

medical
Rossmax[®]



AUTOMATIC UPPER ARM

BLOOD PRESSURE MONITOR

MODEL: AK150 F

Realfuzzy
technology



- Superior Accuracy
- Real Fuzzy Technology
- 90 Automatic Memories
- Easy One Touch Operation
- Easy to Read LCD Display

1. Introduction

Blood pressure measurements determined with this unit 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 a home environment. Do not use this device on infants or neonates.

This unit is protected against manufacturing defects by an established International Warranty Program. For warranty information, you can contact the manufacturer, Rossmax International Ltd. or your local distributors.

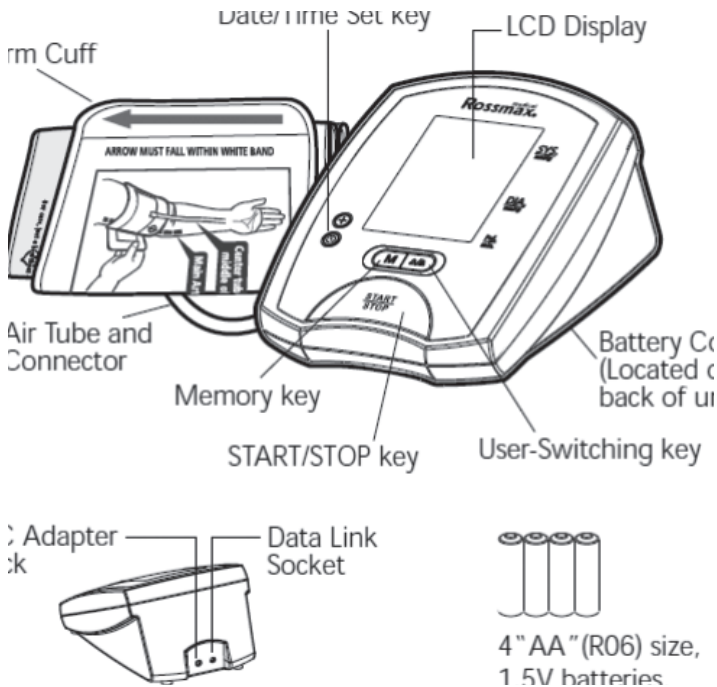


Attention: Consult the accompanying documents.

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.

2. Name/Function of Each Part



3. 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 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 for you the systolic blood pressure, diastolic blood pressure, and pulse.

4. Preliminary Remarks

This Blood Pressure Monitor complies with the European regulations and bears the CE mark "CE 0366". 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.

This blood pressure monitor was designed for long service time. To ensure accurate measurements, it is recommended that calibration be completed every two years.

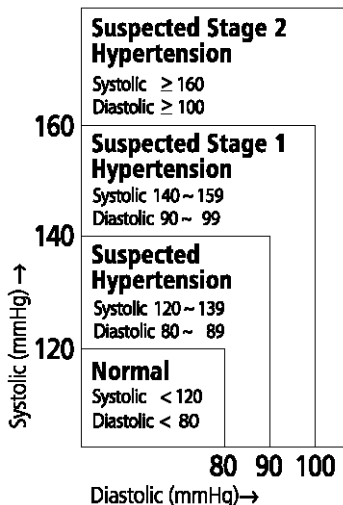
5. Blood Pressure Standard

The National High Blood Pressure Education Program Coordinating Committee has developed a blood pressure standard, classifying blood pressure ranges into 4 stages. (Ref. The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure-Complete Report JNC-7, 2004).

This blood pressure classification are based on historical data, and may not be directly applicable to any particular patient.

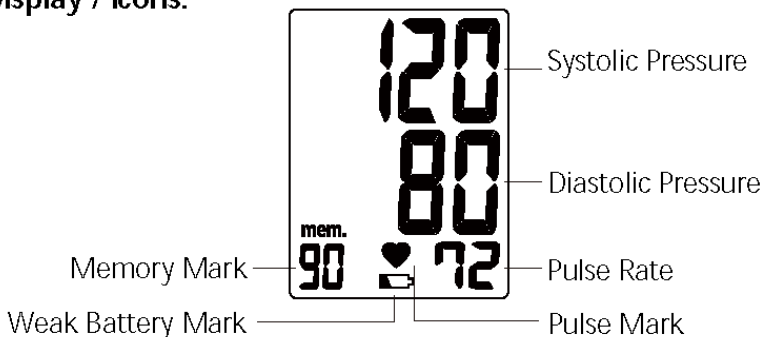
It is important that you consult with your physician regularly. Your physician will tell you your normal blood pressure range as well as the point at which you will be considered at risk before making any health-care decision based on the device's readings.


For reliable monitoring and reference of blood pressure, keeping long-term records is recommended. Please download the blood pressure log (chart for recording and tracking crucial info: date, time, blood pressure, pulse rate and body condition) at www.rossmaxhealth.com.





6. Blood Pressure Standard


Display / Icons:





 Memory Mark: Shows the number of stored measurements


 Pulse Mark: Shows the pulse rate per minute


 Weak Battery Mark: Appears when batteries should be replaced

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

 Air Circuit Abnormality: Make sure the L-Plug is securely connected to the air socket on the side of the unit and measure again quietly. Another possible cause can be due to the short circuit of the microphone embedded in the cuff. If the errors still occur, return the device to your local distributor or service center for help.

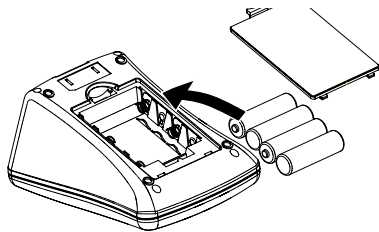
 Pressure Exceeding 300 mmHg: Switch the unit off and measure again quietly. If the error keeps occurring, return the device to your local distributor or service center.

 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 center.

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

7. 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 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. As the supplied batteries are for test only, they may be discharged earlier than batteries you buy in stores. Replace the batteries in pairs. Remove batteries when unit is not in use for extended periods of time.



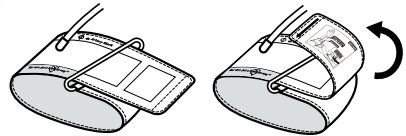
You need to replace the batteries when:

1. low battery icon appears on display.
2. the ON/OFF/START key is pressed and nothing appears on display.

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.

8. Applying the Cuff

1. Unwrap the arm cuff, leaving the end of the cuff through the D-ring of the cuff.
2. Put your left arm through the cuff loop. The color strip indication should be positioned closer to you with the tube pointing in the direction of your arm (Fig.1). Turn your left palm upward and place the edge of the arm cuff at approximately 1.5 to 2.5 cm above the inner side of the elbow joint (Fig.2). Tighten the cuff by pulling the end of the cuff.



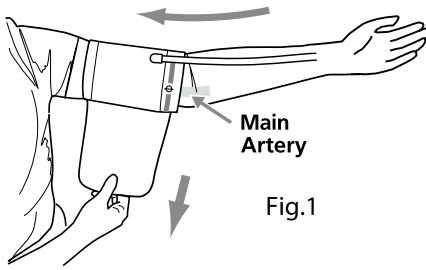


Fig.1

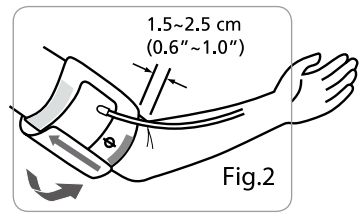


Fig.2

- 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 (Φ) over the main artery (on the inside of your arm). (Fig. 3,4) **Note:** Locate the main artery by pressing with 2 fingers approximately 2cm 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.

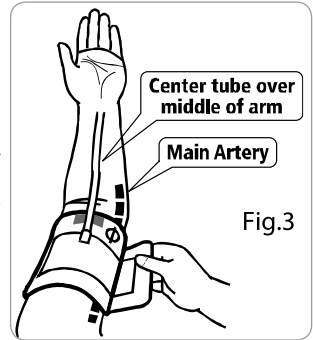


Fig.3

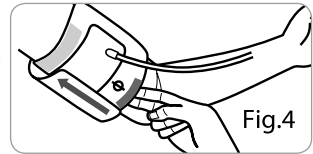


Fig.4

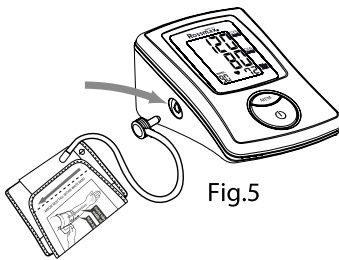


Fig.5

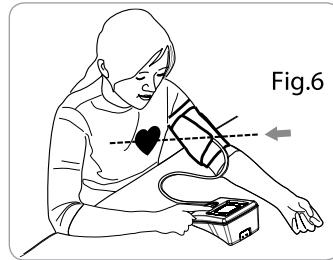


Fig.6

- Plug in the cuff connecting tube into the unit. (Fig. 5)
- 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).
- This cuff is suitable for your use if the arrow falls within the solid color line as shown on the right (Fig. 7). If the arrow falls outside the solid color line, you will need a cuff with other circumferences. Contact your local dealer for additional size cuffs.

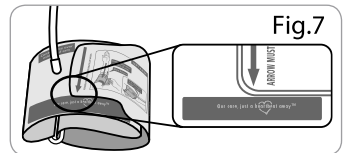


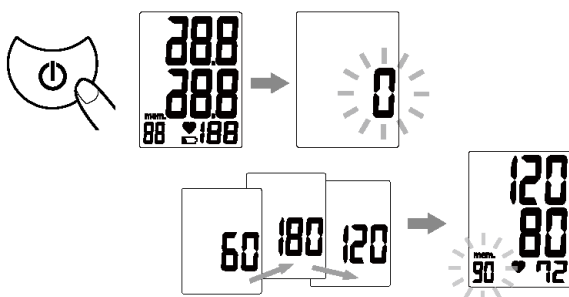
Fig.7

9. Measurement Procedures

Important Notes:

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 15 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.
 - 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 about 5 minutes before taking the next measurement.
1. Press the ON/OFF/START key. All displays will appear for approximately one second before returning to "0".
 2. The unit will automatically inflate to the appropriate inflation level based on the user's pulse oscillations. Measurement will then begin. It is important to remain still and quiet during measurement. Any significant movement may affect measurement results.



3. When the measurement is completed, systolic, diastolic and pulse will be shown simultaneously and be saved automatically in memory system. Up to 90 memories can be saved.
4. Measurement is now completed. Press the ON/OFF/START key to turn

off the power. If no key is pressed, the unit will shut off automatically in 1 minute.

This monitor will re-inflate automatically to approximately 220 mmHg if the system detects that your body needs more pressure to measure your blood pressure.

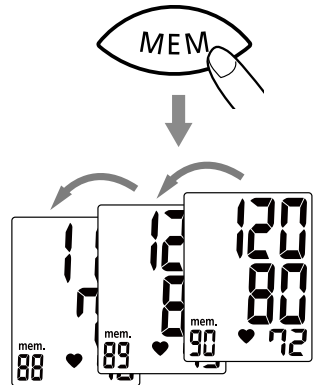


Note:

1. This monitor automatically switches off approximately 1 minute after last key operation.
2. To interrupt the measurement, simply press the Memory or ON/OFF/START key; the cuff will deflate immediately.
3. During the measurement, do not talk or move your arm or hand muscles.

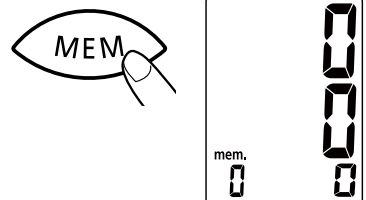
10. Recalling Values from Memory

1. To recall stored blood pressure readings from memory, simply press the Memory key. The last set of memorized readings will be displayed.
2. Another press of the Memory key will recall the previous set of readings.
3. All readings stored in memory will be displayed with its sequence number.



11. Clearing Values from Memory

1. Press and hold the Memory key for approximately 5 seconds, then the data in the memory zone can be erased automatically.



12. Troubleshooting

If any abnormality should 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?	Replace them with four new batteries.
	Have the batteries' polarities been positioned incorrectly?	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?	Wrap the cuff properly so that it is positioned correctly.
	Did you talk or move during measurement	Wrap the cuff properly so that it is positioned correctly.
	Did you vigorously shake the cuff 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.

13. 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. For users diagnosed with common arrhythmia (atrial or ventricular premature beats or atrial fibrillation), diabetes, poor circulation of blood, kidney problems, or for users suffered from stroke, or for unconscious users, the device may have difficulty in determining the proper blood pressure.
8. To stop operation at any time, press the ON/OFF/START key, and the air in the cuff will be rapidly exhausted.
9. Once the inflation reaches 300 mmHg, the unit will start deflating rapidly for safety reasons.
10. Please note that this is a home healthcare product only and it is not intended to serve as a substitute for the advice of a physician or medical professional.
11. 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.
12. 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). These may lead to temporary impairment of measurement accuracy.
13. Dispose of device, batteries, components and accessories according to local regulations.
14. This monitor may not meet its performance specification if stored or used outside temperature and humidity ranges specified in Specifications.

14. Specifications

Measurement Method : Oscillometric

Measurement Range : Pressure: 40~250 mmHg;

Pulse: 40~199 beats/ minute

Pressure Sensor : Semi conductor

Accuracy : Pressure: ± 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

Operation Environment : 10°C~40°C (50°F~104°F); 40%~85% RH max

Storage Environment : -10°C~60°C (14°F~140°F); 10%~90% RH max

DC Power Source : DC 6V four R06 (AA) Batteries

Dimensions : 105 (L) X 140 (W) X 74 (H) mm

Weight : 375g (G.W.) (w/o Batteries)

Arm circumference : Adult: 24~36 cm (9.4"~14.2")

Limited Users : Adult users

: Type BF

Device and cuff are designed to provide special protection against electrical shocks.

* Specifications are subject to change without notice.


15. EMC guidance and manufacturer's declaration

Guidance and manufacturer's declaration-electromagnetic emissions		
The AK150f is intended for use in the electromagnetic environment specified below. The customer or the user of the AK150f should assure that it is used in such an environment.		
Emission test	Compliance	Electromagnetic environment-guidance
RF emissions CISPR 11	Group 1	The AK150f uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class B	The AK150f 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.
Harmonic emissions IEC 61000-3-2	Not applicable	
Voltage fluctuations/flicker emissions IEC 61000-3-3	Not applicable	

Guidance and manufacturer's declaration-electromagnetic immunity			
The AK150f is intended for use in the electromagnetic environment specified below. The customer or the user of the AK150f should assure that it is used in such an environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment-guidance
Electrostatic discharge (ESD) IEC 61000-4-2	± 6 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%
Electrical fast transient/burst IEC 61000-4-4	± 2kV for power supply lines ± 1kV for input/output lines	Not applicable Not applicable	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	± 1kV line(s) to line(s) ± 2kV line(s) to earth	Not applicable Not applicable	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 IEC 61000-4-11	<5% UT (>95% dip in UT) for 0,5 cycle 40% UT (60% dip in UT) for 5 cycles 70% UT (30% dip in UT) for 25 cycles <5% UT (>95% dip in UT) for 5 s	Not applicable Not applicable Not applicable Not applicable	Mains power quality should be that of a typical commercial or hospital environment. If the user of the AK150f requires continued operation during power mains interruptions, it is recommended that the AK150f be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristics of a typical location in a typical commercial or hospital environment.
NOTE: UT is the a.c. mains voltage prior to application of the test level.			

Guidance and manufacturer's declaration-electromagnetic immunity

The AK150f is intended for use in the electromagnetic environment specified below.
The customer or the user of the AK150f should assure that is used in such an environment.

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment-guidance
Conducted RF IEC 61000-4-6 Radiated RF IEC 61000-4-3	3 Vrms 150 KHz to 80 MHz 3 V/m 80MHz to 2,5 GHz	Not applicable 3 V/m	Portable and mobile RF communications equipment should be used no closer to any part of the AK150f, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance: $d = 1,2 \sqrt{P}$ $d = 1,2 \sqrt{P}$ 80MHz to 800 MHz $d = 2,3 \sqrt{P}$ 800MHz 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, ^a should be less than the compliance level in each frequency range. ^{vv} Interference may occur in the vicinity of equipment marked with the following symbol: 

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.

a. Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) 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 AK150f is used exceeds the applicable RF compliance level above, the AK150f should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the AK150f.

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

Recommended separation distance between portable and mobile RF communications equipment and the AK150f

The AK150f is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the AK150f can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the AK150f as recommended below, according to the maximum output power of the communications equipment.

Rated maximum output power of transmitter (W)	Separation distance according to frequency of transmitter (m)		
	150kHz to 80MHz / $d=1,2\sqrt{P}$	80MHz to 800MHz / $d=1,2\sqrt{P}$	800MHz to 2,5GHz / $d=2,3\sqrt{P}$
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.

NOTE1: At 80 MHz and 800 MHz, the separation distance for 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.