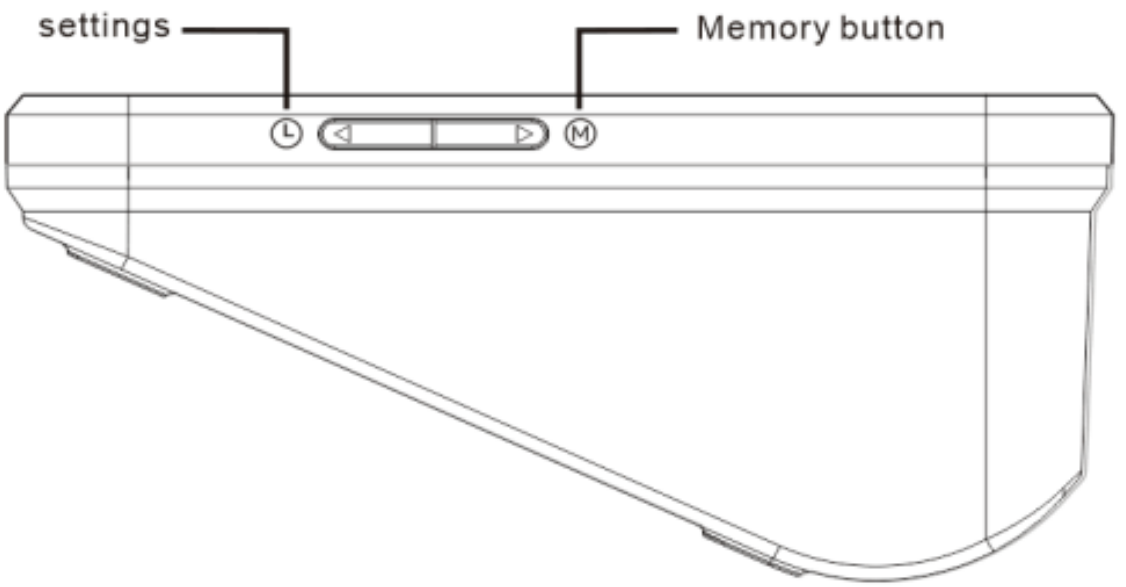
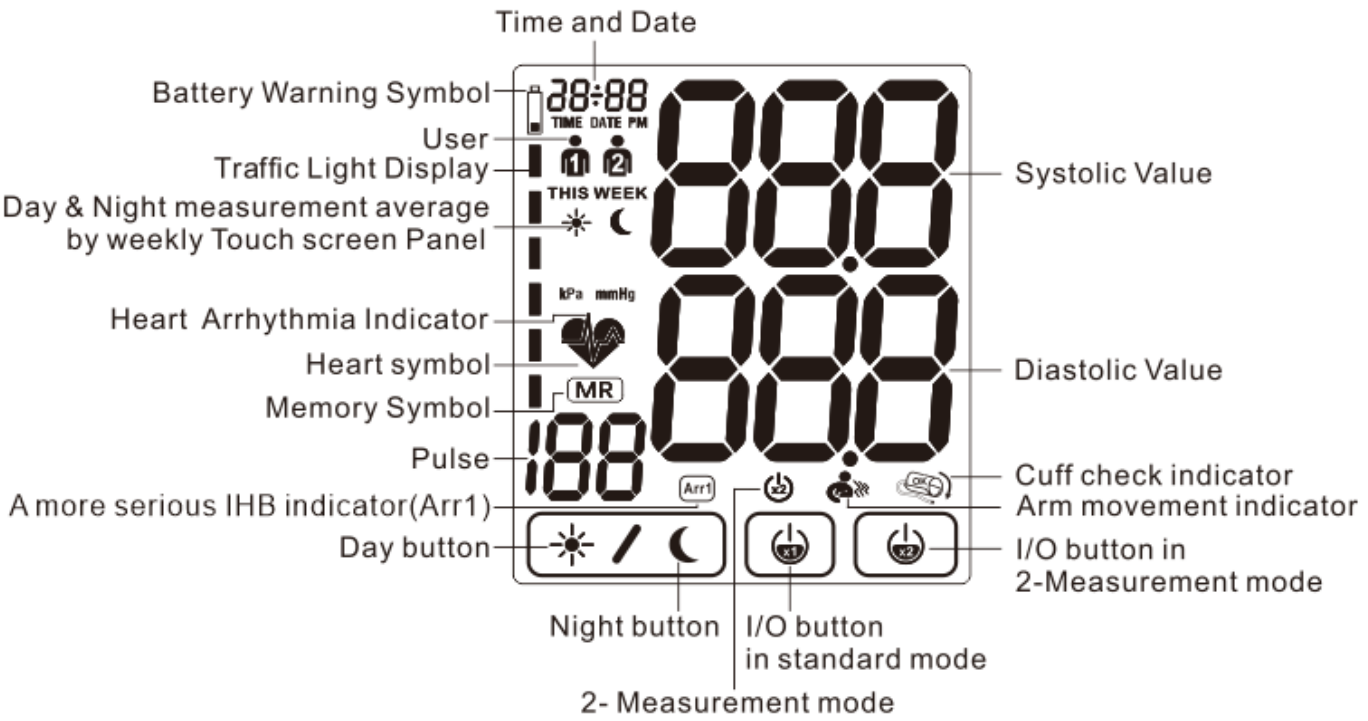
BP156A-A Instruction Manual
Arm type Blood Pressure Monitor talking in English
Arm type Blood Pressure Monitor
Instruction Manual




Time and Date
Battery Warning Symbol
User
Traffic Light Display
Day & Night measurement average
by weekly Touch screen Panel
Heart Arrhythmia Indicator
Heart symbol
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A more serious IHB indicator(Arr1)
Day button
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MR
Arr1

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1.Introduction

1.1. Features of the BP156A-A

The blood-pressure monitor BP156A-A (with integrated time/date display) is a fully automatic, digital blood-pressure measuring device for use on the arm, which enables very fast and reliable measurement of the systolic and diastolic blood-pressure as well as the pulse frequency by way of the oscillometric method of measuring. The device offers a very high and clinical tested measurement accuracy and has been designed to provide a maximum of user-friendliness. The device is intended for self-use at home. Before using, please read through this instruction manual carefully and then keep it in a safe place. For further questions on the subject of blood-pressure and its measurement, please contact your doctor.

Attention!

1.2. Important information about self-measurement

•Substitution of a different component might result in measurement error.
•cuff is replaceable only by an original.
•Do not use with neonatal patients.
•Do not intend to use with pregnant or pre-eclamptic patients
•It will cause harmful injury to the patient or effect the blood pressure due to connection tubing kinking.
•Too frequent measurements can cause injury to the patient due to blood flow interference.
•The application of the cuff over a wound can cause further injury.

•The application of the cuff and its pressurization on any limb where intravascular access or therapy, or an arteriovenous (A-V) shunt, is present because of temporary interference to blood flow and could result in injury to the patient.
•Do not let the cuff and its pressurization on the arm on the side of a mastectomy
•Pressurization of the cuff can temporarily cause loss of function of simultaneously used monitoring ME equipment on the same limb.
•The need to check that operation of the automated sphygmomanometer does not result in prolonged impairment of patient blood circulation.
•Not intended to be used together with HF surgical equipment.
• Do not forget: self-measurement means control, not diagnosis or treatment. Unusual values must always be discussed with your doctor. Under no circumstances should you alter the dosages of any drugs prescribed by your doctor.
• The pulse display is not suitable for checking the frequency of heart pacemakers!
• In cases of cardiac irregularity (Arrhythmia), measurements made with this instrument should only be evaluated after consultation with the doctor.

Electromagnetic interference
The device contains sensitive electronic components (Microcomputer). Therefore, avoid strong electrical or electromagnetic fields in the direct vicinity of the device (e.g. mobile telephones, microwave cookers). These can lead to temporary impairment of the measuring accuracy.

2. Important information on the subject of blood-pressure and its measurement

2.1. How does high/low blood-pressure arise?

The level of blood-pressure is determined in a part of the brain, the so-called circulatory center, and adapted to the respective situation by way of feedback via the nervous system. To adjust the blood-pressure, the strength and frequency of the heart (Pulse), as well as the width of circulatory blood vessels is altered. The latter is affected by way of fine muscles in the blood-vessel walls.

The level of arterial blood-pressure changes periodically during the heart activity: During the «blood ejection» (Systole) the value is maximal (systolic blood-pressure value), at the end of the heart's «rest period» (Diastole) minimal (diastolic blood-pressure value).

The blood-pressure values must lie within certain normal ranges in order to prevent particular diseases.

2.2. Which values are normal?

Blood pressure is too high if at rest, the diastolic pressure is above90 mmHg and/or the systolic blood-pressure is over 160 mmHg. In this case, please consult your doctor immediately. Long-term value sat this level endanger your health due to the associated advancing damage to the blood vessels in your body.

Should the systolic blood-pressure values lie between 140 mmHg and 160 mmHg and/or the diastolic blood-pressure values lie between 90 mmHg and 100 mmHg, likewise, please consult your doctor. Furthermore, regular self-checks will be necessary.

With blood-pressure values that are too low, i.e. systolic values under 100 mmHg and/or diastolic values under 60 mmHg, likewise, please consult your doctor.

Even with normal blood-pressure values, a regular self-check with your blood-pressure monitor is recommended. In this way you can detect possible changes in your values early and react appropriately. If you are

undergoing medical treatment to control your blood pressure, please keep a record of the level of your blood pressure by carrying out regular self-measurements at specific times of the day. Show these values to your doctor. **Never use the results of your measurements to alter independently the drug doses prescribed by your doctor.**

Table for classifying blood-pressure values (unit: mmHg) according to World Health Organization:

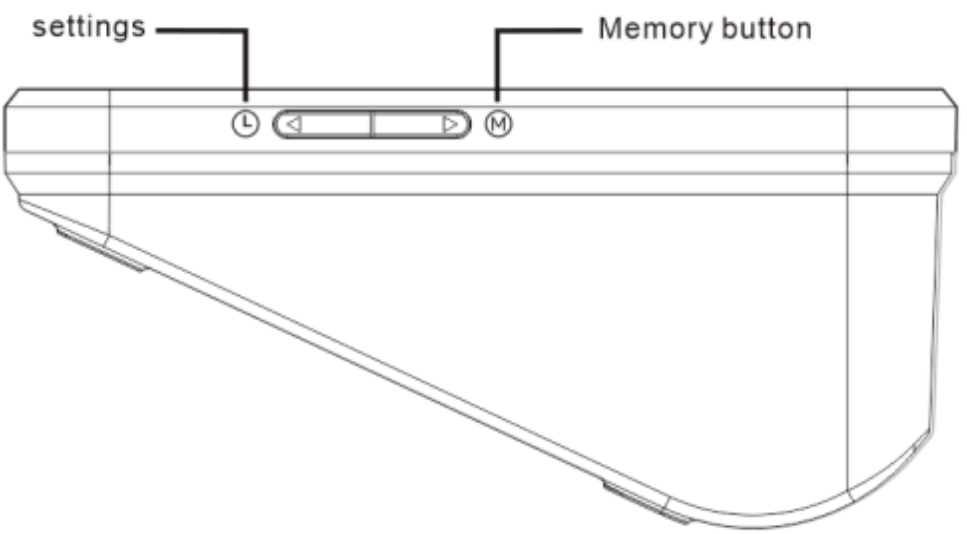
Range	**Systolic**	**Diastolic**	**Measures**
	Blood-pressure	**Blood-pressure**	
Hypotension	lower than 100	lower than 60	Consult your doctor
optimum	between 100 and 120	between 60 and 80	Self-check
normal	between 120 and 130	between 80 and 85	Self-check
high to normal	between 130 and 140	between 85 and 90	Consult your doctor
slight hypertension	between 140 and 160	Between 90 and 100	Seek medical advice
medium hypertension	between 160 and 180	Between 200 and 110	Seek medical advice
strong hypertension	Higher than 180	Higher than 110	Urgently seek medical advice!

Further information

• If your values are mostly standard under resting conditions but exceptionally high under conditions of physical or psychological stress, it is possible that you are suffering from so-called «labile hypertension». Please consult your doctor if you suspect that this might be the case.

• Correctly measured diastolic blood-pressure values above120mmHg require immediate medical treatment.

3. The various components of the blood-pressure monitor



4. Putting the blood-pressure monitor into operation

4.1. Inserting the batteries

a) Insert the batteries (4 x size AA 1.5V), thereby observing the indicated polarity.

b) the battery warning appears in the display, the batteries remain around 20% power to warn user the batteries will be run out.

c) If the battery warning appears in the display, the batteries are empty and must be replaced by new ones.

Attention!

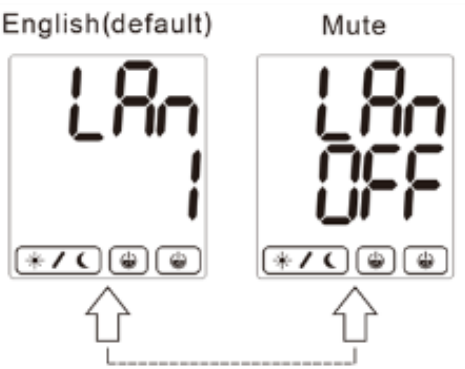
After the battery warning appears, the device is blocked until the batteries have been replaced.

- Please use «AA» Long-Life or Alkaline 1.5V Batteries.
- If the blood-pressure monitor is left unused for long periods, please remove the batteries from the device.

4.2. how to select broadcasting languages (option in talking feature)

- This device has talking function: English talking only.

- to press and hold “ (x1)” or “(x2)” button 3-5 seconds, then enter to language selection mode. the default language is English, and to press “memory button or setting button’’ sequentially to select mute (voice off) and go back to English , and so on ⋯

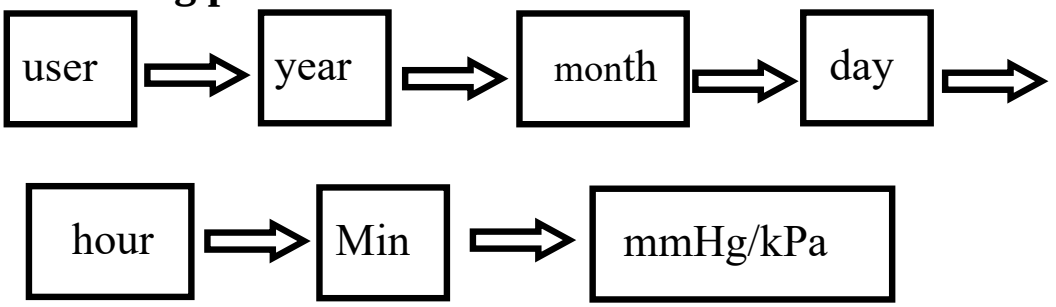


4.3. Setting: User selection /date/time/Unit

How to enter to the setting mode

To press and hold the Setting button “Ⓛ ▭” for 2 seconds , the device will enter to the setting mode .

the setting procedure as follows:



it is essential to set date and time. otherwise, you will not be able to save your measured value correctly with a date and time.

To use “▭Ⓜ” button to be the adjustment button ,

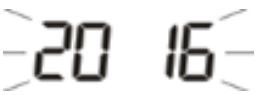
If you press and hold “▭Ⓜ” button, you can set the values more quickly .

1. User selection :

   Choose the desired user with ” ▭Ⓜ ” button ,“  ” flash on the display

   To press “(x1)” or “(x2)” button to confirm the desired user , and to Press Setting button “Ⓛ ▭” to continue the setting procedure

2. Year setting : the year flashes on the display

   Choose the desired year with “▭Ⓜ” button and confirm with “(x1)” or “(x2)” button , and to Press Setting button of “Ⓛ ▭ ” to continue the setting procedure

3. Date setting: the Date flashes by Month and Day sequentially on the display once Setting button pressed.

Choose the desired month with “ Ⓜ ” button and confirm with “ (x1) ” or “ (x2) ”button , and to Press Setting button of “ Ⓛ ” to continue the setting procedure.

4. Time setting: the Time flashes by Hour and Minute sequentially on the display once Setting button pressed

   Choose the desired Time with “ Ⓜ ” button and confirm with “ (x1) ” or “ (x2) ” button, and to Press Setting button of “ Ⓛ ” to continue the setting procedure

5. Unit selection of mmHg / kPa: the unit “kPa” or “mmHg” flashes on the display:

   Choose the desired Unit with “ Ⓜ ” button and confirm with “ (x1) ” or “ (x2) ” button, to Press Setting button of “ Ⓛ ” to complete the whole setting procedure

Please be noticed the clock will begin from2013-01-01 01:01 and mmHg to be default if no any key pressed within 2 minutes.

5. Carrying out a measurement

5.1. Before the measurement:

• Avoid eating, smoking as well as all forms of exertion directly before the measurement. All these factors influence the measurement result. Try and find time to relax by sitting in an armchair in a quite atmosphere for about ten minutes before the measurement.

• Measure always on the same arm (normally left).

• Attempt to carry out the measurements regularly at the same time of day, since the blood-pressure changes during the course of the day.

5.2. Common sources of error:

Note:

Comparable blood-pressure measurements always require the same conditions! These are normally always quiet conditions.

• All efforts by the patient to support the arm can increase the blood-pressure. Make sure you are in a comfortable, relaxed position and do not activate any of the muscles in the measurement arm during the measurement. Use a cushion for support if necessary.

•The performance of the automated sphygmomanometer can be affected by extremes of temperature, humidity and altitude.

• Avoid compression or restriction of the connection tubing.

• A loose cuff causes false measurement values.

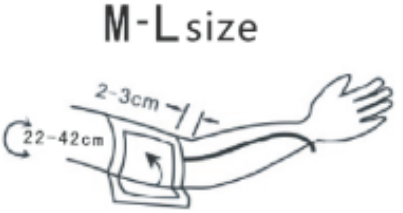
• With repeated measurements, blood accumulates in the respective arm, which can lead to false results. Correctly executed blood-pressure measurements should therefore first be repeated after a 5 minutes pause or after the arm has been held up in order to allow the accumulated blood to flow away (after at least 3 minutes).

5.3. Fitting the cuff

insert air connector into air outlet shown in right photo and please make sure the fitting of the air connector completely and properly to avoid air leakage.

Cuff spec: arm size 22~42cm

a) The distance between the edge of cuff and the elbow should be approx. 2~3cm.



b) Secure the cuff with the Velcro fastener, so that it lies comfortably and not too tight, whereby no space should remain between the cuff and the arm.

c) Lay the arm on a table, with the palm upwards. Support the arm a little with a rest (cushion), so that the cuff rests at about the same height as the heart. Take care, that the cuff lies free. Remain so for 2 minutes sitting quietly, before beginning with the measurement.

d) Let legs uncrossed, feet flat on the floor, back and arm supported.

5.4. Measuring procedure

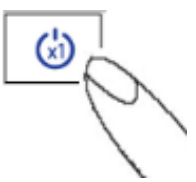
Select the measuring mode: standard single or 2-measurement mode

This device enables you to select either standard (standard single measurement) or (automatic twice measurement). To select standard mode, to press "(x1)" button and if 2-measurement mode, please press"(x2)" button

5.4.1 Measuring in standard mode

In this mode has arrhythmia detection

After the cuff has been appropriately positioned, the measurement can begin:



a) Press the (x1) button, the pump begins to inflate the

cuff. In the display, the increasing cuff-pressure is continually displayed.

b) Cuff fitting detection: the icon  will appear and blink during measuring, if cuff was fit too loose. The icon 

will appear during measuring, if cuff was fit well.

c) arm movement detection during measuring: the icon  will appear, if a movement was detected which may influence accuracy. due to the movement not too serious, the measuring can be continuous (if the movement is too serious, Err2 displayed)

d) After reaching the inflation pressure, the pump stops and the pressure slowly falls away. The cuff-pressure (large characters) is displayed during the measurement. When the device has detected the pulse, the heart symbol in the display begins to blink

e) When the measurement has been concluded, the measured systolic and diastolic blood-pressure values as well as the pulse frequency are now displayed.

Example 1: Systole 120, Diastole 80, Pulse 70,
And Arrhythmia detected, cuff fit well.

Example 1

Example 2: Systole 120, Diastole 80, Pulse 70,
And Arrhythmia detected, cuff fit too loose.

Example 2

Example 3: Systole 128, Diastole 86, Pulse 68,
And a movement detected, cuff fit well

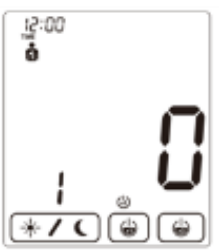
Example 3

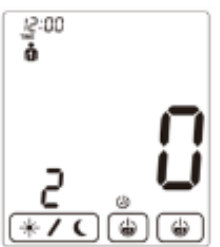
The measurement results are displayed, until you switch the device off. If no button is pressed for 3 minutes, the device switches automatically off, to save the batteries.

5.4.2 Measuring in 2-measurement mode

In 2-measurement mode, 2 measurements are automatically taken in succession and the result is then automatically analyzed and displayed. Because blood pressure constantly fluctuates, a result determined in this way is more reliable than one produced by a single measurement.

- After pressing the x2 button , the x2 symbol appears in the display.
  - The middle, left hand section of the display shows a 1, 2 to indicate which of the 2 measurements is currently being taken.





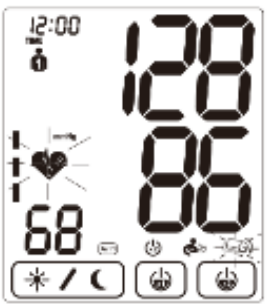
- There is a break of 15 seconds between the measurements
  (15 seconds are adequate according to «Blood Pressure Monitoring, 2001, 6:145-147» for oscillometric instruments). A countdown indicates the remaining time.

- The individual results are not displayed. Your blood pressure will only be displayed after all 2 measurements are taken.
- Do not remove the cuff between measurements.
- If one of the individual measurements is questionable, a third one is automatically taken.

In the measuring:
After reaching the inflation pressure, the pump stops and the pressure slowly falls away. The cuff-pressure is displayed during the measurement. When the device has detected the pulse, the heart symbol in the display begins to blink.

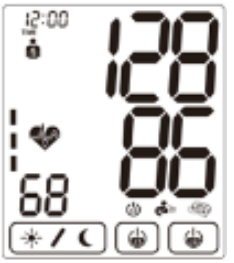
Measured result:
The measured systolic and diastolic blood-pressure values as well as the pulse are now displayed.

Example 1:
Systole 128, Diastole 86, Pulse 68, icon of Arrhythmia and Arr1 Arr1 will be appeared.
Arm movement detected and cuff fit too loose detected.



Example 1

Example 2:
Systole 128, Diastole 86, Pulse 68, arrhythmia  detected,
but no Arr1 detected.
Arm movement detected and cuff fit well.

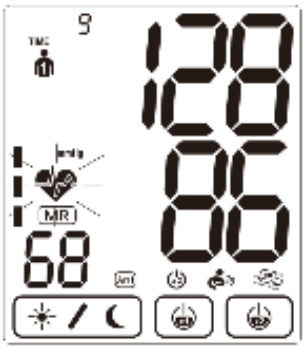


Example 2

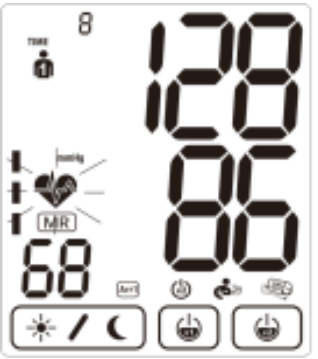
The measurement results are displayed until you switch the device off. If no button is pressed for 3 minutes, the device switches automatically off

5.5 Discontinuing a measurement
If it is necessary to interrupt a blood pressure measurement for any reason (e.g. the patient feels unwell), the power button  or  can be pressed at any time. The device then immediately lowers the cuff-pressure automatically.

5.6 Memory – storage and recall of the measurements
The blood-pressure monitor automatically stores each of the last 120 measurement values. By pressing the MEMORY button, an average value of the last 3 measurements as well as the last measurement and the further last 120 measurements (MR119, MR118…MR1).

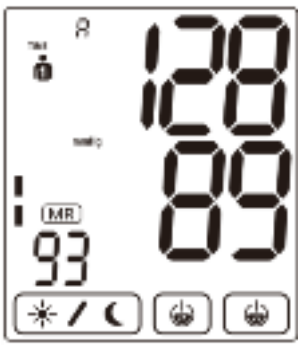


The last 9th record of measured under (x2) mode

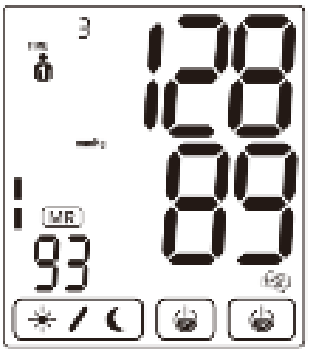


The last 8th record of measured under (x2) mode

The last 6th record of measured under (x2) mode



The indicate "A" means an average value for the last 3 measurements



The last 3rd record of measured under (x1) mode

(MR2-MR120: Values of the measurement before MR1) (MR1: Values of the last measurement)

5.7Day &Night measurement average by weekly for 8 weeks

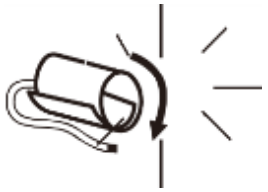
a). Day Measurement Average in continuous 8 weeks:

to press " ☀ " Day button firstly , "**THIS WEEK**" appears in the display , and to press Day button secondly , "**WEEK - 1**" appears in the display …., the last week is "**WEEK -7**"

b). Night Measurement Average in continuous 8 weeks:

to press “ “Night button firstly, “**THIS WEEK**” appears in the display, and to press Night button secondly, “**WEEK - 1**” appears in the display …., the last week is “**WEEK -7**”

5.8Novel features



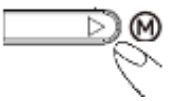
Cuff too loose, the arrow blinks. in case of not very loose, measuring also can be continuous. but, the icon will appear in the measurement result to identify an unusual situation. However, if the Cuff fitting is serious loose,

the measuring will be terminated, and Err3 appears in the display.

The icon appears to mean that Cuff fits well

A slight arm movement detection during measuring: the icon will appear, which means the movement may influences accuracy.
in case of just a slight movement i.e. talk in the measuring, such a tiny movement could be bearable against measuring accuracy. the measuring can be continuous. But, the icon will appear in the measurement result to identify an unusual situation. If the movement is too serious, the measuring will be terminated, and Err2 appears in the display

Weekly Blood Pressure Measurement Records:
Measurement Average by Weekly in Day & Night for 8 weeks

5.9Memory– cancellation of all measurements Attention!
Before you delete all readings stored in the memory, make sure you will not need refer to the readings at a later date. Keeping a written record is prudent and may provide additional information for your doctor's visit.
In order to delete all stored readings, press the MEMORY button  for at least 5 seconds, the display will 

show the symbol «CL» blinks and then to press MEMORY button again to confirm to clear the memory permanently.

6. Appearance of the Irregular Heart Beat Detection (IHB)

6.1 Appearance of the Heart Arrhythmia Indicator for early Detection

This icon  indicates that certain pulse irregularities were detected during the measurement.

In this case, the result may deviate from your normal blood pressure – repeat the measurement. In most cases, this is no cause for concern. However, if the symbol appears on a regular basis (e.g. several times a week with measurements taken daily) we advise you to tell your doctor. Please show your doctor the following explanation: Information for the doctor on frequent appearance of the Arrhythmia indicator. This instrument is an oscillometric blood pressure monitor that also analyses pulse frequency during measurement. The instrument is clinically tested. The arrhythmia symbol is displayed after the measurement, if pulse irregularities occur during measurement. If the symbol appears more frequently (e.g. several times per week on measurements performed daily) we recommend the patient to seek medical advice.

The instrument does not replace a cardiac examination, but serves to detect pulse irregularities at an early stage.

6.2 Appearance of the Arr1 for early Detection

This device is able to detect arrythmia(Arr1). This icon Arr1 indicates that a more serious IHB is detected during the measurement. If the Arr1 symbol appears after having performed a full blood pressure measurement episode (triplicate measurements), you are advised to wait for one hour and

perform another measurement episode (triplicate measurements). If the Arr1 symbol appears again, then you are advised to visit your doctor. If after repeated measurement the Arr1 symbol is no longer displayed there is no cause for concern. In such case it is recommended to measure again the next day. Keep the arm still during measuring to avoid false readings. This device may not detect a more serious IHB in people with pacemakers or defibrillators.

7. Error messages/malfunctions

If an error occurs during a measurement, the measurements discontinued and a corresponding error code is displayed
(Example: Error No. 2).

Error No.	Possible cause(s)
ERR 1	No pulse has been detected.
ERR 2	Unnatural pressure impulses influence the measurement result. Reason: The arm was moved violently during the Measurement (Artefact).
ERR 3	The inflation of the cuff takes too long. The cuff is not correctly seated.
ERR 5	The measured readings indicated an unacceptable difference between systolic and diastolic pressures. Take another reading following directions carefully. Contact you doctor if you continue to get unusual readings.
ERR8	Pressure in cuff is over 290mmHg

Other possible malfunctions and their elimination

If problems occur when using the device, the following points should be checked and if necessary, the corresponding measures are to be taken:

Malfunction	**Remedy**
The display remains empty when the instrument is switched on although the batteries are in place.	1.Check batteries for correct polarity and if necessary insert correctly. 2.If the display is unusual, re-insert batteries or exchange them.
The device frequently fails to measure the blood pressure values, or the values measured are too low (too high).	1.Check the positioning of the cuff. 2.Measure the blood-pressure again in peace and quiet under observance of the details made under point 5.
Every measurement produces a different value although the instrument functions normally and the values displayed are normal	1.Please read the following information and the points listed under «Common sources of error». Repeat the measurement. Please note: Blood pressure fluctuates continually so successive measurements will show some variability.
Blood pressure measured differs from those values measured by the doctor.	1.Record the daily development of the values and consult your doctor. Please note: Individuals visiting their doctor frequently experience anxiety which can result in a higher reading at the doctor than obtained at home under resting conditions.

☞**Further Information**

The level of blood-pressure is subject to fluctuations even with healthy people. Important thereby is, that comparable **measurements always require the same conditions (Quiet conditions)!**

If, in spite of observing all these factors, the fluctuations are larger than 15mmHg, and/or you hear irregular pulse tones on several occasions, please consult your doctor.

For licensing, the device has been subjected to strict clinical tests, by which the computer program used to measure the blood-pressure values was tested by experienced specialist doctors in Germany. The same computer program is used in every individual device and has thus also been clinically tested.

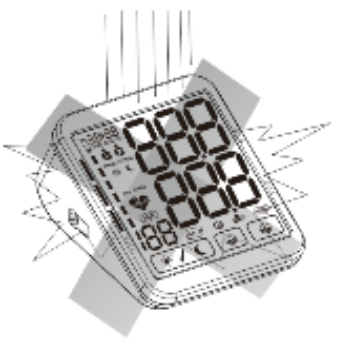
The manufacture of the devices takes place according to the terms of the European standard for blood-pressure measuring devices (see technical data)

You must consult your specialist dealer or chemist if there are technical problems with the blood-pressure instrument. **Never attempt to repair the instrument yourself!**

Any unauthorized opening of the instrument invalidates all guarantee claims!

8. Care and maintenance, recalibration

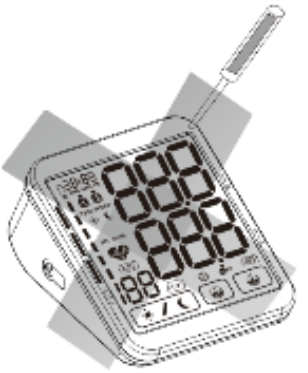
a) Do not expose the device to either extreme temperatures, humidity, dust or direct sunlight.



b) The cuff contains a sensitive air-tight bubble. Handle this carefully and avoid all types of straining through twisting or buckling.

c) Clean the device with a soft, dry cloth. Do not use petrol, thinners or similar solvent.

Spots on the cuff can be removed carefully with a damp cloth and soapsuds. The cuff must not be washed!



d)Do not drop the instrument or treat it roughly in any way. avoid strong vibrations.

e) Never open the device! Otherwise the manufacturer calibration becomes invalid!

Periodical recalibration

Sensitive measuring devices must from time to time be checked for accuracy.

We therefore recommend a periodical inspection of the static pressure display every 1 year. Your specialist dealer would be pleased to provide more extensive information about this

9. Warranty

The blood-pressure monitor BP156A-Ais warranted for **1 years** from date of purchase. The Warranty does not apply to damage caused by improper handling, accidents, not following the operating instructions or alterations made to the instrument by third parties.

The Warranty is only valid upon presentation of the guarantee card filled out by the dealer.

10. Service life

5 years

11. Battery life:

1000 times measurement with 4- size “AA” alkaline Batteries

12. Safety, Care and Disposal

Safety and protection

- This instrument may be used only for the purpose described in this booklet. The manufacturer cannot be held liable for the damage caused by incorrect application.
- This instrument comprises sensitive components and must be treated with caution. Observe the storage and operating condition described in the “Technical specifications” section!
- Protect it from
  - water and moisture
  - extreme temperatures
  - impact and dropping
  - contamination and dust
  - direct sunlight
  - heat and cold
- The cuffs are sensitive and must be handled with care
- Only pump up the cuff once fitted
- Do not use the instrument close to strong electromagnetic fields such as mobile telephones or radio installations
- Do not use the instrument if you think it is damaged or notice anything unusual.
- If the instrument is not going to be used for a prolonged period the batteries should be removed.
- Read the additional safety instructions in the individual sections of this booklet.

Ensure that children do not use the instrument unsupervised:
some parts are small enough to be swallowed

- Must use the recognized accessories, detachable parts and materials, if the use of other parts or materials can degrade minimum safety

- A warning to remove primary batteries if the instruments is not likely to be used for some time

Instrument care

Clean the instrument only with a soft, dry cloth

Disposal

batteries and electronic instruments must be disposed of in accordance with the locally applicable regulations, not with domestic waste

13. Reference to standards

Device standard:

IEC60601-1-6:2010+A1:2013/ EN60601-1-6:2010+A1:2015
IEC60601-1:2005+A1:2012/EN60601-1:2006+A11:2011+A1:2013+A12:2014
IEC60601-1-2:2014/ EN60601-1-2:2015
IEC/EN60601-1-11:2015
IEC80601-2-30:2009+A1:2013/EN80601-2-30:2010+A1:2015
RED certificate for blue tooth: EN 300 328, EN 301 489-1, EN 301 489-17, EN 62479

The stipulations of the EU-Guidelines 93/42/EEC for Medical Products Class IIa have been fulfilled.

14. Technical specifications

Measurement Procedure:	Oscillometric, corresponding to Korotkoff method: Phase I: systolic, Phase V: diastolic
Display:	Digital display
Measuring range: SYS/DIA	30 to 280 mmHg (in 1 mmHg

	increment)
Pulse:	40 to 199 beat/minute
Static accuracy in pressure:	±3mmHg
Pulse:	±5% of reading
Measuring resolution:	1.0 mmHg
Inflation:	Automatic inflation by internal pump
Memory function:	2 user x 120 memory sets (SYS, DIA, Pulse)
Decompression:	Constant exhaust valve system
Power source:	4- size “AA” alkaline Batteries
Operation temperature:	5~40℃/41~104℉
Operation humidity:	15%~85%RH maximum
Storage temperature:	-10~55℃/14~131℉
Storage humidity: Dimensions:	10%~95%RH maximum 136× 112 × 64±1.0 mm
Weight:	525 g±5g (including batteries and cuff)
Cuff pressure display range:	0~290mmHg/0~38.7KPa
Electrical shock protection:	Internal power unit
Safety classifications:	 Type B equipment
Mode of operation:	Continuous operation
Protection against ingress of water:	IP22
Accessories:	XL size Cuff, 4 “AA” batteries,

	instruction manual, warranty card

15.Manufacturer's Declaration

The BP156A-Ais intended for use in the electromagnetic environment specified below. The customer or the user of the BP156A-A should assure that it is used in such an environment. Electromagnetic Emissions: (IEC60601-1-2)

Emission Test	Compliance	Electromagnetic Environment
RF emission CISPR 11	Group 1	The BP156A-A uses RF energy only for internal functions. Therefore, this RF emission is extremely weak and there is little chance of it creating any kind of interference whatsoever with nearby electronic equipment.
RF emissions CISPR 11	Class B	The BP156A-A 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 IEC 61000-3-3	Not applicable	

Electromagnetic Immunity: (IEC60601-1-2)

Immunity test	IEC60601-1-2 test level	Compliance level	Electromagnetic environment - guidance
Electrostatic discharge	±6 kV contact ±8 kV air	±6 kV contact	Floors should be wood,

(ESD) IEC 61000-4-2		±8 kV air	concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30 %.
Electric fast transient/ burst IEC 61000-4-4	±2 kV for power supply lines ±1 kV for input/output lines	Not applicable	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV differential mode ±2 kV common mode	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	<5 % U_T（95% dip inU_T.）for 0.5 cycle 40 % U_T（60% dip inU_T）for 5 cycles 70 % U_T (30%	Not applicable	Mains power quality should be that of a typical commercial or hospital environment.

IEC 61000-4-11	dip inU_T) for 25 cycles <5 % U_T（95% dip in U_T）for 5 sec.		If the user of the upper arm style requires continued operation during power mains interruptions, it is recommended that the BP156A-A be powered from an uninterruptible power supply or a battery.
Power frequency (50/ 60 Hz) magnetic field IEC 61000-4-8	3 A/m	Not applicable	Not applicable
Note: U_T is the a.c. mains voltage prior to application of the test level.			

Immunity test	IEC60601-1-2 test level	IEC60601-1-2 test level	Electromagnetic environment - guidance
Conducted RF IEC 61000-4-	3 Vrms 150 kHz to 80 MHz 80% AM (2Hz)	3 Vrms 3 V/m	Portable and mobile RF communications equipment should be used no closer to any part of

6 Radiated RF IEC 61000-4-3	3 Vrms 80 MHz to 2.5 GHz 80% AM (2Hz)		the BP156A-A,including cables, than there commended separation distance calculated from the equation applicable to the frequency of the transmitter. **Recommend separation distance** 3V $d = 1.2 \times p^{1/2}$80Mhz to 800 MHz $d = 2.3 \times p^{1/2}$ 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 meters (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[b]. 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 strength 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 BP156A-A is used exceeds the applicable RF compliance level above, the BP156A-A should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the BP156A-A.

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

Recommended Separation Distances:

Recommended separation distance between portable and mobile RF communications equipment and the BP156A-A
The BP156A-A is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the BP156A-A can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the BP156A-A 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		
	150 kHz to 80 MHz $d = 1.2 \times p^{1/2}$	80 MHz to 800 MHz $d = 1.2 \times p^{1/2}$	800 MHz to 2.5 GHz $d = 2.3 \times p^{1/2}$
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 determined 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 80MHz and 800MHz, 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.			

Remark:

	Some electrical and electrical equipment forbid to abandon and disposal at will
	Manufacturer’s name and address
	Inapplicable baby

	Cuff Connector
	Attention consult accompanying documents
IP22	Protection against ingress of water
CE 0197	TUV NO.
	Reading Instruction Book before use
	Type B equipment
EC REP	Wellkang Tech Consulting Suite B ,29 Harley Street, LONDON W1G 9QR, United Kingdom

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