



Model RBP-9000
Automatic Pulsewave Blood Pressure
Monitor

INSTRUCTION MANUAL

Raycome: Shenzhen Raycome Health Technology Co., Ltd

Product Name: Automatic Pulsewave Blood Pressure Monitor

Model: RBP-9000

Address: 3F, 51 Building, No.5 QiangYu Rd., Hi-tech Industrial
Park, Nanshan District, Shenzhen, 518057, China.

Market Hotline: +86 755 26633509

Email: sales@raycome.com

Website: www.raycome.com

Dear Customer,

Thank you for purchasing the Raycome Health RBP-9000 Automatic Pulsewave Blood Pressure Monitor. Your new blood pressure monitor is used to measure blood pressure and pulse rate quickly and easily, and stores the results and displays the readings automatically; it adopts the pulse wave method of blood pressure measurement, which is a new generation blood pressure measurement method with reliable result and high accuracy with features as follows:

- Supports accurate measurement and can easily be used by a single person.
- Measurement is possible over a wide range of arm circumferences (17 to 42 cm).
- Left or right arm can be used for measurement.
- Pulsewave blood pressure measurement theory and method.
- Measurement results can be announced.
- Results can be printed after measurement.
- The unit and cuff cover are antibacterial.
- The cuff cover can be replaced when necessary.

In order to use the device correctly and efficiently, please read this Instruction Manual before use.

Intended user

The Automatic Pulsewave Blood Pressure Monitor is suitable for people who are greater than 12 years of age in hospital, clinic and social medical organizations etc.

Version No.: V1.0.

CONTENTS

Symbols And Abbreviations	02
Safety Information	03
Components Of The Product	05
How To Install The Monitor	06
How To Load Printer Paper	07
How To Connect To The Power Source	09
Checking The Unit Before Usage	10
How To Set The Date/Time/Voice/Printer/Unit	11
Proper Posture	12
How To Measure Blood Pressure	13
Using The Memory Function	14
Care And Maintenance	15
Error Indicators	16
Troubleshooting Tips	17
Product Specification	18
Appendix A: Packing List	19
Appendix B: EMC	20

SYMBOLS AND ABBREVIATIONS

Identifiers	Indications
 0482	This product complies with the European Council Directive 93/42/EEC (Medical Device Directive)
	8 TYPE
	Lot number
	Serial number
	Date of manufacturer
	Manufacturer
	Authorized representative in the European Community
	Consult accompanying documents.
	Dispose of this product and used batteries in accordance with the applicable local regulations for disposal of electrical product
	Caution
SYS	SYSTOLIC PRESSURE
DIA	DIASTOLIC PRESSURE

SAFETY INFORMATION

To assure the correct use of the product, basic safety measures should always be followed including the warnings and cautions listed in this instruction manual.

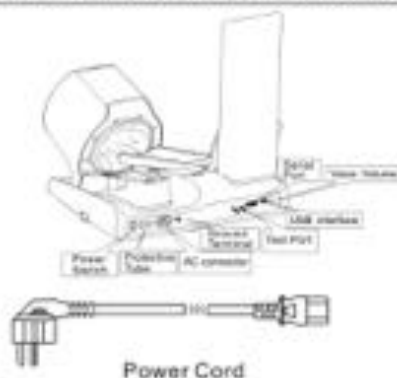
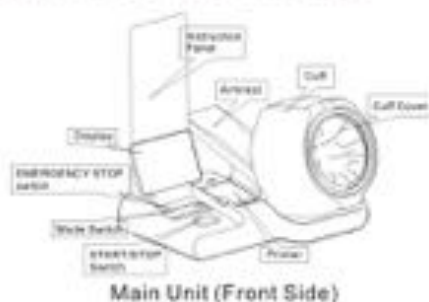
Identifiers	Indications
	Do not measure blood pressure if the arm has a wound. Blood may come in contact with the cuff cover, allowing infectious diseases to spread. Do not use the monitor in a place where it may get wet, such as by pool. This may result in fire or electrical shock. Do not install any component or equipment that is not specified by Raycome Health on this monitor. This may cause fire or electrical shock.
	If a problem with the monitor is encountered, immediately turn off the power and remove the plug from the electric outlet. Attach an "Out of Service" notice and do not use the monitor. Otherwise fire or electrical shock may result.

Persons under 12 years' old, pregnant women, pre-eclampsic, mental disorder or arrhythmia patients should use this device under Practitioner's guidance.	
Operate the device only as intended. Do not use the device for any other purpose.	
Read all of the information in the instruction manual before operating the unit.	
Do not plug or unplug the power cord into the electrical outlet with wet hands.	
Do not overload power outlets. Plug the device into the appropriate voltage outlet.	

Do not use the cuff on any limb where intravascular access or therapy, or an arterio-venous (A-V) shunt, please follow Practitioner's guidance.	
Do not use a cellular phone near the device, or it may result in an operational failure.	
Use only Raycome Health authorized parts and accessories. Parts and accessories not approved for use with the device may damage the unit.	
Repeat measuring the same person with an interval of at least 5 minutes because too frequent measurements can cause injury to you due to blood flow interference.	
Do not subject the monitor to strong shocks, such as dropping on the floor.	
Do not overload power outlets. Plug the device into the appropriate voltage outlet.	
Dispose of the device and components according to applicable local regulations. Unlawful disposal may cause environmental pollution.	
Any measurement can be influenced by the position and the body condition, so please do not measure in the following situations: (1) Improper posture, cause you can't measure or inaccurate status. (2) After intense exercise or under nervous motion, the data will be higher than the actually measured one. (3) A muscle spasm or trembling, disables you to measure correctly. (4) Due to wearing thick clothes, blood pressure can't be measured or the data is higher than the actual one. (5) The arm set could be dimy when the arm is wet.	
Do not adjust medication based on measurement results from this blood pressure monitor. Take medication as prescribed by your physician. Only a physician is qualified to diagnose and treat High Blood Pressure.	

Before boot, press and hold the buttons "MEMORY" and "MENU" simultaneously, then press the button "START/STOP" to turn on the sphygmomanometer. This will make the device enter the test mode. Please don't apply these steps unless they are necessary.	Suggestion
Changes or modifications not approved by Raycome Health will void the user warranty. Do not disassemble or attempt to repair the unit or components.	Suggestion
This product should be calibrated by a qualified institution each year or it may result in an operational failure.	Suggestion

COMPONENTS OF THE PRODUCT



HOW TO INSTALL THE MONITOR

Attach the cuff cover

Elastic armset rings on both sides of the cuff cover can withstand a squeezed range. Press the rings as a suitable oval and insert the cuff cover into the armtube. As shown, the protuberant part of elastic ring aligns with card slot, and elastic ring seams align with card slot. when the arm set all in then let go, elastic recovery into round shape, adjust the elastic ring and smooth out arm set.

NOTE:

The cuff cover was attached to the unit at the factory. Replace a new cuff cover as above mentioned steps when necessary.



Attach the armrest

Put hand slid snaps, and the host fastened in the direction of the arrow shown below.



Attach the instruction panel

Put the instruction panel into the host operating slot in the direction of the arrow shown below.



⚠ Caution:

- Do not remove the instruction panel during the operation.

HOW TO LOAD PRINTER PAPER

- Press and hold the button at the left of the printer cover, printer lid automatically pops out, pull up to open the printer cover.



- The paper has to be loaded as the direction shown below. Make sure the printer paper is in the correct orientation, or you cannot print properly.



- Pull out the paper about 10cm.
- Close the printer cover.

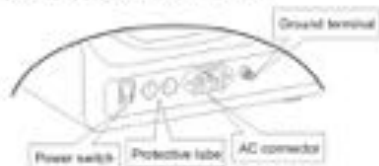


⚠ Caution:

- Press "FEED" button, the device will send out the paper. Do not stick your fingers into the printer to avoid injury caused by the printer cutter.
- In measuring or printing process, do not replace the print paper.
- Do not pull the paper until it has been cut. This may cause a paper jam.
- When the red line on the print paper appears, please replace the print paper specified by Raycome Health.

HOW TO CONNECT TO THE POWER SOURCE

1. This product using the AC power supply, for the consideration of safety, before you connect the power cord, insert the back of the machine's power switch in the OFF position
2. Insert the socket side of the power cord into the AC connector on the back of the monitor.



3. Insert the power cord plug into the outlet.
4. In the following cases, the ground cable would be needed:
 - Must be used in the place where there is no 3pin outlet;
 - In order have double insurance on safety;
 - To eliminate interference from other equipment;
 - To prevent accidents occurred from this device working with other devices.

Caution:

- Do not plug or unplug the power cord into the electrical outlet with wet hands, or this may result in electric shock.

CHECKING THE UNIT BEFORE USAGE

Before turning on the power, please check the followings:

External appearance

- The monitor is not deformed due to falling or other impact.
- The monitor is not dirty or wet.
- The power cord is not damaged and there is no loose connection.
- The cuff or cuff cover is not deformed or damaged.
- The cuff cover is installed properly.

Printer paper

- The specified type of printer paper is loaded, and there is enough paper.

Power cord

- Check if the power cord is completely connected.
- The power cord is firmly connected to the connector on the monitor.
- Make sure the power cord is not damaged (no core-wire exposure, breaks, etc.).
- The power cord is placed where it will not be tripped over.

After turning on the power, check the followings

- The volume for audio voice is OK.
- There are no strange noises during measurement.
- There is no indication of IP leakage.
- The date and time are set correctly.

HOW TO SET THE DATE/TIME/VOICE/PRINTER/UNIT

In standby mode, press the button "MENU" to switch to the setting mode. Press the button "MENU" to switch to the next setting item. Setting items appears successively: year, month, day, hour, minute, voice, printer and unit. Press the button "OK" to exit the setup.

1. Set the date/time: When in the time setting section (year, month, day, hour, minute, second), change the value by pressing buttons "PgUp" and "PgDn". Each time one of the buttons is pressed, the value increases/decreases by 1.

Year	2013-12-25 15:57	Month	2013-12-25 15:57
Day	2013-12-25 15:57	Hour	2013-12-25 15:57

2. Set the voice: When in the voice setting section, press the button "PgUp" to turn on the voice; press the button "PgDn" to turn off the voice.



3. Set the printer: When in printer setting section, press the button "PgUp" to turn on print function; press the button "PgDn" to turn off the Print function.



4. Set the unit: When in the unit setting section, "mmHg" symbol and "kPa" symbol alternately display. Press the button "PgDn", the unit will be set to "mmHg"; press the button "PgUp", the unit will be set to "kPa".

NOTES:

If the date appears when the power is turned on, set the date and time.

If the same display appears the next time the power is turned on, the backup battery must be replaced.

Please contact your local authorized Raycome Health dealer/supplier.

PROPER POSTURE

1. Sit straight in a chair with your feet flat on the floor.
2. If a thick garment such as a jacket or sweater is worn, it should be removed. Measurement is possible on bare skin or over thin clothing.
3. Insert the arm into the arm cuff, place the forearm and palm on the Armrest naturally with palm facing up, and arm elbow over arm cuff about 1 cm. Your body should be slightly close to the arm cuff and into 120° with blood pressure monitor. Don't be oppression abdomen or chest, keep relaxed and natural state.



The sign icon of placing arm correctly

CAUTION:

- It will not be measured correctly when your arm press the edge of arm cuff.
- It will not be measured correctly when your elbow did not reach across the arm cuff.
- It will not be measured correctly when your elbow is not placed in the location specified.
- When your elbow is placed in the correct position, screen will display as shown in the above icon (The sign icon of placing arm correctly).

HOW TO MEASURE BLOOD PRESSURE

Before measurement, the user should try to relax, calm down, sit quietly about 2-3 minutes and you are advised to be measured at the same time every day.

1. Press the button "START/STOP" to start measurement.



2. When the measurement is finished, the result will be displayed and saved automatically. If print function is on, the result will be printed automatically and printer paper will be automatically cut.

⚠ CAUTION:

- During the inflation process, there will be automatically inflated to a higher pressure because of the user's high blood pressure.
- If you feel pain or discomfort during the measurement, please press the button "START/STOP" to stop the operation; if the button fails to work, please press the button "EMERGENCY STOP" immediately.
- Do not move the body or talk when measuring.
- Wait at least 5 minutes between measurements. The wait time allows the arteries to return to the condition prior to taking the blood pressure measurement. You may need to increase the wait time depending on your individual physiological characteristics.

USING THE MEMORY FUNCTION

1. Check the data

The monitor is designed to store the blood pressure and the pulse rate in the memory every time a measurement is completed. The monitor automatically stores up to 100 sets of measurement values (Blood pressure and pulse rate) for each user. When 100 sets of measurement values are stored, the oldest record is deleted to save the most recent values.

In standby state, press the button "MEMORY" to view the memory value.

By pressing the button (PgUp), the values are displayed from the most recent to the oldest; By pressing the button (PgDn), the values are displayed from the oldest to the most recent;

Press the button "OK" to exit the memory function.



2. To delete all values stored in the memory

In the memory value checking state, press and hold the button "MEMORY" for at least 3 seconds to delete all values stored in the memory.

NOTE:

You cannot partially delete values stored in the memory. All values of selected user will be deleted.

CARE AND MAINTENANCE

1. If the monitor is dirty, use a soft cloth moistened with diluted neutral detergent or diluted disinfecting alcohol (well wrung) to wipe off the dirt. Note, however that the power connector should not be wiped or moistened in any way.
2. Do not crash or fall down blood pressure monitor.
3. Do not submerge the device or any of the components in water.
4. Do not subject the monitor to extreme hot or cold temperatures, humidity or direct sunlight.
5. Changes or modification not approved by Raycome Health will void the user warranty. Do not disassemble or attempt to repair the unit or components.
6. Unplug the unit from the AC outlet if it will not be used long time.
7. Use only Raycome Health authorized parts and accessories. Parts and accessories not approved for use with the device may damage the unit.

ERROR INDICATORS

Error Code	Reasons	Measures
EE1	The pressure of upper bladder of the arm cuff reaches 99mmHg or more	Turn off the device
EE2	The arm is put with incorrect posture	Put the arm in correct posture as stated in this manual
	Air is leaking from the upper bladder of the arm cuff	Replace the cuff with the new one
EE3	The pressure of the lower bladder of the arm cuff reaches 150mmHg or more	Turn off the device
EE4	Movement during measurement	Repeat measurement. Remain still and do not talk during measurement
EE5	The arm is put with incorrect posture	Put the arm in correct posture as stated in this manual
	Air is leaking from the lower bladder	Replace the cuff with the new one
EE6	The arm is put with incorrect posture	Put the arm in correct posture as stated in this manual
EE7	Abnormal communication	Contact Raycome Health
EE8	Abnormal storage	Turn off the monitor and restart it again. Please contact Raycome Health if the situation still exists
EE9	Deflated time of the arm cuff is too long	Repeat measurement

EE10	Strong radiation nearby (such as cell phone, computer and etc)	Turn off the monitor and restart it again. Please contact Raycome Health if the situation still exists
Others	Unknown errors	Contact Raycome Health

TROUBLESHOOTING TIPS

The following chart lists common faults you may come across when you use blood pressure monitor. Please contact our after-sales service department for help in case problems still cannot be solved.

Number	Phenomenon of fault	Possible reason	Solution
1	No display appears on the unit when press the button "START/STOP"	No power	Start the unit after power turned on
		Incorrect power connection	Connect the power again
2	Unable to measure or measurement value is too high	Arm cuff may not be at the same level as the heart	Please sit and put the arm, is the cuff correctly
3	Measurement values appear too high or too low	Blood pressure varies constantly. Many factors including stress, time of day, and how you wrap the cuff, may affect your blood pressure	Take a deep breath to relax and keep quiet

PRODUCT SPECIFICATION

Name: Automatic Pulsewave Blood Pressure Monitor

Model: RBP-9000

Measurement Range: Pressure: 0 to 270mmHg (0 to 36kPa)
Pulse rate: 40 to 180/min

Accuracy: Pressure: ± 2 mmHg (± 0.267 kPa)
Pulse rate: $\pm 2\%$

Storage Capacity: 100 sets

Power supply: AC 100-240V, 50-60Hz, 1.6-0.8A

Operating Temperature/Relative Humidity/Air Pressure: 41°F to 104°F (5°C to 40°C)/15% to 80% RH/80kPa to 106kPa

Storage and Transportation Temperature/Relative Humidity/Air Pressure: -4°F to 131°F (-20°C to 55°C)/ $\leq 93\%$ RH/50kPa to 106kPa

Main Unit Weight: 8.0kg

Main Unit Dimension: 471.5mm (L)×402.0mm (W)×309.0mm (H)
(18.56" (L)×15.83" (W)×12.17" (H))

Shock Protection: Class I, Type B applied part.

APPENDIX A: PACKING LIST

When the user opens the packing of this product, please check the following packing list. If objects are not found or have any other questions, please contact us.

No.	Name	Quantity
1	Main unit	1
2	Armrest	1
3	Instruction Panel	1
4	Cuff Cover (Attached to the unit at factory)	1
5	Power Cord	1
6	Grounding Cable	1
7	Printer Paper	1
8	Instruction Manual	1

APPENDIX B: EMC

-  Please install and use this instrument according to the EMC information provided in this instruction Manual.
-  The portable and mobile RF communications equipment can affect this instrument's normal operation.
-  Please use the accessories sold by our company, the inappropriate one may result in increased emission or decreased immunity of this instrument.
-  The instrument should not be used adjacent or stacked with other equipment and if adjacent or stacked use is necessary, please verify its normal operation in the configuration in which it will be used.

Table 1:

1	Guidance and manufacturer's declaration-electromagnetic emission		
2	The Automatic Pulsed-wave Blood Pressure Monitor is intended for use in the electromagnetic environment specified below. The customer or the user of RBP-9000 Pulsed-wave Blood Pressure Monitor should assure that it is used in such an environment.		
3	Emission test	Compliance	Electromagnetic environment-guidance
4	RF emissions EN 55011	Group 1	The Automatic Pulsed-wave Blood Pressure Monitor uses RF energy only for its normal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
5	RF emissions EN 55011	Group B	
6	Harmonic emissions EN 61000-3-2	Group A	The Automatic Pulsed-wave Blood Pressure monitor is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
7	Voltage fluctuations/flicker emissions EN 61000-3-3	Complies	

Table 2:

Guidance and manufacturer's declaration – electromagnetic immunity			
The Automatic Pulsed-wave Blood Pressure Monitor is intended for use in the electromagnetic environment specified below. The customer or the user of the Automatic Pulsed-wave Blood Pressure Monitor should assure that it is used in such an environment.			
Immunity test	EN 60601 test level	Compliance level	Electromagnetic environment –guidance
Electrostatic discharge (ESD) EN 61000-4-2	± 8 kV contact ± 8 kV air	± 6 kV contact ± 8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30 %.
Electrostatic transition / burst EN 61000-4-4	± 2 kV for power supply lines ± 1 kV for input/output lines	± 2 kV for power supply lines ± 1 kV for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge EN 61000-4-5	± 1 kV differential mode ± 2 kV common mode	± 1 kV differential mode ± 2 kV common mode	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines EN 61000-4-11	< 5 % U; > 95 % dip in U; for 0.5 cycles 40 % U; > 95 % dip in U; for 3 cycles 70 % U; > 95 % dip in U; for 25 cycles < 5 % U; > 95 % dip in U; for 3 sec	< 5 % U; > 95 % dip in U; for 0.5 cycles 40 % U; > 95 % dip in U; for 3 cycles 70 % U; > 95 % dip in U; for 25 cycles < 5 % U; > 95 % dip in U; for 3 sec	Mains power quality should be that of a typical commercial or hospital environment. If the user of the Automatic Pulsed-wave Blood Pressure Monitor requires continued operation during power mains interruptions, it is recommended that the Automatic Pulsed-wave Blood Pressure Monitor be powered from an uninterruptible power supply or a battery.

Immunity test	EN 60601 test level	Compliance level	Electromagnetic environment –guidance
Power frequency (50/60 Hz) magnetic field EN 61000-4-9	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
NOTE: U is the a.c. mains voltage prior to application of the test level.			

Table 3:

Guidance and manufacturer's declaration – electromagnetic immunity			
The Automatic Pulsed-wave Blood Pressure Monitor is intended for use in the electromagnetic environment specified below. The customer or the user of the Automatic Pulsed-wave Blood Pressure Monitor should assure that it is used in such an environment			
Immunity test	EN 60601 test level	Compl-ance level	Electromagnetic environment guidance
Conducted RF EN 61000-4-6	3 V/m 150 kHz to 80 MHz	3V	Portable and mobile RF communications equipment should be used no closer to any part of the Automatic Pulsed-wave Blood Pressure Monitor, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter Recommended separation distance $d = \left(\frac{1.5}{P} \right)^{1/2}$ $d = \left(\frac{0.3}{P} \right)^{1/2} \quad 80 \text{ MHz to 800 MHz}$ $d = \left(\frac{0.1}{P} \right)^{1/2} \quad 800 \text{ MHz to 2.5 GHz}$ Where p is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in metres (m) Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey,* should be less than the compliance level in each frequency range. Interference may occur in the vicinity of equipment marked with the following symbol: 
Radiated RF EN 61000-4-3	3 V/m 80 MHz to 2.5 GHz	3 V/m	
NOTE 1 At 80 MHz and 100 MHz, the higher frequency range applies.			
NOTE 2 These guidelines may not apply in all situations. Electromagnetic is affected by absorption and reflection from structures, objects and people			

* Field strengths from fixed transmitters, such as base stations for radio-telephone (cellular) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the Automatic Pulsed-wave Blood Pressure Monitor is used exceeds the applicable RF compliance level above, the Automatic Pulsed-wave Blood Pressure Monitor should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the Automatic Pulsed-wave Blood Pressure Monitor.

* Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3V/m.

Table 4:

Recommended separation distances between portable and mobile RF communications equipment and the RBP-9000 Pulsewave Blood Pressure Monitor			
The Automatic Pulsewave Blood Pressure Monitor is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the Automatic Pulsewave Blood Pressure Monitor can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the Automatic Pulsewave Blood Pressure Monitor as recommended below, according to the maximum output power of the communications equipment.			
Rated maximum output of transmitter	Separation distance according to frequency of transmitter		
	135 kHz to 80 MHz $d = \sqrt{\frac{30}{P}} \cdot \sqrt{P}$	80 MHz to 800 MHz $d = \sqrt{\frac{30}{P}} \cdot \sqrt{P}$	800 MHz to 2.5 GHz $d = \sqrt{\frac{30}{P}} \cdot \sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23
For transmitters rated at a maximum output power not listed above the recommended separation distance d in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.			
NOTE 1 At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.			
NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.			