/>			
6 2020.12.03 13:38	146	94	112	52						2	LeftArm	Supine	61		<input type="checkbox"/>		ER 15,	Abnormal central blood pressure reading,

Fig. 7 WatchBP Office Vascular measurement list

Note: The first number indicates the order of recording. The dash and number after the first number indicate that the blood pressure of different limbs was measured at the same time. (The examples are framed by red blocks)

	Date	SYS	DIA	PP	HR	AFIB	Exclude
1	19.08.2022 10:47	134	68	66	45		<input type="checkbox"/>
2	19.08.2022 11:25	122	106	16	124		<input type="checkbox"/>
3	19.08.2022 11:38	164	81	83	73	★	<input type="checkbox"/>
4	22.08.2022 16:38	160	73	87	81	★	<input type="checkbox"/>
5	22.08.2022 20:39	105	72	33	80		<input type="checkbox"/>

Fig. 8 Usual Mode readings of the WatchBP Home

	Date	SYS	DIA	PP	HR	AFIB	Exclude
Average		130	77		62		<input type="checkbox"/>
Morning Average		127	76		61		<input type="checkbox"/>
Evening Average		133	77		63		<input type="checkbox"/>
Day 1							<input type="checkbox"/>
1	02.07.2011 07:00	151	96	55	61		<input type="checkbox"/>
2	02.07.2011 07:03	150	95	55	60		<input type="checkbox"/>
3	02.07.2011 19:00	151	96	55	61		<input type="checkbox"/>
4	02.07.2011 19:03	150	95	55	60		<input type="checkbox"/>
Day 2							<input type="checkbox"/>
5	03.07.2011 07:00	121	71	50	61		<input type="checkbox"/>
6	03.07.2011 07:03	122	72	50	62		<input type="checkbox"/>
Day 3							<input type="checkbox"/>
7	04.07.2011 07:00	121	71	50	61		<input type="checkbox"/>
8	04.07.2011 07:03	122	72	50	62		<input type="checkbox"/>
9	04.07.2011 19:00	121	71	50	61		<input type="checkbox"/>
10	04.07.2011 19:03	122	72	50	62		<input type="checkbox"/>
Day 4							<input type="checkbox"/>
11	05.07.2011 07:00	121	71	50	61		<input type="checkbox"/>

Fig. 9 Diagnostic Mode readings of the WatchBP Home

The fields of measurement area are explained as below.

#### [Fields Interpretation]

Fields	Interpretation
<b>Exclude</b>	If the <b>Exclude</b> field is checked, the corresponding reading will be excluded in the analysis and the report.
<b>Average without first measurement:</b>	Users could check the box to average the data without the first measurement.
<b>Pulse Volume Plethysmographic (PVP) waveform:</b>	When double clicking on the data showing a small wave icon, the PVP waveform of the corresponding measurement will be displayed (only for the central BP option). (Fig. 10a and 10b)
<b>Code and Note:</b>	Displays the codes of errors or events and brief description of the codes. Refer "Code, note and potential cause and remedy" for detail.

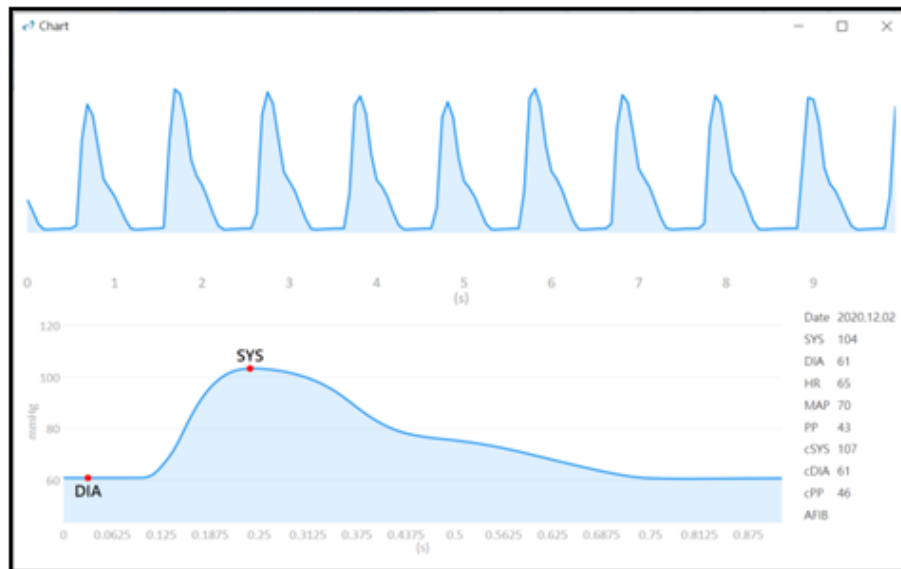


Fig. 10a PVP waveform for an arm or both arms

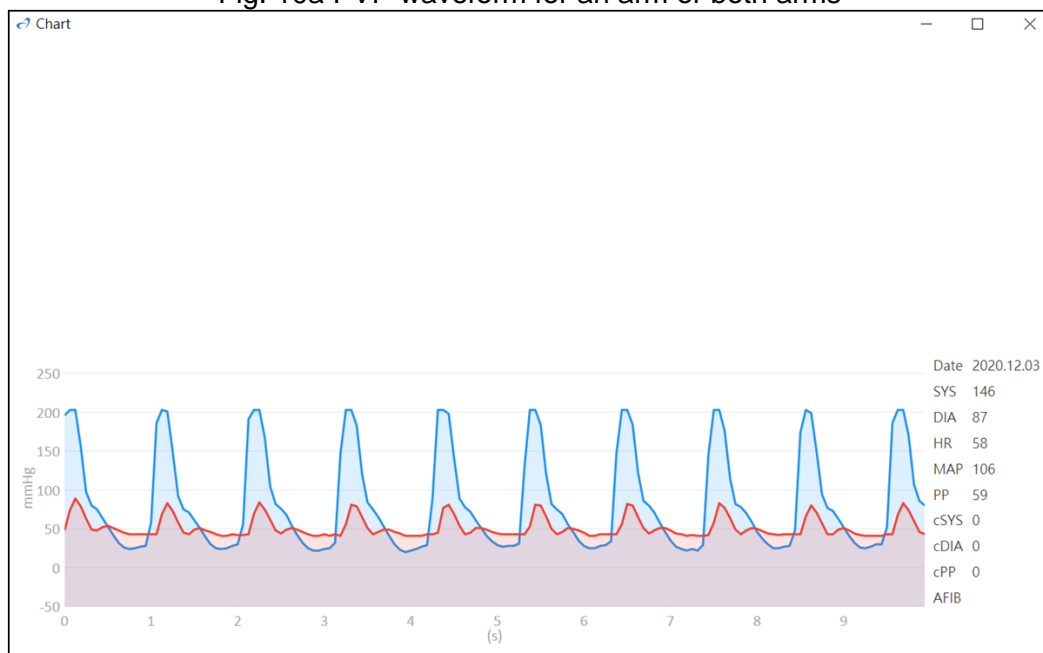


Fig. 10b PVP waveform for an arm with a leg

## 2.5 Report Area

### [Button Functions]

The button functions are interpreted as below.

Buttons	Interpretation
<b>Setting Office Blood Pressure Threshold</b>	Choose the threshold of systolic and diastolic from the drop-down menus. The values over the chosen threshold will be shown in red in the report.
<b>Report option</b>	Click to hide AFIB result.
<b>Customization</b>	You can type the name of center/hospital, and upload an image file as your customized logo and the information you provided above will be displayed in the PDF report, folder, and XLSX report. You can choose the storage path here.
<b>Generate PDF Report</b>	Click to generate a PDF report for the selected Measurement Folder.
<b>Open Folder</b>	Open the folder that contains the reports of the selected patient.
<b>Generate XLSX report</b>	Click to generate an Excel report of the selected Measurement Folder.

Measurement

Report

Customization

Physician

14589

Centre/Hospital

Clearwater Hospital

Customized logo

Select Image File

Report Folder

C:\Microlife\WatchBP Analyzer\Report

Path

Generate PDF Report

Open Folder

Generate XLSX

Fig. 11

### 3 Working with WatchBP Analyzer

#### 3.1 Patient Registration

You can manage the patients' information on the patient information area (Fig 12).

Patient

Search

Name	ID	Gender	Age	DOB	Physician
Green Lantern	GL	Male	30	1988.07.27	Dr. 1
Harley Quinn	HQ	Female	68	1950.07.02	Dr. Quinzel
Super Man	SM	Male	30	1988.09.05	doctor2

New

Edit

Delete

Fig. 12

- (1) **Add a new patient:**  
Step1: Click the **New** button, a dialog box will be shown. (Fig 13a).  
Step2: Input the patient ID, Name, Sex and Date of Birth; Physician ID, Email (optional) and Phone number (optional), then click **OK** button to finish the patient registration.

Note: The operator cannot register a used Patient ID. (Fig. 13b)

Patient Information

Patient

Patient ID

Name

Sex

Male

Female

Date of Birth

6/13/1993

Physician

Physician ID

Email

Phone

OK

Cancel

Fig. 13a

13

**Patient Information**

**Patient**

Patient ID   
*The patient ID is already in use. Please enter a different patient ID.*

Name

Sex ☒ Male ☐ Female

Date of Birth

**Physician**

Physician ID

Email

Phone

Fig. 13b

**(2) Edit the patient information:**

Step1: Select a patient and then click **Edit** button, the patient information dialog box with the record will be displayed.

Step2: Edit the information and click **Okay** button to save the changes.

**(3) Delete the patient:**

Step1: Select the patient's account and then click **Delete** button. Then, a confirmation screen will be shown.

Step2: Press **"yes"** to delete the selected patient account from the list.

## 3.2 Program Settings to the Device

WatchBP Analyzer allows users to program settings to the device. First of all, users have to connect the WatchBP device to the WatchBP Analyzer. There are two ways to connect with the device: (1) Connect by USB cable, (2) Connect via Bluetooth.

**Note: Program device will automatically clear all measurement data from the device. Make sure the measurement data on the device are downloaded to the PC before you program the device!**

### 3.2.1 Bluetooth Connection

Model	Pairing – device	Ready to pair	Connected
WatchBP Office (BP3SK1-3B)	Press and hold the MODE button for 7 seconds	Bluetooth indicator flashes	Shows Bluetooth indicator on device. Displays device information on the Analyzer.
WatchBP Office Vascular (TWIN200VSR)	Press and hold the MODE button for 7 seconds	Bluetooth indicator flashes	Shows Bluetooth indicator on device. Displays device information on the Analyzer.
WatchBP O3 (BP3SZ1-1)	Press and hold the Start/Stop button for 3 seconds	Bluetooth indicator flashes	Shows Bluetooth indicator on device. Displays device information on the Analyzer.

**Note: Bluetooth communication doesn't support with Windows 7 & 8.**

Step1: Click **Bluetooth** at the upper right of the WatchBP Analyzer, then the available Bluetooth device will

be shown.  
Step2: Select the specific WatchBP device and click the **Connect** button to connect it. (Fig. 14)

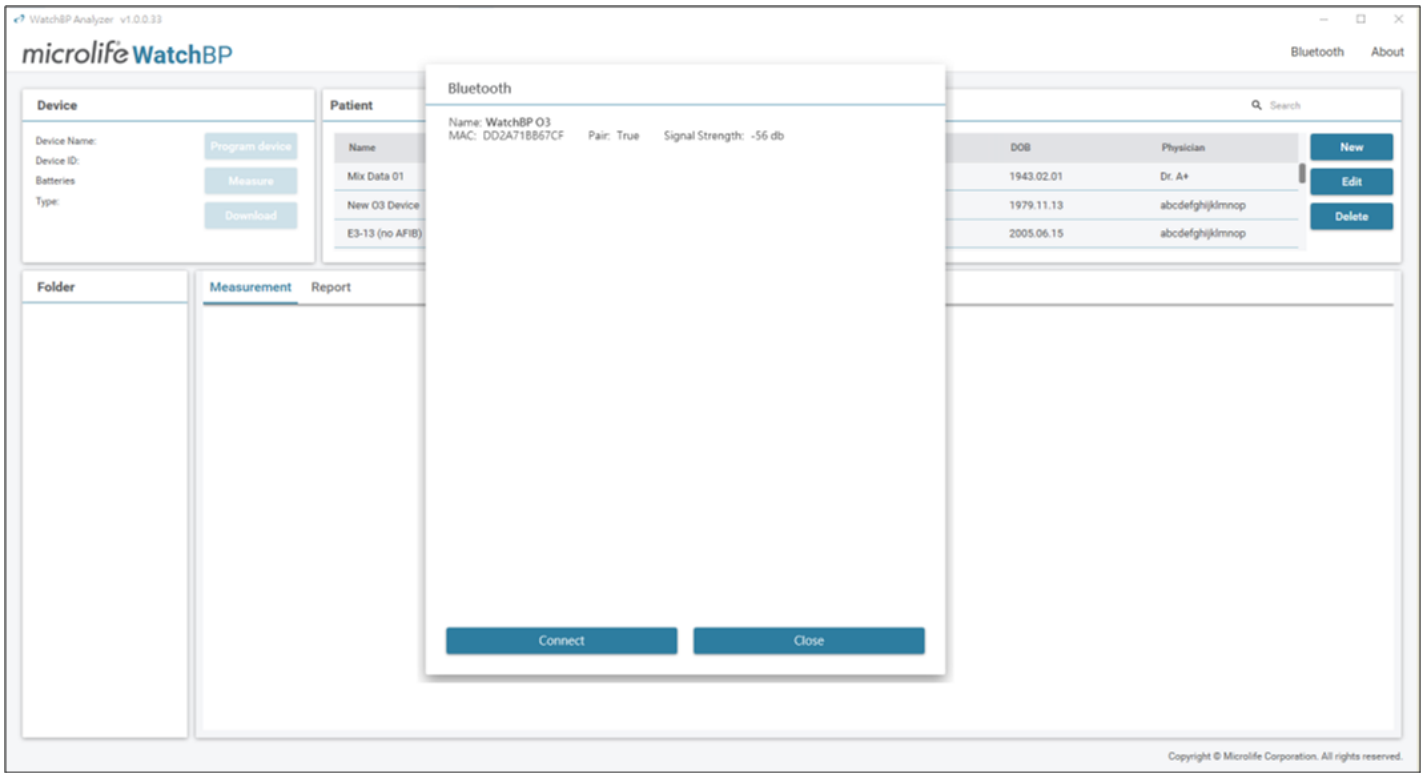


Fig. 14

Step3: Device information will be displayed once the connection is successful.

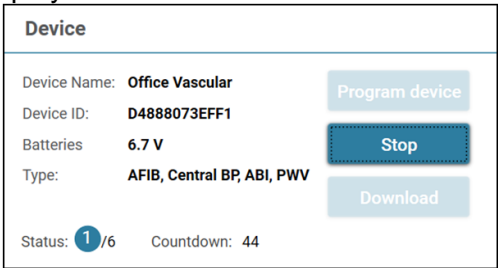


Fig. 15

**Note:** If the Bluetooth connection keeps failing, please reset the Bluetooth bonding by pressing and holding the Mode button of the device for 7 seconds (WBP Office 2G and Office Vascular) or Start/Stop button of the device for 3 seconds (WBP O3 2G) and then start the connection again. Refer to user manual of the device for clearing bonding.

3.2.2 Program ABPM

3.2.2.1 Setting User Interface

There are two types of ABPM mode: (1) 2-schedules and (2) 5-schedules

Program ABPM

Setting Day and Night Period

Measurement Schedule	Measurement Interval	CBP Measurement Interval	Silent Mode	Central BP
9 ~ 21	15	15	<input checked="" type="checkbox"/>	<input type="checkbox"/>
21 ~ 9	15	15	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Setting Highest Inflation Pressure

☒ Auto ☐ Manual

mmHg

\*Auto is Recommended

Setting Ambulatory Option

☐ Hide BP reading

Program

Cancel

\*Program device will automatically clear all measurement data on the device

Fig. 16: 2 schedules

Program ABPM

	Measurement Schedule	Measurement Interval	Measurement Reminder	Central BP
<input checked="" type="checkbox"/> 1	7 ~ 23	15	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> 2	23 ~ 7	60	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> 3	-- ~ --		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> 4	-- ~ --		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> 5	-- ~ --		<input type="checkbox"/>	<input type="checkbox"/>

Setting Highest Inflation Pressure

☒ Auto ☐ Manual

mmHg

\*Auto is Recommended

Setting Ambulatory Option

☐ Hide BP reading

Program

Cancel

\*Program device will automatically clear all measurement data on the device

Fig. 17: 5 schedules



## <Setting measurement periods>

Click the number of periods you want to have.

Set the start and stop hours to the period by the drop-down menu.

Select the interval time between each measurement.

Select the interval time between central blood pressure measurement. (For 2-schedule WBP O3 2G device)

Select 'Measurement Reminder' to able Measurement reminder, in which the device will partially inflate to approximately 50 mmHg and immediately deflate the cuff to remind the patient of the upcoming measurement, one minute before the next scheduled measurement. (For 5-schedules ABPM device)

Select 'Silent mode' to disable the warning beep before starting the measurement. The patient will still get a warning 1 minute before the measurement by means of a short inflation of the cuff. The patient should keep the arm still during blood pressure measurement. (For 2-schedules ABPM device)

Click the Central BP if you want to measure the central blood pressure. (Optional, the device should support central blood pressure measurement)

## <Setting Highest Inflation Pressure>

The "Highest Inflation Pressure" can be programmed to the device. The 'Auto' option is recommended because then the device will automatically inflate the cuff to the optimal cuff pressure. With the 'Manual' option you can select 180, 200, 220 or 240mmHg. The suggested Inflation Pressure is 30 to 40 mmHg above the expected systolic blood pressure value of the patient. If the selected Highest Inflation Pressure selected is too low to measure a patient's blood pressure it may result in re-pumping or erroneous blood pressure measurement values.

## <Setting Ambulatory Option>

Select the 'Hide BP reading' to hide the readings of the measurement results during monitoring. This is the recommended option (default).

### 3.2.2.2 Program ABPM

When the above settings are done, click **Program** button to program the settings to the connected WatchBP O3 device.

### 3.2.3 Program Office

#### 3.2.3.1 Setting User Interface

Program Office

Number of measurements

5

Countdown time before the first measurement

15

Interval time between measurements

15

☐ Average without first measurement

Child Mode (safeguard)

☐ Enable
 ☒ Disable

180

mmHg

Measurement options

☒ Hide BP reading
 ☒ Enable Central Blood Pressure Measurement

Program

Cancel

\*Program device will automatically clear all measurement data on the device

Fig. 18

## <Setting Number of measurements>

The number of measurements can be set from 1 to 6 measurements. Both the Count-down time before first measurement and Interval time between measurements can be set at 15, 30, 60, 120, 180, 240 and 300 seconds. Average without first measurement can be selected if Number of measurements is 3 measurements or more. When selected, the first measurement will be discarded from the average blood pressure value.

## <Child Mode (safeguard)>

On default this mode is on Disable – the device automatically inflates the cuff to an optimal cuff pressure for blood pressure measurement. While enable is selected and confirmed by program, the device automatically inflates the cuff to an optimal cuff pressure not higher than the pressure selected for Child Mode, however, the device may re- inflate the cuff to a pressure higher than the selected pressure if needed.

## <Measurement options>

Hide BP readings and enable central BP measurement can be programmed to the device. Please refer to the instruction manual of the device for detail of the features.

### 3.2.3.2 Program to the Office Device

When the above settings are done, click **Program** button to program the settings to the connected WatchBP Office device.

## 3.3 Perform Measurement by WatchBP Analyzer

### 3.3.1 WatchBP Office ABI Measurement

#### 3.3.1.1 Setting User Interface

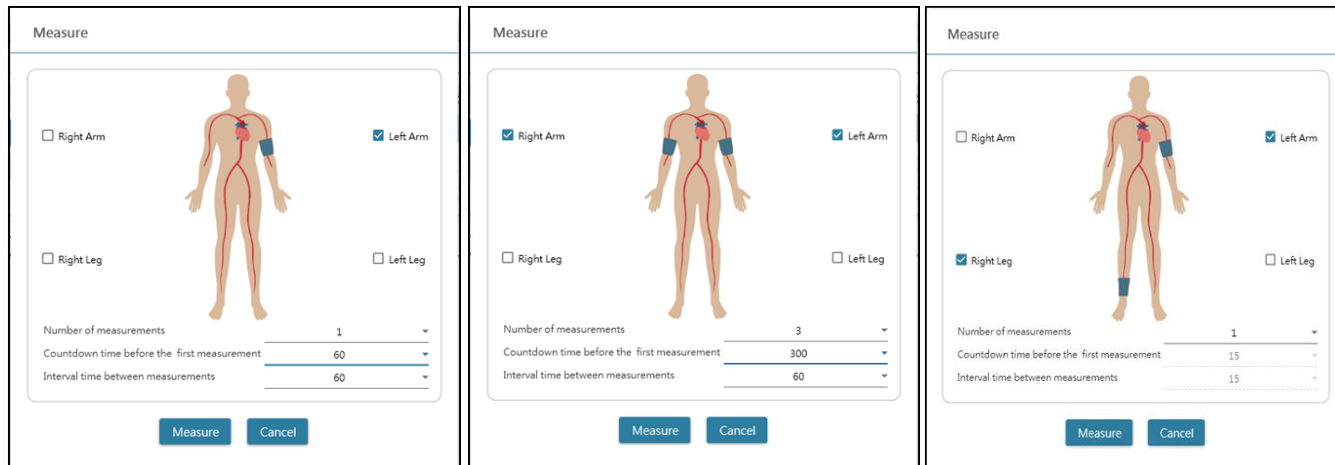


Fig. 19

Example of the selection of an arm (left), both arms (middle) and Ankle-brachial Index measurement (right).

## <Select the Intended Limb(s)>

Choose the intended limb(s) for the measurement at the top area.

**Note: only allow the selection of an arm, both arms, or an arm with a leg (ABI measurement).**

## <Setting Number of measurements>

The **Number of measurements** can be set from 1 to 6 measurements when you want to measure the blood pressure of an arm or both arms. Both the **Count-down time before first measurement** and **Interval time between measurements** can be set at 15, 30, 60, 120, 180, 240 and 300 seconds.

### 3.3.1.2 Performing Measurement

When the above settings are done, click **Measure** button to program the settings to the connected WatchBP

Office ABI and then the measurement will be started.

The status of the measurement procedure is shown in the device information area, measurement readings will be automatically downloaded after each measurement.

During the measurement, the **Measure** button will be switched to **Stop** button; Click **Stop** button if users would like to stop the measurement. (Fig. 20)



Fig. 20

3.3.2 WatchBP Office Vascular Measurement

3.3.2.1 Setting User Interface

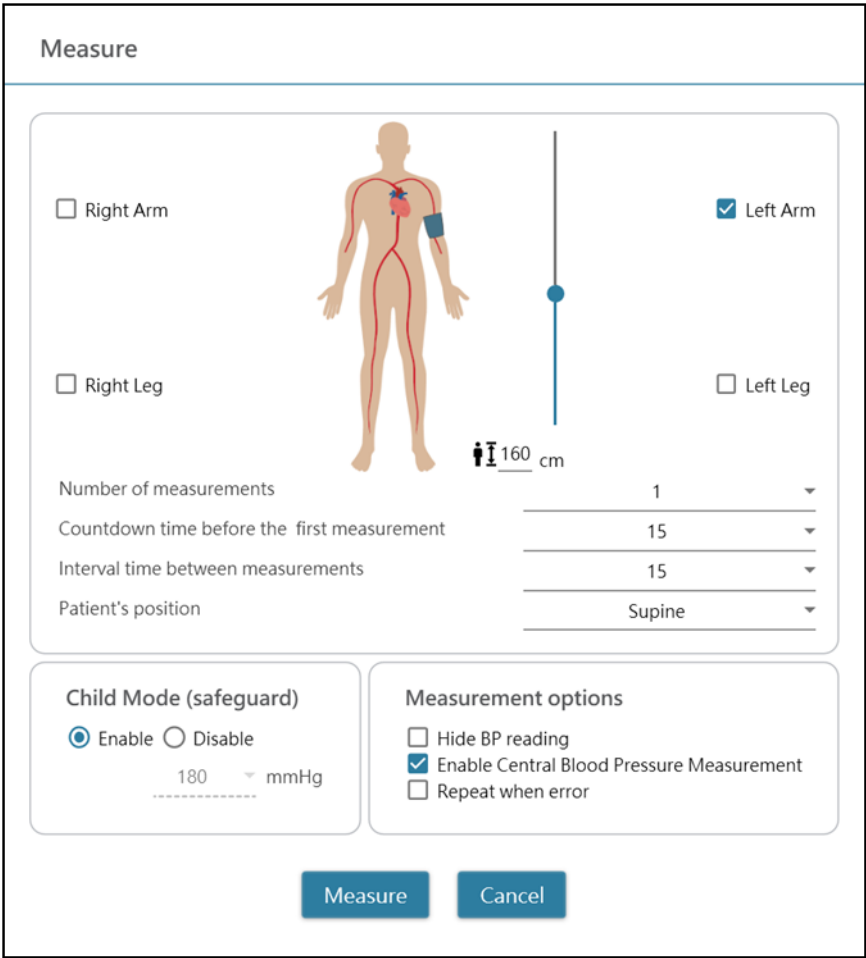


Fig. 21

<Select the Intended Limb(s)>

Choose the intended limb(s) for the measurement at the top area.

<Setting Patient’s Height>

The **patient’s height** can be set by typing or by adjusting the bar of height.

**Note: The patient’s height is crucial for PWV. Please set the height correctly when taking the PWV measurement.**

<Setting Number of measurements>

The **number of measurements** can be set from 1 to 6 measurements when you want to measure the blood pressure of an arm or both arms. Both the **count-down time before first measurement** and **Interval time between measurements** can be set at 15, 30, 60, 120, 180, 240 and 300 seconds.

## <Child Mode (safeguard)>

On default this mode is on **enable** – the device automatically inflates the cuff to an optimal cuff pressure for blood pressure measurement. While **disable** is selected, the device inflates the cuff to an optimal cuff pressure not higher than the selected pressure in the **Child Mode**, however, the device may re-inflate the cuff to a pressure higher than the selected pressure if needed.

### 3.3.2.2 Performing Measurement

**Hide BP readings** and **Enable Central BP Measurement** can be programmed to the device. Please refer to the instruction manual of the device for detail of the features.

When the above settings are done, click **Measure** button to program the settings to the connected WatchBP Office Vascular and then the measurement will be started.

The status of the measurement procedure is shown in the device information area, measurement readings will be automatically downloaded after each measurement.

During the measurement, the **Measure** button will be switched to **Stop** button; Click **Stop** button if users would like to stop the measurement. (Fig. 22)

The screenshot shows the 'Device' section of the WatchBP Analyzer interface. It displays the following information:

- Device Name:** Office Vascular
- Device ID:** D4888073EFF1
- Batteries:** 6.7 V
- Type:** AFIB, Central BP, ABI, PWV

On the right side of the device information, there are three buttons: 'Program device' (light blue), 'Stop' (dark blue with a dashed border), and 'Download' (light blue). Below the device information, the status is shown as 'Status: 1/6' and 'Countdown: 44'. To the right of this, there is a separate box showing 'Status: 1/6' and 'Countdown: Stop'.

Fig. 22

## 3.4 Download Readings from WatchBP Devices

Step1: Users need to connect the device to the WatchBP Analyzer first to download the readings from the WatchBP device. Users could refer to Ch 3.2 and 3.2.1 to know how to connect the device. Once the device connection is successful, the device information will be displayed in the Device area as below.

The screenshot shows the 'Device' section of the WatchBP Analyzer interface for a different device. It displays the following information:

- Device Name:** WatchBP Home A
- Device ID:** BT011
- User ID:** 1001
- Batteries:** 4.4 V, Renew battery (in red text)
- Type:** AFIB

On the right side of the device information, there are three buttons: 'Program device' (light blue), 'Measure' (light blue), and 'Download' (dark blue with a dashed border).

Fig. 23

Step2: Select a patient by clicking anywhere of that patient bar.

Patient						Search	
Name	ID	Gender	Age	DOB	Physician		
Green Lantern	GL	Male	30	1988.07.27	Dr. 1		
Harley Quinn	HQ	Female	68	1950.07.02	Dr. Quinzel		
Super Man	SM	Male	30	1988.09.05	doctor2		

New  
Edit  
Delete

Fig. 24

Step3: Click the **Download** button to transfer the BP data from the device to the **Folder** of that patient in WatchBP Analyzer. If the selected patient ID on the software is different from the patient ID that has been programmed to the device, a message as below will be shown. Users need to select which patient ID needs to be assigned to retrieve the data. (Fig. 25, WatchBP O3 only). Once the patient ID is selected, click **Continue** button to download the data.

Download

The data on the device refers to patient ID HQ

Currently Patient ID SM is selected Which patient shall the data be assigned?

☒ HQ  
☐ SM

Continue Cancel

Fig. 25

(HQ and SM are the patient ID examples)

Step4: If the device was programmed to also perform central blood pressure measurement, another dialogue as below will be displayed. Check the check box before **transfer waveform data** and click **Continue** button to download the waveform. (Fig. 26)

Download

☐ transfer waveform data

(It may takes a few minutes to download all the raw data)

Continue Back

Fig. 26

Step5: When the data download is done, the corresponding date and time folder will be added to the assigned patient.

### 3.5 Review the Retrieved Readings

Step1: Select the specific date from the folder area. The Folder is named by the device or measurement mode. All of the folders could refer to the Ch.2.3.

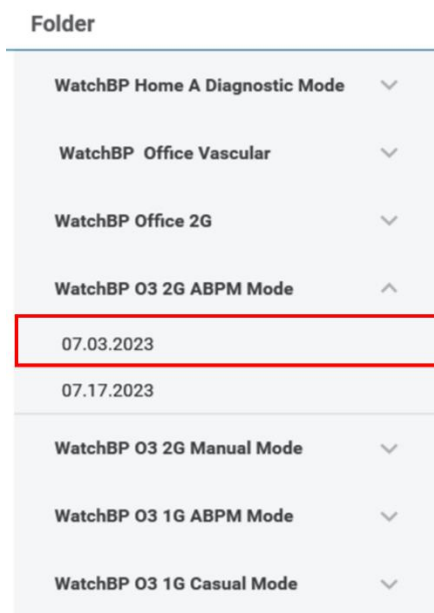


Fig. 27

Step2: Click **Measurement** Tab to review the measured records of the Folder.

Measurement		Report											
	Date	SYS	DIA	HR	MAP	PP	cSYS	cDIA	cPP	AFIB	Exclude	PVP wave	CODE
3	07.30.2018 10:21	119	76	68	82	43	119	73	46		<input type="checkbox"/>		4,8
4	07.30.2018 10:22	119	78	68	86	41	120	75	45		<input type="checkbox"/>		4,8
5	07.30.2018 10:23	117	82	76	93	35	116	77	39	★	<input type="checkbox"/>		4,8
6	07.30.2018 10:25	115	78	72	87	37	116	75	41		<input type="checkbox"/>		4,8

Fig. 28

### 3.6 Export Report

Step1: Select the specific date from the folder area.

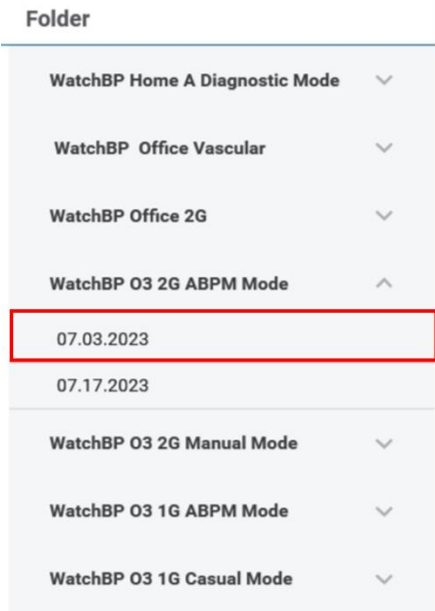


Fig. 29

Step2: Click **Report** Tab to view the settings and generate report of the Measurement Folder.

WatchBP Office, WatchBP O3 and WatchBP Home series have different user interface of report tab. It's described as below.

3.6.1 Report Tab of WatchBP O3 Series

The report tab of WatchBP O3 is shown as below. It can be divided into (1) setting area, (2) option area and (3) customized area.

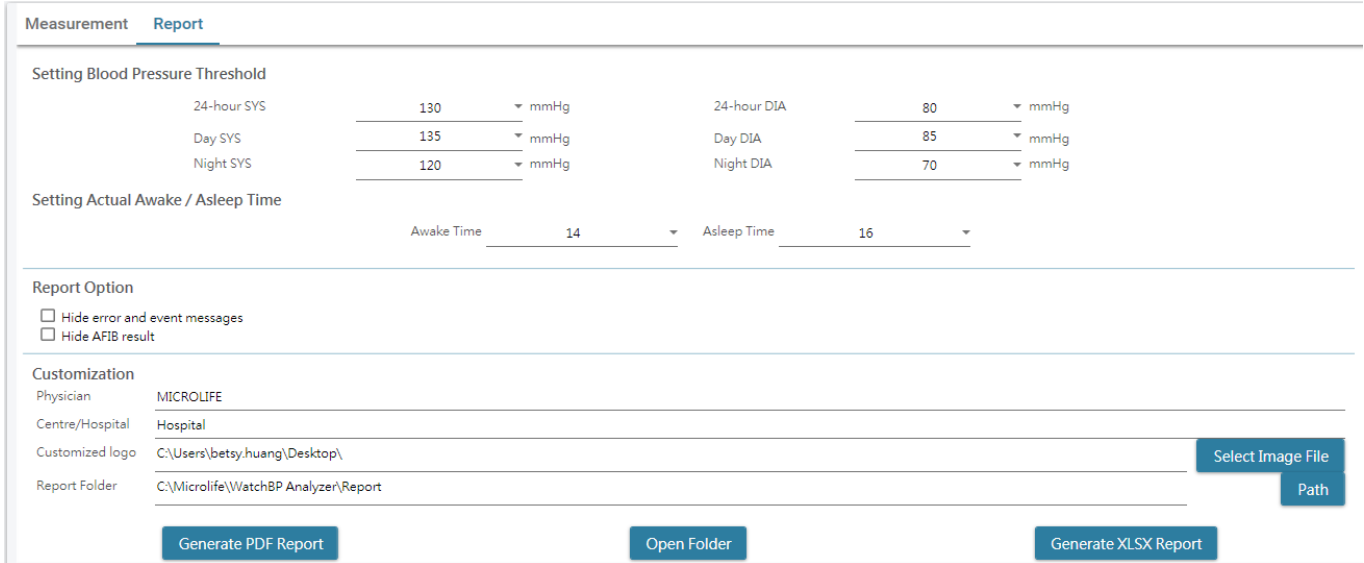


Fig. 30

### 3.6.1.1 Settings Area

The screenshot shows the 'Report' tab in the WatchBP Analyzer settings. It contains two main sections:

- Setting Blood Pressure Threshold:** This section allows users to set blood pressure thresholds for 24-hour, Day, and Night. Each category has input fields for Systolic (SYS) and Diastolic (DIA) pressures in mmHg.
 

Category	SYS (mmHg)	DIA (mmHg)
24-hour	130	80
Day	135	85
Night	120	70
- Setting Actual Awake / Asleep Time:** This section allows users to set the actual awake and asleep times.
 

Category	Time
Awake Time	7
Asleep Time	22

Fig. 31

#### Setting Blood Pressure Threshold:

Users can use the default threshold values (as recommended by the guidelines) or select another threshold value for 24h-hour, day and nighttime blood pressures.

#### Setting Actual Awake/ Asleep Time:

Users could modify the awake and asleep time according to patient's actual lifestyle. The awake time can be selected from 00:00 to 23:00, asleep time can also be selected from 00:00 to 23:00.

### 3.6.1.2 Option Area

The screenshot shows the 'Report Option' section in the WatchBP Analyzer settings. It contains two checkboxes:

- ☐ Hide error and event messages
- ☐ Hide AFIB result

Fig. 32

#### Hide error and event messages:

The error and event can be hidden in the PDF report.

#### Hide AFIB result:

The AFIB alert can be hidden in the PDF report.

### 3.6.1.3 Customization Area

The screenshot shows the 'Report' tab in the WatchBP Analyzer settings, specifically the 'Customization' section. It contains input fields for:

- Physician: Dr. Doctor
- Centre/Hospital: Hospital
- Customized logo: C:\Users\Public\Pictures\Sample Pictures\Tulips.jpg
- Report Folder: C:\Microlife\WatchBP Analyzer\Report

There are also buttons for:

- Select Image File (next to Customized logo)
- Path (next to Report Folder)
- Generate PDF Report
- Open Folder
- Generate XLSX Report

Fig. 33

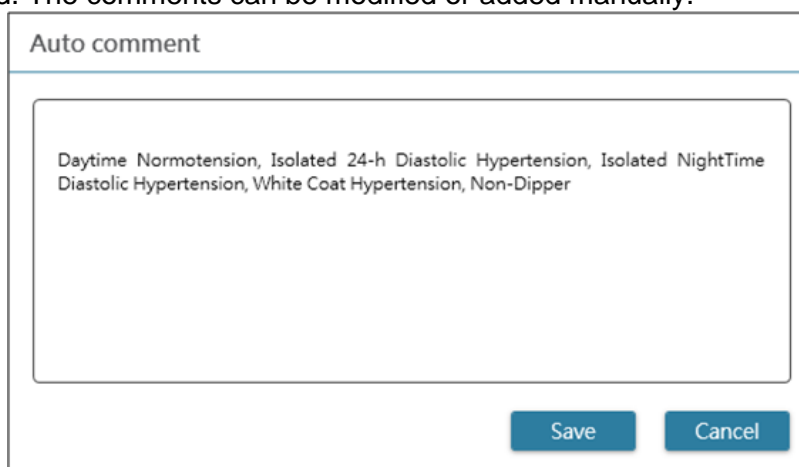
Users can set (1) Physician Information, (2) Hospital Name, (3) Report Logo and (4) Save Folder Path at this



area. When the above settings are done, press the **Generate PDF Report/ Generate XLSX Report** button to generate the report.

## 3.6.1.4 Input Auto Comment

Click the **Generate PDF Report** button, an **Auto comment** dialog appears with the comments will be automatically generated. The comments can be modified or added manually.

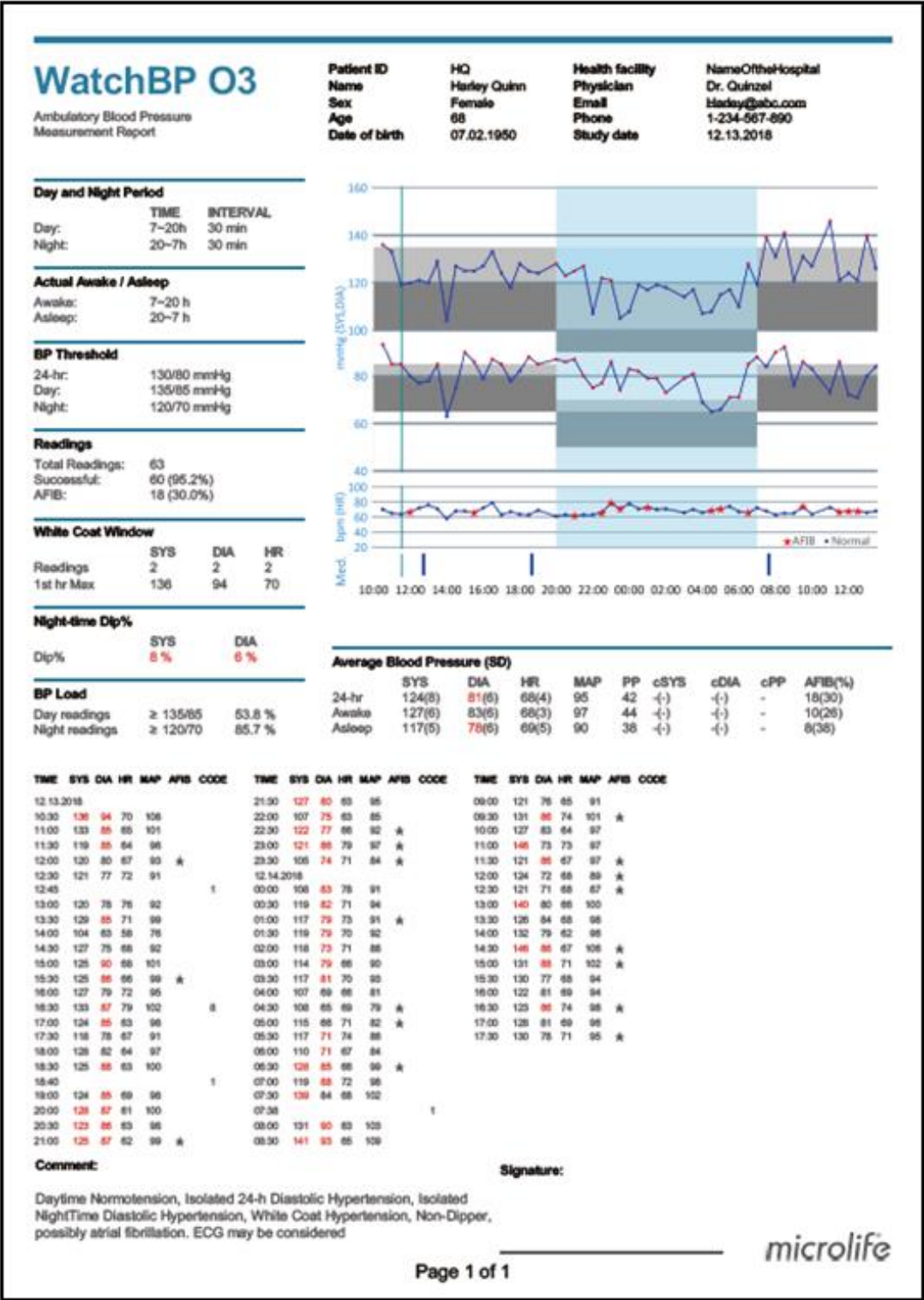


The image shows a dialog box titled "Auto comment". Inside the dialog, there is a text area containing the following text: "Daytime Normotension, Isolated 24-h Diastolic Hypertension, Isolated NightTime Diastolic Hypertension, White Coat Hypertension, Non-Dipper". At the bottom right of the dialog, there are two buttons: "Save" and "Cancel".

Fig. 34

Then click **Save** button to generate the report.

3.6.1.5 PDF Report



3.6.2 Report Tab of WatchBP Office Series

The report tab of WatchBP Office is shown as below. It can be divided into (1) setting area, (2) option area and (3) customized area.

Measurement

Report

Setting Office Blood Pressure Threshold

SYS

140

mmHg

DIA

90

mmHg

Report Option

☒ Hide error and event messages

☐ Hide AFIB result

☒ Average without first measurement

Customization

Physician

MICROLIFE

Centre/Hospital

Hospital

Customized logo

C:\Users\betsy.huang\Desktop\

Select Image File

Report Folder

C:\Users\betsy.huang\Desktop

Path

Generate PDF Report

Open Folder

Generate XLSX Report

Fig. 36

3.6.2.1 Setting Area

Setting Office Blood Pressure Threshold

SYS

140

mmHg

DIA

90

mmHg

Fig. 37

**Setting Office Blood Pressure Threshold:**  
Users can use the default threshold or define threshold by themselves.

3.6.2.2 Option Area

Report Option

☒ Hide error and event messages

☐ Hide AFIB result

☐ Average without first measurement

Fig. 38

- Hide error and event messages:**  
The error and event can be hidden in the PDF report.
- Hide AFIB result:**  
The AFIB alert can be hidden in the PDF report.
- Average without first measurement:**  
The first measurement can be excluded when the average blood pressure is calculated.

### 3.6.2.3 Customization Area

Fig. 39

Users can set (1) Physician Information, (2) Hospital Name, (3) Report Logo and (4) Save Folder Path at this area. When the above settings are done, press the **Generate PDF Report/ Generate XLSX Report** button to generate the report.

### 3.6.2.4 PDF Report

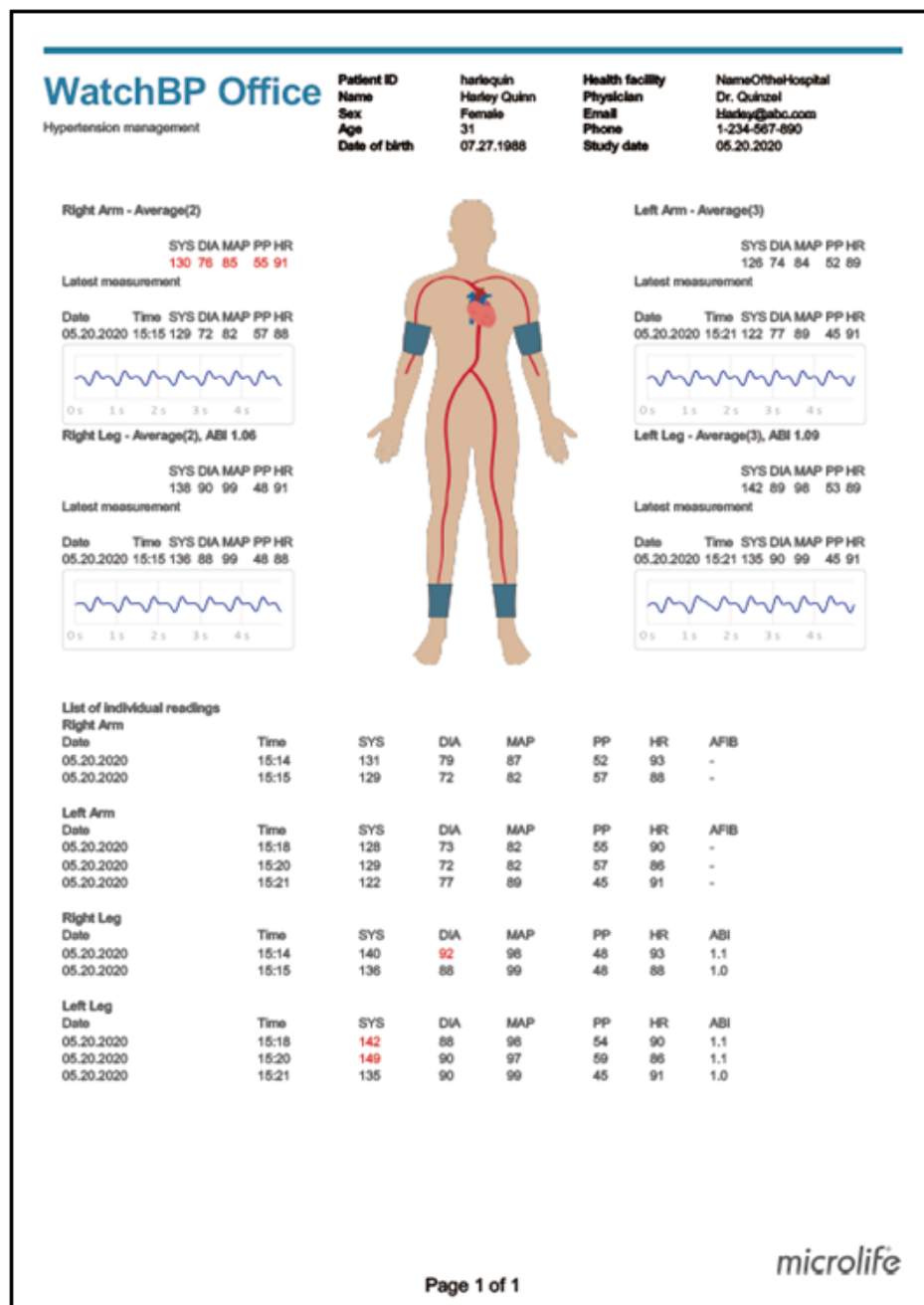


Fig. 40 WatchBP Office report

### 3.6.3 Report Tab of WatchBP Home

Measurement **Report**

Customization

Physician Dr. Doctor

Centre/Hospital Hospital

Customized logo C:\Users\Public\Pictures\Sample Pictures\Tulips.jpg Select Image File

Report Folder C:\Microlife\WatchBP Analyzer\Report Path

Generate PDF Report Open Folder Generate XLSX Report

Fig. 41

#### 3.6.3.1 Customization Area

Users can customize the (1) **Physician**, (2) **Centre/Hospital name** and (3) the **logo of the report** to show on the PDF report. In addition, users also could set the storage path of the report.

Customization

Physician microlife

Centre/Hospital Hospital

Customized logo D:\Users\Morris.Huang\Desktop\squirtle.png Select Image File

Report Folder C:\Microlife\WatchBP Analyzer\Report Path

Fig. 42

#### 3.6.3.2 Generate Report

When the above settings are done, users can press the **Generate PDF Report/ Generate XLSX Report** button to generate the report.

#### 3.6.3.3 PDF Report

**WatchBP Home A**

Measurement Report

Patient ID: HomeOld0822  
Name: Home\_old 2022.08.22  
Sex: Female  
Age: 12  
Date of birth: 15.12.2009

Health facility: Hospital  
Physician: Dr. Doctor  
Email: doctor.dr@retuo.qewy  
Phone: tel1234567890 #12345(123)  
Study date: 02.07.2011

	SYS	DIA	HR
Average	130.5	76.7	62.2
Morning Average	127.3	76.3	61.3
Evening Average	133.1	77.1	62.9

DATE	TIME	SYS	DIA	HR	PP	AFIB
Day 1						
02.07.2011	07:00	151	96	61	55	
02.07.2011	07:03	150	95	60	55	
02.07.2011	19:00	151	96	61	55	
02.07.2011	19:03	150	95	60	55	
Day 2						
03.07.2011	07:00	121	71	61	50	
03.07.2011	07:03	122	72	62	50	
Day 3						
04.07.2011	07:00	121	71	61	50	
04.07.2011	07:03	122	72	62	50	
04.07.2011	19:00	121	71	61	50	
04.07.2011	19:03	122	72	62	50	
Day 4						
05.07.2011	07:00	121	71	61	50	
05.07.2011	07:03	122	72	62	50	
05.07.2011	19:00	120	70	60	50	
05.07.2011	19:03	121	71	61	50	
Day 5						
06.07.2011	07:00	121	71	61	50	
06.07.2011	07:03	122	72	62	50	
06.07.2011	19:00	125	75	65	50	
06.07.2011	19:03	120	70	60	50	
Day 6						
07.07.2011	19:00	120	70	60	50	
07.07.2011	19:03	121	71	61	50	
Day 7						
18.08.2023	23:46	164	80	72	64	
18.08.2023	23:49	162	84	72	78	

Fig. 43 WatchBP Home report (Diagnostic Mode)

## 3.7 History Readings Management

### 3.7.1 Delete a Measurement Folder

Step1: Select a patient in the patient list.

Step2: Then the corresponding measurement folder of this patient is shown.

Step3: Select the specific date from the folder area.

Step4: Right click the mouse on the folder, the Delete option will be shown.

Step5: Press the **Delete** button and then the folder will be deleted.

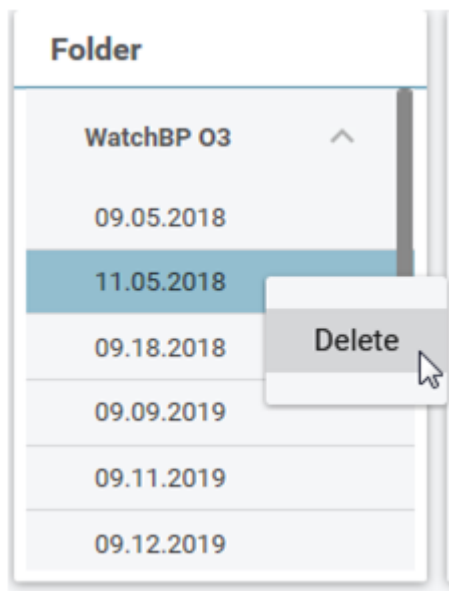


Fig. 44

## 4 Activate the Device

WatchBP Analyzer provides activation functions for distributor to unlock the settings of the devices.

Step1: Click **About** button on the upper right on the WatchBP Analyzer.

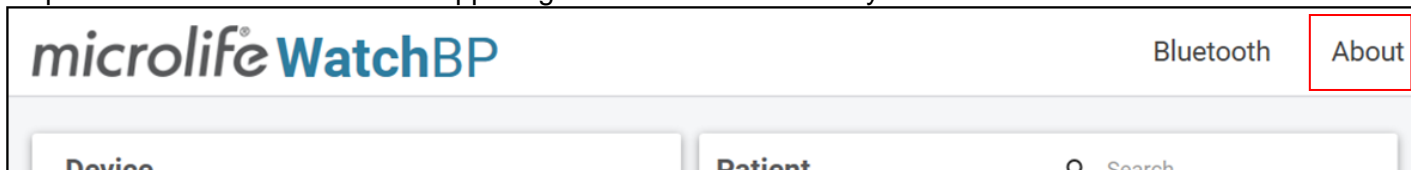


Fig. 45

Step2: Then the corresponding activation option dialog will be shown.

**Note: Based on the connected device to decide what options are shown.**

### 4.1 AFIB / AFIB & Central BP options

The Atrial Fibrillation Detector (AFIB) and Central Blood Pressure unlock options are provided with (1) **WatchBP O3 2G (model BP3SZ1-1)** and (2) **WatchBP Office (model BP3SK1-3B)**. There are three device models provided:

- (1) **Advance**: standard ABPM or office blood pressure monitor (OBPM)
- (2) **AFIB**: standard ABPM or OBPM with Microlife Atrial Fibrillation Detector
- (3) **AFIB & Central BP**: standard ABPM or OBPM with Microlife Atrial Fibrillation Detector and Central Blood Pressure measurement

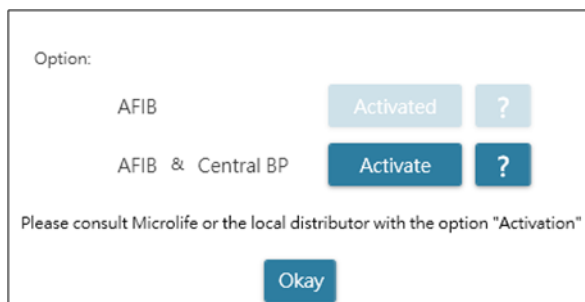


Fig. 46

### 4.2 ABI / PWV & Central BP options

The ankle-brachial index (ABI), brachial-ankle pulse wave velocity (PWV), and Central Blood Pressure measurement unlock options are provided with WatchBP Office Vascular (model TWIN200 VSR). There are three device models provided:

- (1) **Advance**: standard WatchBP Office Vascular.
- (2) **ABI**: standard WatchBP Office Vascular with ankle-brachial index (ABI) measurement
- (3) **PWV & Central BP**: standard WatchBP Office Vascular with ABI, CBP and PWV measurement.

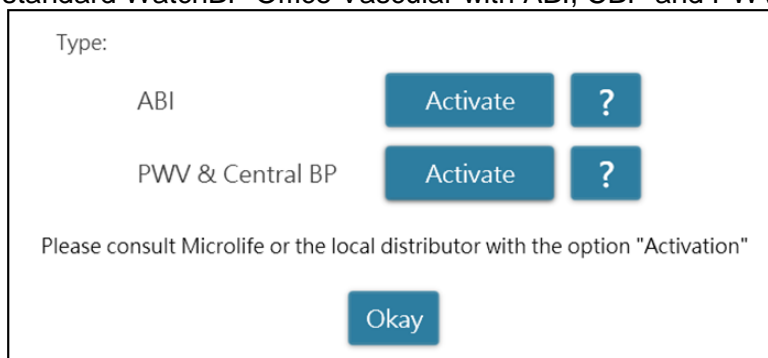


Fig. 47

### 4.3 Procedure of the Activation

Activation key is needed to activate the lock features. Users have to contact Microlife or the local distributor to have the activation key. The Activation procedure is described as below.

**Note: Activation key is not free of charge, please contact Microlife or the local distributor for the details.**

Step1: Click on the question mark (?) button at the right side of the **Activate** button.

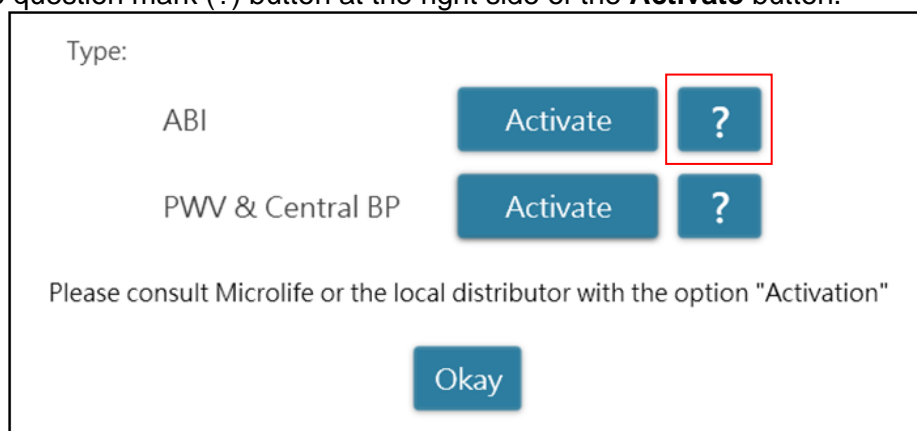


Fig. 48

Step2: Then device information dialog will be shown as below.

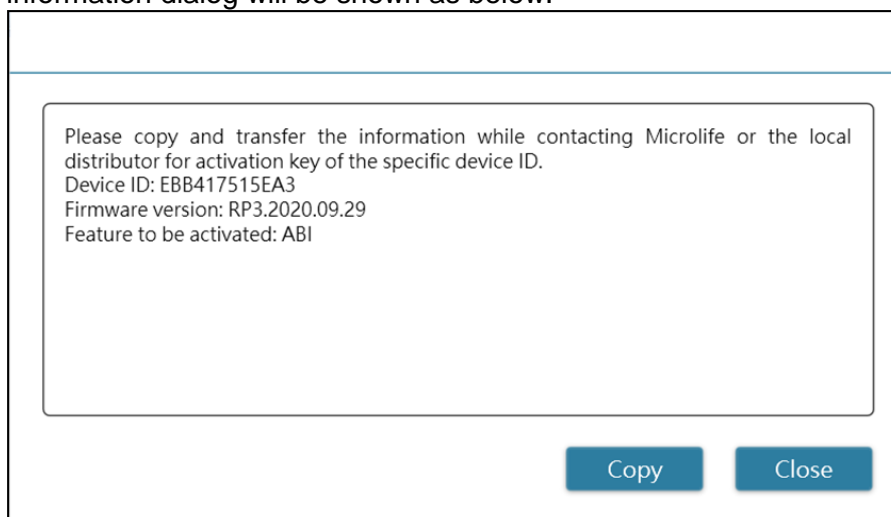


Fig. 49

Step3: Send the device information to Microlife or the local distributor.

Step4: The vendor will send back the activation key to the qualified users.

Step5: Click the **Activate** button of the specific option and the below dialog will be displayed.

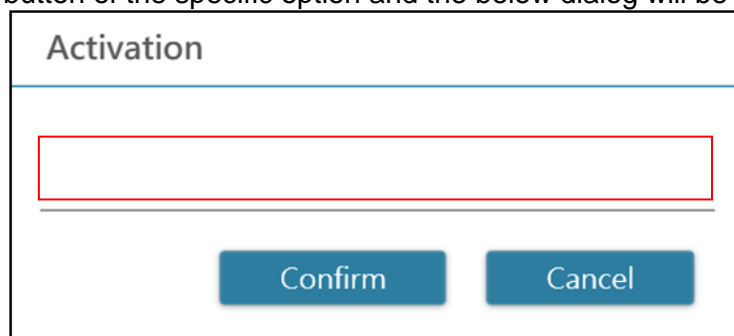


Fig. 50

Step6: Input the **Activate Key** and press the **Confirm** button. If the key is valid, the activated message dialog will be shown as below. When the dialog is displayed, it means the option is activated successfully.



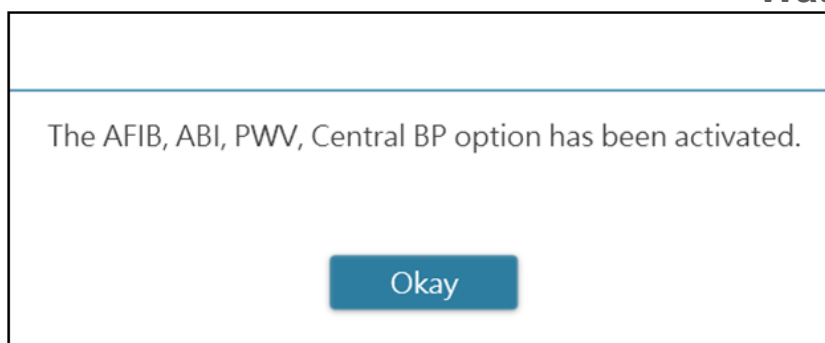


Fig. 51

## Appendix A: Error Code List

CODE	NOTE	Potential cause and remedy
1	Pill record	
2	device power on	
3	device power off	
4	Low battery	
5	Empty battery	
6	Re-try measurement	
7	Measurement manually terminated	
8	Manual measurement	
Er 1	Signal too weak	The pulse signals on the cuff are too weak. Reposition the cuff and repeat the measurement.
Er 2	Error signal	During the measurement, error signals were detected by the cuff, caused by e.g. movement or muscle tension. Repeat the measurement, keeping your arm still.
Er 3	No pressure in the cuff	An adequate pressure cannot be generated in the cuff. A leak may have occurred. Replace the cuff if necessary. Repeat the measurement.
Er 5	Abnormal result	The measuring signals are inaccurate, and no result can therefore be displayed. Read through the checklist for performing reliable measurements and then repeat the measurement.
Er 11	Signal too weak during central blood pressure measurement	The pulse signals on the cuff are too weak. Re-position the cuff and repeat the measurement.
Er 12	Error signal during central blood pressure measurement	During the measurement, error signals were detected by the cuff, caused by e.g. movement or muscle tension. Repeat the measurement, keeping your arm still
Er 13	Cuff pressure errors during central blood pressure measurement	An adequate pressure cannot be generated in the cuff. A leak may have occurred. Check if the cuff is correctly connected and is not too loose. Replace the batteries if necessary. Repeat the measurement
Er 15	Abnormal central blood pressure reading	The measuring signals are inaccurate and no result can therefore be displayed. Read through the checklist for performing reliable measurements and then repeat the measurement.
Er 21	Error signal during collecting pulse wave signals	Check if the cuff is correctly connected and is not too loose. Replace the blood pressure cuff if necessary. Repeat the measurement.
Er 23	Cuff pressure errors during collecting pulse wave signals	Check if the cuff is correctly connected and is not too loose. Replace the blood pressure cuff if necessary. Repeat the measurement.
Er 25	Abnormal result of baPWV reading	Check if the cuff is correctly connected and is not too loose. Replace the blood pressure cuff if necessary. Repeat the measurement.
Er F	The device has gone into "single fault condition"	Re-position the cuff and repeat the measurement. Replace the batteries if necessary. If the error persists, contact Microlife or local distributor
Er A	Flash memory error	Possible hardware fault. Try again. If the error persists, contact Microlife or local distributor
HI	Pulse or cuff pressure too high	The pressure in the cuff is too high (over 299 mmHg) OR the pulse is too high (over 239 beats per minute). Relax for 5 minutes and repeat the measurement.
LO	Pulse too low	The pulse is too low (less than 30 beats per minute). Repeat the measurement.

### Note:

The CODE is shown at measurement list on Measurement Tab, PDF and Excel report.  
The NOTE (the message provided by the software) is shown on Analyzer.

## Appendix B: SW Error Messages

#	Error/ Alert Message	Potential cause
1	Not supported	[USB Connection] The connected device is not supported by the WatchBP Analyzer
2	Connection Timeout	[USB Connection] The connection time out.
3	Connect_Error! Please try again	[USB Connection] During the device connection, some expected errors are occurred.
4	Pairing code doesn't match. Please press and hold the MODE button of the device for 7 seconds to enter Bluetooth pairing mode first, then press and hold Start/Stop button for 5 seconds to reset the connection. After the connection is cleared, enter the Bluetooth pairing mode again and then click 'Connect' button of the Analyzer to repair the device.	[BT Connection] If the BT pairing is removed in the WatchBP Office devices.
5	Pairing code doesn't match. Please press and hold the MODE button of the device about 7 seconds to enter Bluetooth pairing mode first, then press and hold Start/Stop button about 5 seconds to reset the connection. After the connection is cleared, enter the Bluetooth pairing mode again and then click 'Connect' button of the Analyzer to repair the device.	[BT Connection] If the BT pairing is removed in the WatchBP Office vascular devices.
6	Pairing code doesn't match. Please press and hold the Start/Stop button of the device about 5 seconds to reset the connection first. Then enter the Bluetooth pairing mode of device. When the Bluetooth icon is shown on the LCD, click 'Connect' button of the Analyzer software to reconnect with the device.	[BT Connection] If the BT pairing is removed in the WatchBP O3 devices.
7	Oops!The Bluetooth is turned off. Please go to the setting page to turn on the Bluetooth first.	[BT Connection] The BT setting of the PC is not turned on.

## Appendix C: Contact Information

### Europe / Middle-East

#### / Africa

MicrolifeAG

Espenstrasse 1399443 Widnau,  
Switzerland

Tel. +41 71 727 7000

Fax. +41 71 727 7011

Email: [watchbp@microlife.ch](mailto:watchbp@microlife.ch)

[www.watchbp.com](http://www.watchbp.com)

### Asia

Microlife Corporation

9F., No.431, Ruiguang Rd., Neihu  
Dist., Taipei City 114, Taiwan,  
China

Tel. +886 2 8797 1288

Fax +886 2 8797 1283

Email: [watchbp@microlife.com.tw](mailto:watchbp@microlife.com.tw)

[www.watchbp.com](http://www.watchbp.com)

### North / Central / South

#### America

Microlife USA, Inc.

1617 Gulf to Bay Blvd

2nd Floor, Suite A

Clearwater, FL 33755, USA

Tel. +1 727 442 5353

Fax +1 727 442 5377

Email: [msa@microlifeusa.com](mailto:msa@microlifeusa.com)

[www.watchbp.com](http://www.watchbp.com)

## Appendix D: Manufacturer Information

The manufacturer information can be found on the equipment labeling:

### **MicrolifeAG**

Espenstrasse 1399443 Widnau,  
Switzerland

Tel. +41 71 727 7000

Fax. +41 71 727 7011

Email: [watchbp@microlife.ch](mailto:watchbp@microlife.ch)

[www.watchbp.com](http://www.watchbp.com)

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Dist., Taipei City 114, Taiwan,  
China

Tel. +886 2 8797 1288

Fax +886 2 8797 1283

Email: [watchbp@microlife.com.tw](mailto:watchbp@microlife.com.tw)

[www.watchbp.com](http://www.watchbp.com)

### **ONBO Electronic CO., Ltd.**

No. 138, Huasheng Road,  
Langkou Community Dalang  
Street, Shenzhen, China

Tel. +86 755 28120227

[www.watchbp.com](http://www.watchbp.com)

The authorized representative for Microlife Cooperation in Europe is:

Microlife UAB

P. Lukšio g. 32

08222 Vilnius, Lithuania