

# rossmax

Model: X9



EN Blood Pressure Monitor

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

## Introduction

Blood pressure measurements determined with X9 are equivalent to those obtained by a trained observer using cuff/stethoscope auscultation method, within the limits prescribed by the American National Standard, Electronic or Automated Sphygmomanometers. This unit is to be used by adult consumers in home, physicians' offices, hospitals, clinics and other medical facilities. The patient is an intended operator. Do not use this device on infants or neonates. X9 is protected against manufacturing defects by an established International Warranty Program. For warranty information, you can contact the manufacturer, Rossmann International Ltd.

 Attention: Consult the accompanying documents. Please read this manual carefully before use. For specific information on your own blood pressure, contact your physician. Please be sure to keep this manual.

## PARR(Pulse Arrhythmia) Technology

Pulse Arrhythmia (PARR) technology specifically detects the existence of pulse arrhythmia, including atrial fibrillation (AFib), Atrial and / or Ventricular Premature Contractions (PC), Tachycardia (TACH), and Bradycardia (BRAD). Pulse Arrhythmia may be related to cardiac disorders, needs medical attention and thus early diagnosis is of paramount importance. The PARR technology detects arrhythmia during regular blood pressure checks without any additional user skills, user interaction and measurement prolongation. Beside the blood pressure diagnosis a specific pulse arrhythmia diagnosis is provided with PARR.

Note: The PARR detection of AFib, PC, TACH and BRAD is provided with a clinically proven high detection probability [1]. However, the sensitivity and specificity is limited, thus most, but not all pulse arrhythmia will be detected and displayed. In certain patients with uncommon clinical conditions the PARR technology may not be able to detect pulse arrhythmia. This partly comes from the fact that some arrhythmia can only be found with an ECG diagnosis, but not with a pulse diagnosis. Thus PARR is not meant to replace any medical ECG diagnosis by your doctor. PARR provides an early detection of certain pulse arrhythmia, which inevitably need to be presented to your doctor in charge.

Remark: [1] Clinical Investigation of PARR - A new Oscillometric Pulse Arrhythmia Type Discriminating Detection Technology

## Atrial Fibrillation Detection (AFib)

The upper chambers of the heart (the atria) do not contract, but quiver and thus blood is driven irregularly and with lower efficiency into the ventricles. Subsequently irregular heartbeats occurs, which mostly are associated with a fast, yet highly unstable heart rate.

This condition is associated with a higher risk for the formation of cardiac blood clots. Amongst others, they may elevate the risk of brain strokes. Beside this atrial fibrillation may contribute to the severity of a chronic or acute heart failure condition and may be associated with other heart-related complications. Age dependent, about 10 % - 20 % percent of patients who suffer from an ischemic stroke also suffer from atrial fibrillation. Atrial fibrillation most often initially occurs with temporary periods of arrhythmia and may progress to a permanent state of this disorder in the course of time. No matter, whether you intent to safeguard yourself from an undetected AFib state, or you measure during an ongoing period of active atrial fibrillation, or you measure in between periods of AFib, the PARR technology can be applied at any of these conditions. This unit is able to detect Atrial fibrillation (AFib). The ARR and AFib icons ( **AFib**) are displayed right after the measurement if Atrial Fibrillation was detected.

Note: It is strongly recommended, that you consult your physician, if either the AFib icon occurs newly for several times, or, if your AFib is known to your doctor, but the incidence of AFib readings changes over time. Your doctor will then be able to provide all required medical test and possible therapeutic procedures.

Note: The presence of a cardiac pacemaker may impair the AFib detection by PARR.

## Premature Contraction Detection (PC)

Extra abnormal heartbeats generated in irregular excitation sites of your heart, either in the atria (PAC), the ventricle (PVC) or the cardiac conduction nodes (PNC). These extra beats may disrupt your regular rhythm, they may come in early or cause a significant pauses regarding your perceivable pulse. This is called palpitations, which can be felt in your chest. They may occur as isolated, single events, as a series of irregular pulses or can be distributed all over your pulse beats. If they are not related to mental stress, or acute demanding physical load, they may be a marker for a multitude of cardiac disorders. Some of these disorders go along with an elevated risk profile for ischemic events, either in the heart (e.g., coronary heart disease) or outside the heart, e.g. an elevated risk for a stroke. Some PCs may indicate on valvular or myocardial disorders and become very important if a myocarditis (infection of the heart muscle) is suspected. This unit is able to detect premature contractions. The ARR and PC icons ( **PC**) are displayed right after the measurement if premature contractions have been detected.

Note: It is strongly recommended, that you consult your physician, if either the PC icon occurs newly for several times, or, if your PC is known to your doctor, but the incidence of PC readings changes over time. Your doctor will then be able to provide all required medical test and possible therapeutic procedures.

## **Tachycardia Detection (TACH)**

A fast heart rate of higher than 100 beats per minute (bpm) in adults. Unless being caused by physical or mental stress, a tachycardia may be an indicator for both cardiac (e.g. Coronary heart disease, valvular disorder), or extra-cardiac disorders (e.g. hyperthyroidism, fever, hypoxemia), as well as medication and stimulant substance side effects (e.g. caffeine). The unit is able to detect Tachycardia (TACH). The ARR and TACH icons ( **TACH**) are displayed right after the measurement if tachycardia has been detected.

Note: It is strongly recommended, that you consult your physician, if either the TACH icon occurs newly for several times, or, if your TACH is known to your doctor, but the incidence of TACH readings changes over time. Your doctor will then be able to provide all required medical test and possible therapeutic procedures.

## **Bradycardia Detection (BRAD)**

A slow heart rate of less than 55 beats per minute (bpm) in adults. Unless not genetically determined or subsequent to a high cardiac endurance training adaptation, bradycardia may be related to multitude of cardiac disorders (e.g. valvular heart disease, heart failure) or extra-cardiac disorders (e.g. hypothyroidism, electrolyte imbalance) or medications (e.g. beta-receptor blocker). This unit is able to detect Bradycardia (BRAD). The ARR and BRAD icons ( **BRAD**) are displayed right after the measurement if bradycardia was detected.

Note: It is strongly recommended, that you consult your physician, if either the BRAD icon occurs newly for several times, or, if your BRAD is known to your doctor, but the incidence of BRAD readings changes over time. Your doctor will then be able to provide all required medical test and possible therapeutic procedures.

## **Pulse Arrhythmia Detection (ARR)**

Once the occurrence of pulse arrhythmia has been detected in the course of your blood pressure measurement, the icon ARR is displayed. In the case, that the found pulse arrhythmia can be specified by the PARR technology, the ARR icon is accompanied by the specifically detected type of arrhythmia, e.g. PC, AFib, TACH or BRAD. Once the kind of found pulse arrhythmia cannot be safely determined by PARR, the device is displaying ARR without any additional pulse arrhythmia type icon.

Note: It is strongly recommended, that you consult your physician, if either the ARR icon occurs newly for several times, or, if your ARR is known to your doctor, but the incidence of ARR readings changes over time. This is independent whether the ARR icon is specified by another pulse arrhythmia icon or not. Your doctor will then be able to provide all required medical test and possible therapeutic procedures.

The PARR technology is able to detect and display combined pulse arrhythmia findings.

Display	Results
-	Normal finding
<b>ARR</b>	Pulse Arrhythmia without type-specific detection
<b>ARR PC</b>	Pulse Arrhythmia-Premature ventricular, atrial or nodal beat detection
<b>ARR AFib</b>	Pulse Arrhythmia-Atrial fibrillation detection
<b>ARR TACH</b>	Tachycardia detection
<b>ARR BRAD</b>	Bradycardia detection
<b>ARR PC BRAD</b>	Combined Pulse Arrhythmia: Premature beats & Bradycardia detection
<b>ARR PC TACH</b>	Combined Pulse Arrhythmia: Premature beats & Tachycardia detection
<b>ARR AFib TACH</b>	Combined Pulse Arrhythmia: Atrial fibrillation & Tachycardia detection
<b>ARR AFib PC</b>	Combined Pulse Arrhythmia: Atrial fibrillation & Premature beats detection
<b>ARR AFib PC TACH</b>	Combined Pulse Arrhythmia: Detection of Atrial Fibrillation, Premature Beats and Tachycardia.

## Real Fuzzy Measuring Technology

This unit uses the oscillometric method to detect your blood pressure. Before the cuff starts inflating, the device will establish a baseline cuff pressure equivalent to the air pressure. This unit will automatically determine the appropriate inflation level based on pressure oscillations, followed by cuff deflation.

During the deflation, the device will detect the amplitude and slope of the pressure oscillations and thereby determine your actual the systolic blood pressure, diastolic blood pressure, and pulse rate.

## Preliminary Remarks

This Blood Pressure Monitor complies with the European regulations and bears the CE mark "CE 1639". The quality of the device has been verified and conforms to the provisions of the EC council directive 93/42/EEC (Medical Device Directive), Annex I essential requirements and applied harmonized standards.

EN 1060-1: 1995/A2: 2009 Non-invasive sphygmomanometers - Part 1 - General requirements

EN 1060-3: 1997/A2: 2009 Non -invasive sphygmomanometers - Part 3 - Supplementary requirements for electro-mechanical blood pressure measuring systems

EN 1060-4: 2004 Non-invasive sphygmomanometers - Part 4: Test Procedures to determine the overall system accuracy of automated non-invasive sphygmomanometers.

ISO 81060-2: 2013 Non-invasive sphygmomanometers - Part 2: Clinical investigation of automated measurement type.

This blood pressure monitor was designed for long service periods. In order to ensure continued accuracy, it's recommended that all digital blood pressure monitors require re-calibration. This monitor (under normal usage with approx. 3 measurements a day) does not require re-calibration for 2 years. Once the unit should be re-calibrated the device will display . The unit should also be re-calibrated if the monitor sustains damage due to blunt force (such as dropping) or exposure to fluids and / or extreme hot or cold temperature / humidity changes. When appears, simply return your device to your nearest dealer for re-calibration service.

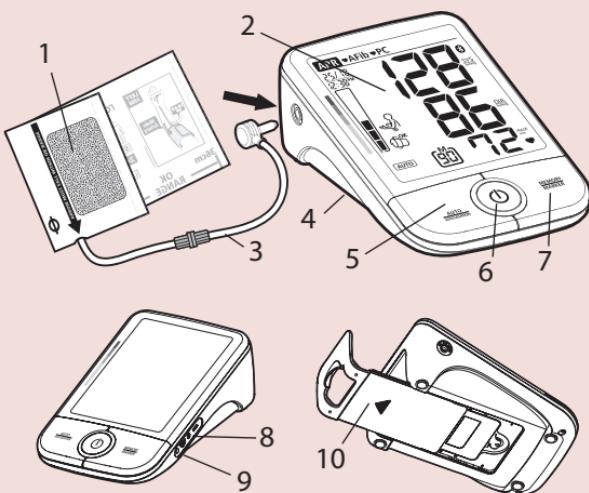
## Blood Pressure Standard

Refer to the definitions of the World Health Organization, the blood pressure ranges can be classified into 6 grades. (Ref. 1999 WHO-International Society of Hypertension Guidelines for the management of Hypertension). This blood pressure classification are based on statistical data, and may not be directly applicable to any particular patient. It is important that you consult with your physician regularly. Your physician will tell you your normal blood pressure range as well as the point at which you will be considered at risk. For reliable monitoring and reference of your blood pressure, keeping long-term records is recommended. Please download the blood pressure log at our website [www.rossmax.com](http://www.rossmax.com).

### Blood Pressure Standard World Health Organization (WHO) : 1999

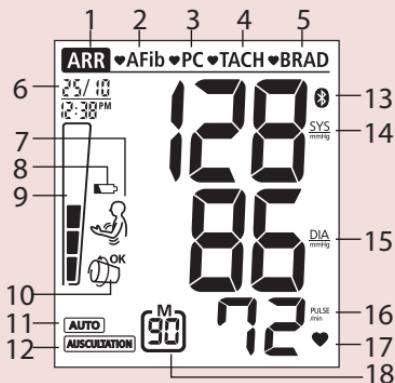
		Systolic Pressure (mmHg)		Diastolic Pressure (mmHg)
<b>Optimal</b>		<b>&lt;120</b>	and	<b>&lt;80</b>
<b>Normal</b>		<b>120~129</b>	or	<b>80~84</b>
<b>High-normal</b>		<b>130~139</b>	or	<b>85~89</b>
<b>Grade 1 hypertension (mild)</b>		<b>140~159</b>	or	<b>90~99</b>
<b>Grade 2 hypertension (moderate)</b>		<b>160~179</b>	or	<b>100~109</b>
<b>Grade 3 hypertension</b>		<b>≥180</b>	or	<b>≥110</b>

## Name/Function of Each Part



1. Arm Cuff
2. Backlight LCD
3. Air Tube and Connector
4. Battery Cover
5. Auto/Auscultation Key
6. ON/OFF/START key
7. Memory/Marker key
8. Data Link Socket
9. AC Adaptor Jack
10. Cuff Holder Design

## Display Explanations (Bluetooth® Optional)



1. Arrhythmia Detection (ARR)
2. Atrial Fibrillation Detection (AFib)
3. Premature Contraction Detection (PC)
4. Tachycardia Detection (TACH)
5. Bradycardia Detection (BRAD)
6. Date/Time Indication
7. Movement Mark
8. Weak Battery Mark
9. Hypertension Risk Indication
10. Cuff Wrap Detection
11. Auto Mode
12. Auscultation Mode
13. Bluetooth® Mark
14. Systolic Pressure
15. Diastolic Pressure
16. Pulse Rate
17. Pulse Mark
18. Memory Mark

## Loose Cuff Detection

If the cuff was applied too loosely, it may cause unreliable measurement results or measurements can fail to start. The "Loose Cuff Detection" can help to determine if the cuff is wrapped snugly enough. The specified icon  appears once a "loosen cuff" has been detected during measurement. Otherwise the specified icon  appears if the cuff is wrapped correctly during measurement.

## Movement Detection

The "Movement Detection" helps reminding the user to remain still and is indicating any adverse body movement during measurement. The specified icon appears once a "body movement" has been detected during and after such a measurement. Note: It's highly recommended that you measure again if the icon  appears.

## Hypertension Risk Indication (HRI)

The World Health Organization, classifying blood pressure ranges into 6 grades. This unit is equipped with an innovative blood pressure risk indication, which visually indicates the assumed risk level (optimal / normal / high-normal/ grade1 hypertension / grade 2 hypertension / grade 3 hypertension) of your result, making the meaning of your findings comprehensive.

## Error Codes for your reference

**EE / Measurement Error:** Make sure the L-plug is securely connected to the air socket and calmly measure again. Wrap the cuff correctly around your arm and keep arm steady during measurement. If the error keeps occurring, return the device to your local distributor or service centre.

**E1 / Air Circuit Abnormality:** Make sure the L-Plug is securely connected to the air socket on the side of the unit and calmly measure again. If the errors still occur, return the device to your local distributor or service centre for help.

**E2 / Pressure Exceeding 300 mmHg:** Switch the unit off and measure again quietly. If the error keeps occurring, return the device to your local distributor or service centre.

**E3 / Data Error:** Remove the batteries, wait for 60 seconds, and reload. If the error keeps occurring, return the device to your local distributor or service centre.

**Er / Exceeding Measurement Range:** Measure again quietly. If the error keeps occurring, return the device to your local distributor or service centre.

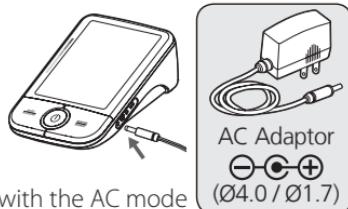
## Using the AC Adaptor

1. Connect the AC adaptor with the AC adaptor jack on the right side of the unit.

2. Plug the AC adaptor into the socket. (AC adaptors with required voltage and current indicated near the AC adaptor jack.)

Caution:

- ⚠ 1. Please unload the batteries when operating with the AC mode for a longer period of time . Leaving the batteries in the compartment for a long time may cause leakage, which may lead to damage of the unit.
2. No batteries are needed when operating with the AC mode.
3. AC adaptors are optional. Please contact the distributor for the compatible AC adaptors.
4. Use only the authorized AC Adaptor with this blood pressure monitor. Information for the authorized AC adaptor, please refer to APPENDIX 1.



## Installing Batteries

1. Press down and lift the battery cover in the direction of the arrow to open the battery compartment.

2. Install or replace 4 "AA" sized alkaline batteries in the battery compartment according to the indications inside the compartment.

3. Replace the battery cover by clicking in the bottom hooks first, then push in the top end of the battery cover.

4. Replace the batteries in pairs. Remove batteries when unit is not in use for extended periods of time.

You need to replace the batteries when

1. Low battery icon appears on display.

2. The ON/OFF/START key is pressed and nothing appears on display.

Caution:

⚠ 1. Batteries are hazardous waste. Do not dispose them together with the household garbage.

2. There are no user serviceable parts inside. Batteries or damage from old batteries are not covered by warranty.

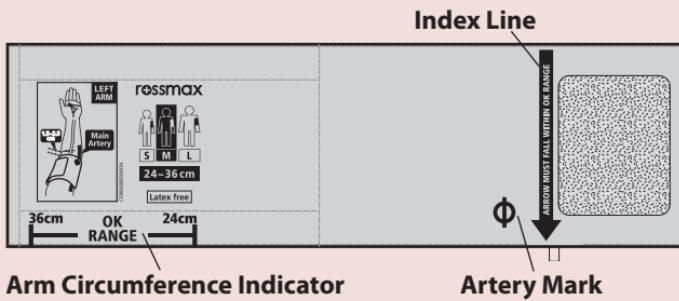
3. Use exclusively brand batteries. Always replace with new batteries together. Use batteries of the same brand and same type.

## Applying the Cuff

1. Select cuff according to arm size (Fig. ①).

1

Rossmax Cuff size	Arm circumference
L size	34~46 cm (13.4"~18.1")
M size	24~36 cm (9.4"~14.2")
S size	16~26 cm (6.3"~10.2")



2. Connect the air tube securely.

- Connect the air tube to the main unit by securing the air plug to the base of the air connector.

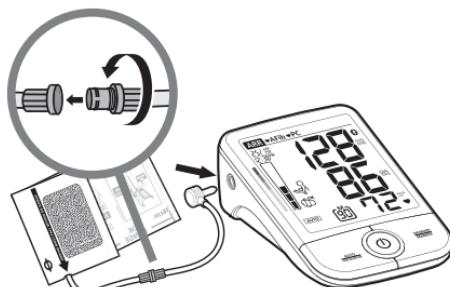
- Securely connect the air tube and the cuff set by rotating Luer connector (Fig. ②).

3. Place the cuff over the bare upper arm, wrap it with the tube pointing your palm, and the artery mark over your main artery (Fig. ③).

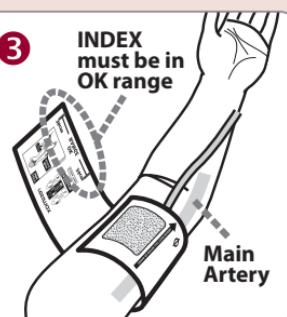
4. The edge of the cuff should be at approximately 1.5 to 2.5 cm above the inner side of the elbow joint. If the index line falls within the range of the arm circumference indicator, the cuff circumference is suitable, otherwise you may need a cuff with a different circumference (Fig. ④).

5. Center the tube over the middle of the arm. Press the hook and loop material together securely. Allow room for 2 fingers to fit between the cuff and your arm. Position the artery mark (Ø) over the main artery (on the inside of your arm) (Fig. ⑤). Note: Locate the main artery by pressing with 2 fingers approximately 2 cm above the bend of your elbow on the inside of your left arm. Identify where the pulse can be felt the strongest. This is your main artery.
6. Lay your arm on a table (palm upward) so the cuff is at the same height as your heart. Make sure the tube is not kinked (Fig. ⑥).
7. This cuff is suitable for your use if the arrow falls within the OK range line. If the arrow falls outside the OK range line, you will need a cuff with other circumferences. Contact your local dealer for additional size cuffs. Using the correct cuff size is important for an accurate reading.

**2**

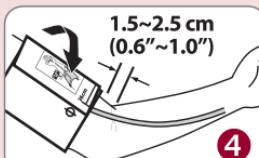


**3**



1.5~2.5 cm  
(0.6"~1.0")

**4**



**5**

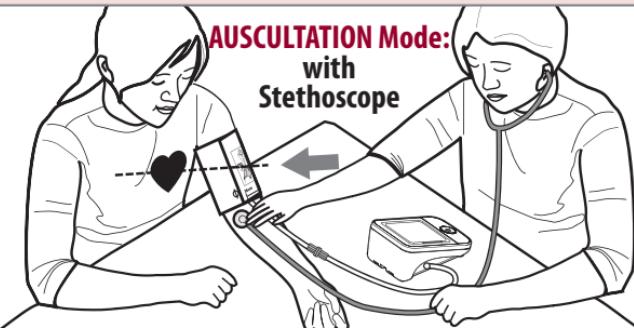


**6**

**AUTO Mode:**  
without  
Stethoscope

Center tube  
over middle  
of arm

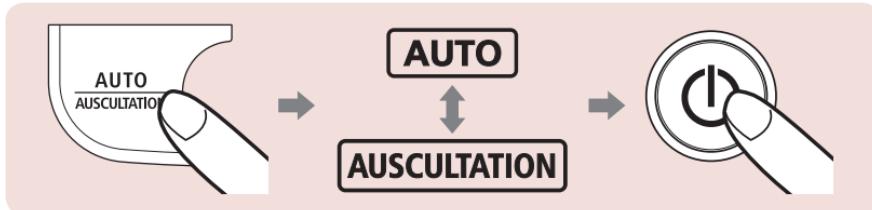
Main  
Artery

**6****AUSCULTATION Mode:  
with  
Stethoscope****Measurement Procedures**

Here are a few helpful tips to help you obtain more accurate readings:

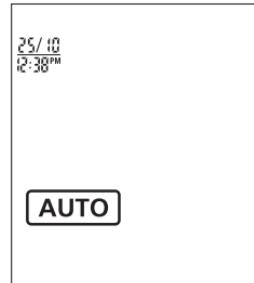
- Blood pressure changes with every heartbeat and is in constant fluctuation throughout the day.
  - Blood pressure recording can be affected by the position of the user, his or her physiological condition and other factors. For greatest accuracy, wait one hour after exercising, bathing, eating, drinking beverages with alcohol or caffeine, or smoking to measure blood pressure.
  - Before measurement, it's suggested that you sit quietly for at least 5 minutes as measurement taken during a relaxed state will have greater accuracy. You should not be physically tired or exhausted while taking a measurement.
  - Do not take measurements if you are under stress or tension.
  - Sit upright in a chair, and take 5-6 deep breaths. Avoid leaning back while the measurement is being taken.
  - Do not cross the legs while sitting and keep the feet flat on the floor during measurement.
  - During measurement, do not talk or move your arm or hand muscles.
  - Take your blood pressure at normal body temperature. If you are feeling cold or hot, wait a while before taking a measurement.
  - If the monitor is stored at very low temperature (near freezing), have it placed at a warm location for at least one hour before using it.
  - Wait 5 minutes before taking the next measurement.
1. Press the Auto/Auscultation switching key to select Auto mode or Auscultation mode. After a measuring mode is selected, press the ON/OFF/START key to reset the monitor so it can start measurement in the chosen measuring mode.

2. Press the ON/OFF/START key. All digits will light up, checking the display functions.  
The checking procedure will be completed in 2 seconds.
3. After all symbols appear, the display will show a blinking "0". The monitor is ready to measure and will automatically inflate the cuff slowly to start measurement.



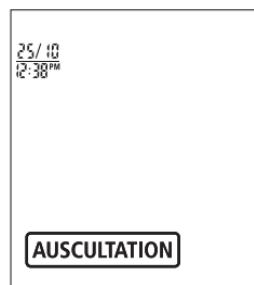
#### 4. Auto Mode

- In Auto mode, "Auto" mark appears on the display.
- The unit will automatically inflate to the appropriate inflation level based on the user's pulse oscillations.
- When the measurement is completed, the cuff will exhaust the pressure inside. Systolic, diastolic and pulse will be shown simultaneously and be saved automatically into memory zone.
- In order to enhance the probability of pulse arrhythmia detection by the PARR technology, measurement repetitions are recommended.
- If Bluetooth® has been activated, the data is automatically transferred to the App after successful completion of the binding process, please see **Data Transfer via Bluetooth® (Optional)**.

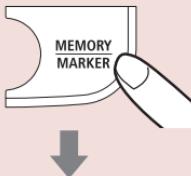


#### 5. Auscultation Mode

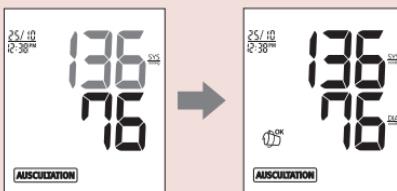
- In Auscultation Mode, "Auscultation" mark appears on the display.
- The unit will automatically inflate to the appropriate inflation level based on the user's pulse oscillations.
- While the unit starts deflating, press the MARKER key to record the onset of Korotkoff sound as the systolic pressure, and press the MARKER key again to record the disappearance of the Korotkoff sound as diastolic pressure.



## Korotkoff sound of Systolic pressure



## Korotkoff sound of Diastolic pressure



- When the measurement is completed, the cuff will exhaust the pressure inside. Systolic pressure and diastolic pressure will be showed simultaneously on the LCD screen.
- If Bluetooth® has been activated, the data of Systolic and Diastolic pressure is automatically transferred to the App after successful completion of the binding process, please see **Data Transfer via Bluetooth® (Optional)**.

Note: Failure to record Systolic and Diastolic pressure by pressing the MARKER key during the measurement will cause uncompleted measurement, and data transfer will not be proceeding. If only Systolic or Diastolic pressure is recorded and shown on the LCD display after the measurement, the unrecorded value will be shown as "—" on the App.

Note:

- This blood pressure monitor will re-inflate automatically to higher pressure if the system detects that more pressure is needed to take a blood pressure measurement.
- This monitor automatically switches off approximately 1 minute after last key operation.
- To interrupt the measurement, simply press the ON/OFF/START; the cuff will deflate immediately.

## Recalling Values from Memory

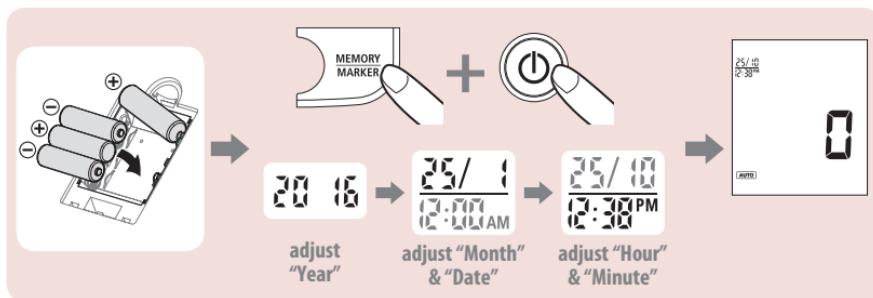
1. Press the Memory key to view the last previously stored measurement. Every measurement comes with a assigned memory sequence number.
2. The memory bank can store up to 90 readings under Auto mode. The number of readings exceeds 90, the oldest data will be replaced with the new record.

## Clearing Values from Memory

Under Auto mode, press and hold the Memory key for approximately 5 seconds, then the data can be erased automatically.

## Time and Bluetooth®(Optional) Adjustment

1. Adjust the date/time/Bluetooth® in the monitor by installing or replacing batteries or holding down the ON/OFF/START key for approximately 5 seconds under power off mode. The display will show a blinking number showing the year.
2. Change the year by pressing the Memory key, each press will increase the number. Press the ON/OFF/START key to confirm the entry and the screen will show a blinking number representing the date.
3. Change the date, the hour and the minute as described in Step 2 above, using the Memory key to change and the ON/OFF/START key to confirm the entries.



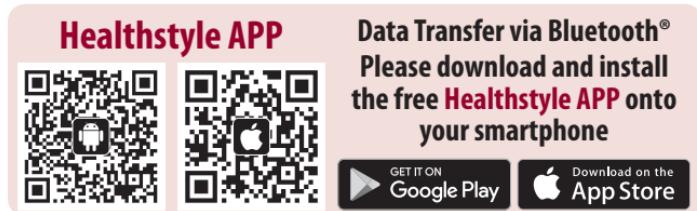
4. After adjusting the date/time, the Bluetooth® symbol ( $\text{Bluetooth}$ ) and the blinking icon " $\text{ON}$ " will be shown on the display simultaneously. Use the Memory key to choose whether automatic Bluetooth® data transfer is activated (Bluetooth® symbol ( $\text{Bluetooth}$ ))+ $\text{ON}$ ) or deactivated (Bluetooth® symbol ( $\text{Bluetooth}$ ))+ $\text{OFF}$ ) and confirm with the ON/OFF/START key.
5. Press the ON/OFF/START key again, "0" will reappear as the Blood Pressure Monitor is ready for measurement.

## Data Transfer via Bluetooth® (Optional)

### Pairing the Blood Pressure Monitor with your Smartphone

To begin using Bluetooth® for the first time, please visit the website at <http://www.rossmax.com> for the initial set-up instructions.

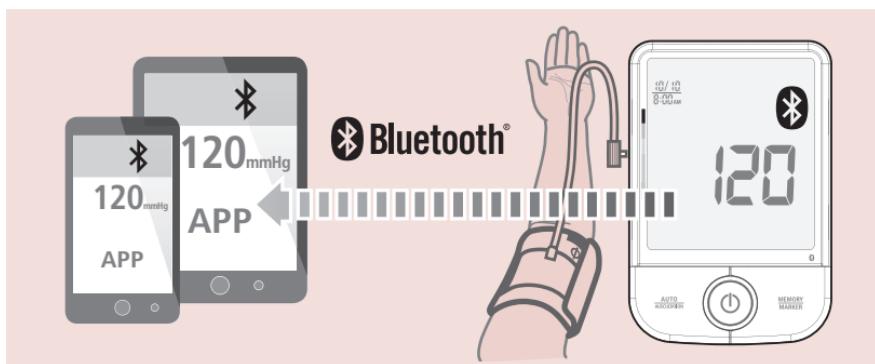
1. Download and install the applicable APP onto your smartphone.



2. To bind this device with your smartphone, turn on the device, Bluetooth® and the App of smartphone, and follow set-up and binding instructions.
3. If the binding is successful, the Bluetooth® symbol ( ) will appear on the display and keep flashing during data transfer. The current measured value will automatically be transferred to the App when the measurement is completed.
4. If the binging has failed, the Bluetooth® symbol ( ) will not appear on the display and the current measured value will not automatically be transferred to the App. In this case, the value is saved in the memory zone. Please re-bind this device with your smartphone and follow App instructions for Bluetooth® transfer.

Notes:

1. Unbinding your device will not delete the data from the App.
2. If you re-bind your smartphone with your blood pressure monitor, all prior reading history stored on the App will be retained.
3. Bluetooth® data transfer will reduce the battery capacity.

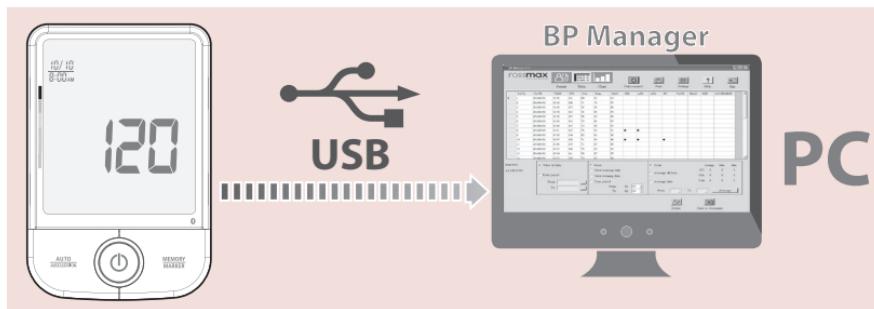


## Recalling Values from Memory

In Auto mode, all readings currently saved on the device can be transferred to the App using Bluetooth after successful completion of the binding process. Follow App instructions, and the Bluetooth transfer starts automatically. Data transfer will be halted while performing a measurement or operating the device.

## Data Transfer to PC

Rossmax provides a free, integrated and user-friendly blood pressure management software which can be downloaded and installed on your computer. You may purchase a special designed USB cable in order to connect Rossmax's blood pressure monitor and your PC. Please visit the website at <http://www.rossmax.com> for proceeding the downloading and installation process.



## Troubleshooting

If any abnormality will arise during use, please check the following points.

Symptoms	Check Points	Correction
No display when the ON/OFF/START key is pressed	Have the batteries run down? Have the batteries' polarities been positioned incorrectly?	Replace them with four new batteries. Re-insert the batteries in the correct positions.
EE mark shown on display or the blood pressure value is displayed excessively low (high)	Is the cuff placed correctly? Did you talk or move during measurement? Did you vigorously shake the cuff during measurement?	Wrap the cuff properly so that it is positioned correctly. Measure again. Keep arm steady during measurement.

Note: If the unit still does not work, return it to your dealer. Under no circumstance should you disassemble and repair the unit by yourself.

## **Cautionary Notes**

1. The unit contains high-precision assemblies. Therefore, avoid extreme temperatures, humidity, and direct sunlight. Avoid dropping or strongly shocking the main unit, and protect it from dust.
2. Clean the blood pressure monitor body and the cuff carefully with a slightly damp, soft cloth. Do not press. Do not wash the cuff or use chemical cleaner on it. Never use thinner, alcohol or petrol (gasoline) as cleaner.
3. Leaky batteries can damage the unit. Remove the batteries when the unit is not used for a long time.
4. The unit should not be operated by children so to avoid hazardous situations.
5. If the unit is stored near freezing, allow it to acclimate at room temperature before use.
6. This unit is not field serviceable. You should not use any tool to open the device nor should you attempt to adjust anything inside the device. If you have any problems, please contact the store or the doctor from whom you purchased this unit or please contact Rossmax International Ltd.
7. As a common issue for all blood pressure monitors using the oscillometric measurement function, the device may have difficulty in determining the proper blood pressure for users diagnosed with diabetes, poor circulation of blood, kidney problems, or for users suffered from stroke, or for unconscious users.
8. This unit is able to detect common arrhythmia (atrial or ventricular premature beats or atrial fibrillation). The ARR, AFib and PC icons are displayed after the measurement if Atrial Fibrillation and Premature Contraction was detected during the measurement. If ARR, AFib or PC icons are displayed, you are advised to wait for a while and take another measurement. It is strongly recommended that you consult your physician if the ARR, AFib or PC icons appear often.
9. While the given device is able to detect specific pulse arrhythmia, the measurement accuracy of the blood pressure meter may be impaired with the occurrence of pulse arrhythmia.
10. To stop operation at any time, press the ON/OFF/START key, and the air in the cuff will be rapidly exhausted.
11. Once the inflation reaches 300 mmHg, the unit will start deflating rapidly for safety reasons.
12. Please note that this unit can be a home healthcare product, but it is not intended to serve as a substitute for the advice of a physician or medical professional.
13. Do not use this device for diagnosis or treatment of any health problem or disease. Measurement results are for reference only. Consult a healthcare professional for interpretation of pressure measurements. Contact your physician if you have or suspect any medical problem. Do not change your medications without the advice of your physician or healthcare professional.

14. Electromagnetic interference: The device contains sensitive electronic components. Avoid strong electrical or electromagnetic fields in the direct vicinity of the device (e.g. mobile telephones, microwave ovens) or less than 1.5 km from AM, FM or TV broadcast antennas. These may lead to temporary impairment of measurement accuracy.
15. Dispose of device, batteries, components and accessories according to local regulations.
16. This monitor may not meet its performance specification if stored or used outside temperature and humidity ranges specified in Specifications.
17. Please note that when inflating, the functions of the limb in question may be impaired.
18. During the blood pressure measurement, blood circulation must not be stopped for an unnecessarily long time. If the device malfunctions, remove the cuff from the arm.
19. Avoid any mechanical restriction, compression or bending of the cuff line.
20. Do not allow sustained pressure in the cuff or frequent measurements. The resulting restriction of the blood flow may cause injury.
21. Ensure that the cuff is not placed on an arm in which the arteries or veins are undergoing medical treatment, e.g. intravascular access or therapy, or an arteriovenous (AV) shunt.
22. Do not apply the cuff on the side, where a mastectomy has been performed in your patient history.
23. Do not place the cuff over wounds as this may cause further injury.
24. Only ever use the cuffs provided with the monitor or original replacement cuffs. Otherwise erroneous results will be recorded.
25. Batteries can be fatal if swallowed. You should therefore store the batteries and products where they are inaccessible to small children. If a battery has been swallowed, call a doctor immediately.
26. Do not use the tubing and/or AC adaptor for any other purpose than those specified, as they can cause risk of strangulation.
27. Do not service or maintain device and cuff while in use.
28. This unit should not be used adjacent to or stacked with other equipment.
29. Please do not use any other cables or accessories not approved by the manufacturer in this manual to avoid negative influence on electromagnetic compatibility.

## Specifications

Measurement Method	Oscillometric
Measurement Range	Pressure: 30~260 mmHg; Pulse: 40~199 beats/minutev
Pressure Sensor	Semi conductor
Accuracy	Pressure: $\pm$ 3 mmHg; Pulse: $\pm$ 5% of reading
Inflation	Pump Driven
Deflation	Automatic Air Release Valve
Memory capacity	90 memories
Auto-shut-off	1 minute after last key operation
Permissible Operating Temperature and Humidity	10°C~40°C (50°F~104°F); 15%~85% RH; 700~1060 hPa
Permissible Transport and Storage Temperature and Humidity	-10°C~60°C (14°F~140°F); 10%~90% RH; 700~1060 hPa
DC Power Source	DC 6V four AA Batteries
AC Power Source	DC 6V, $\geq$ 600mA (Plug size: outer(-) is Ø4.0, inner(+) is Ø1.7)
Dimensions	173.0 (L) X 115.0 (W) X 64.5 (H) mm
Weight	410g (G.W.) (w/o Batteries)
Arm circumference	L: 34~46 cm (13.4"~18.1"); M: 24~36 cm (9.4"~14.2"); S: 16~26 cm (6.3"~10.2")
Limited Users	Adult users
	Type BF: Device and cuff are designed to provide special protection against electrical shocks.
IP Classification	IP21: Protection against harmful ingress of water and particulate matter

\* Specifications are subject to change without notice.

## Electromagnetic Compatibility Information

1. This device needs to be installed and put into service in accordance with the information provided in the user manual.
  2. WARNING: Portable RF communications equipment (including peripherals such as antenna cables and external antennas) should be used no closer than 30 cm (12 inches) to any part of the X9, including cables specified by the manufacturer. Otherwise, degradation of the performance of this device could result.
- If higher IMMUNITY TEST LEVELS than those specified in Table 9 are used, the minimum separation distance may be lowered. Lower minimum separation distances shall be calculated using the equation specified in 8.10.

Manufacturer's declaration-electromagnetic immunity			
The X9 is intended for use in the electromagnetic environment specified below. The customer or the user of the X9 should assure that is used in such and environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment-guidance
Conducted RF IEC 61000-4-6	3 Vrms: 0,15 MHz – 80 MHz 6 Vrms: in ISM and amateur radio bands between 0,15 MHz and 80 MHz  80 % AM at 1 kHz	3 Vrms: 0,15 MHz – 80 MHz 6 Vrms: in ISM and amateur radio bands between 0,15 MHz and 80 MHz  80 % AM at 1 kHz	Portable and mobile RF communications equipment should be used no closer to any part of the X9 including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.  Recommended separation distance: $d = 1,2 \sqrt{P}$ , $d = 1,2 \sqrt{P} 80\text{MHz}$ to 800 MHz, $d = 2,3 \sqrt{P} 800\text{MHz}$ to 2,7 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). Interference may occur in the vicinity of equipment marked with the following symbol: 
Radiated RF IEC 61000-4-3	10 V/m 80 MHz – 2,7 GHz 80 % AM at 1 kHz	10 V/m 80 MHz – 2,7 GHz 80 % AM at 1 kHz	

NOTE1: At 80 MHz and 800 MHz, the higher frequency range applies.

NOTE2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

More information on EMC compliance of the device can be obtained from Rossmax website: [www.rossmax.com](http://www.rossmax.com).

## Blood Pressure Log

Name:

Age:

Weight:

## Blood Pressure Log

Name:

Age:

Weight:

Date						
Time						
mmHg						
220						
200						
180						
160						
140						
120						
100						
80						
60						
Pulse						
Body Condition						

## **Warranty Card**

This instrument is covered by a 2 year guarantee from the date of purchase. The guarantee is valid only on presentation of the warranty card completed or stamped by the seller/dealer confirming date of purchase or the receipt. Batteries, cuff and accessories are not included. Opening or altering the instrument invalidates the guarantee. The guarantee does not cover damage, accidents or non-compliance with the instruction manual. Please contact your local seller/dealer or [www.rossmax.com](http://www.rossmax.com).

**Customer Name:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**Telephone:** \_\_\_\_\_ **E-mail address:** \_\_\_\_\_

### **Product Information**

**Date of purchase:** \_\_\_\_\_

**Store where purchased:** \_\_\_\_\_



**WARNING:** The symbol on this product means that it's an electronic product and following the European directive 2012/19/EU the electronic products have to be disposed on your local recycling centre for safe treatment.

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- The blood pressure monitor uses Bluetooth® (Bluetooth® low energy technology)
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