

# CITIZEN

Micro HumanTech

English

## INSTRUCTION MANUAL FOR DIGITAL BLOOD PRESSURE MONITOR

REF **CH-657**



English

1202

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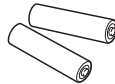
Ensure that you have all the following components



Blood pressure monitor unit



Storage case



(for monitor)  
2 AAA batteries



Instruction Manual

## GENERAL REMARKS

### General remarks on blood pressure and blood pressure measurement

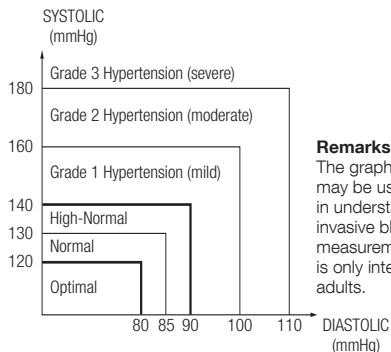
1. To deflate the cuff quickly, press the "START/STOP" switch.
2. The attached cuff is suitable for wrist circumferences of 13.5-21.5 cm.
3. When attaching the cuff, the body of a blood pressure monitor should be placed on the inside of your wrist.
4. The monitor is not intended to be a diagnostic device, because it is intended for home use.
5. Self measurement is not therapy! In no event should you change the dosage of your medication prescribed by your physician.
6. As preparation for measuring your blood pressure, you should urinate and then remain relatively still for 10 to 15 minutes prior to measurement.
7. Exercising, eating, drinking, smoking, etc., prior to measurement may affect the results.
8. Your blood pressure varies constantly throughout the day. Measurements should be taken regularly at the same time each day.
9. DO NOT place too much emphasis on the results of one measurement. Keep a continuing record of your blood pressure variations. A complete picture can only be obtained from a large number of readings.
10. Emotional stress tends to cause your blood pressure to rise.

### To obtain correct blood pressure measurements

1. Take five or six deep breaths and then relax before measuring your blood pressure. If you are tense when taking the measurement, you will not get a valid reading.
2. Your blood pressure will be elevated if you are anxious or irritated, suffering from lack of sleep or constipation, or have just taken some exercise or eaten a meal.
3. Wrap the cuff around your wrist snugly. (See page 14)
4. DO NOT measure your blood pressure after bathing or drinking.
5. If you feel the need to urinate, do so before measuring your blood pressure.
6. Measure your blood pressure where the room temperature is around 20°C. DO NOT measure your blood pressure when it is too cold (below 10°C) or too hot (above 40°C) in the room.
7. DO NOT try to measure your blood pressure immediately after drinking coffee or tea or after smoking.
8. Measure your blood pressure when you are relaxed and still. Keep the center of the cuff at the level of your heart and DO NOT move your arm or talk.
9. DO NOT measure blood pressure when the cuff has been on your wrist for a few minutes or more. During this time, your wrist will have built up a higher blood pressure and you will not get valid reading.

## GENERAL REMARKS

10. If the Body Movement Indicator or Irregular Heartbeat (IHB) Indicator is displayed, relax and measure your blood pressure again. If the Irregular Heartbeat (IHB) Indicator appears frequently, you are advised to consult a doctor about your health condition. (See page 19)
11. The figure below shows the blood pressure classifications under the WHO standards.



### Remarks:

The graph is not exact, but may be used as a guide in understanding non-invasive blood pressure measurements. The device is only intended for use by adults.

### Definitions and Classifications of Blood Pressure Levels

#### 12. Intended Use

- This device is noninvasive blood pressure monitor by oscillometric method. This device can measure the systolic blood pressure (SYS), the diastolic blood pressure (DIA) and the pulse rate automatically.
- This device is intended to be used for checking personal health condition at home under the direction of a physician and is not intended to be a diagnostic device.
- This device is not intended for use with neonates or infant, and not intended for automatic cycling measurement.

#### Measure your blood pressure at the same time each day.

- \* Your blood pressure changes all the time. This means that data gathered over a long period has far more significance than data from just one measurement. For this reason, you must measure your blood pressure on a daily basis. Ideally, you should measure your blood pressure at the same time each day, wherever possible.

## PRECAUTIONS FOR USE AND MAINTENANCE

### Precautions for use

1. If you suffer from heart disease, high blood pressure or other circulatory disease, consult your physician before using the monitor.
2. If you feel abnormal pressure of the cuff during use or any other irregularity, reduce the pressure by immediately switching off the power or remove the batteries and consult the sales outlet where purchased.
3. If you think the measurement is abnormal or if measurement makes you feel unwell, discontinue use and consult your physician.
4. Blood pressure measurement may not be possible for anyone with a weak pulse or arrhythmia.
5. Repeated blood pressure measurement may cause problems such as congestion or swelling in some people.
6. Frequently repeated blood pressure measurements will not give accurate results. Allow an interval of about 1 minute between measurements.
7. If you suffer from a severe problem with blood circulation in your arms, consult your physician before using the monitor. Failure to do so could be hazardous to your health.
8. Measurement may not be possible for anyone with insufficient blood flow to the area where measurements will be taken or who suffers from a frequent irregular heartbeat. Consult your physician for advice on whether to use the monitor.
9. DO NOT wrap the cuff around an injured wrist.
10. DO NOT wrap the cuff around a wrist in which a drip (intravenous infusion) is inserted, or which is being used for blood transfusion as part of medical treatment. Doing so could result in an injury or a serious accident.
11. DO NOT use the monitor in the vicinity of flammable gases such as those used for anaesthesia. Doing so could ignite the gases and cause an explosion.
12. DO NOT use the monitor in enriched oxygen environments such as a hospital's hyperbaric chamber or oxygen tent. Doing so could ignite the oxygen and cause a fire.

## PRECAUTIONS FOR USE AND MAINTENANCE

13. DO NOT use mobile phones near the monitor as this could result in a malfunction.
14. If you use a cardiac pacemaker, consult your physician before using the monitor.
15. Be sure to use this unit only for measuring blood pressure. DO NOT use it for any other purpose.
16. Be sure to use only our authorized parts and accessories. Parts and accessories not approved for use with the device may damage the unit.
17. DO NOT use this unit on infants.
18. Blood pressure measurement may not be possible for anyone with common arrhythmias such as atrial or ventricular premature beats or atrial fibrillation.









### Maintenance Precautions


1. DO NOT store the blood pressure monitor in locations exposed to direct sunlight, high temperatures (over 60°C), low temperatures (below -20°C), high relative humidity (over 95%) or excessive amounts of dust.  
Make sure to store the blood pressure monitor, where children, pets and or pests are not there.
2. DO NOT drop the blood pressure monitor or subject it to other shocks or vibration.
3. Remove the batteries if the monitor will be left unused for a long period.
4. DO NOT attempt to disassemble the monitor.
5. DO NOT bend the cuff excessively.
6. If the monitor is very dirty, wipe it clean with a cloth moistened with sterilizing alcohol or a neutral detergent. Then wipe it with a dry cloth.
7. NEVER clean the blood pressure monitor with thinners or benzene, as this could damage the monitor.
8. To clean the cuff, wipe it with a moist cloth. Avoid hard rubbing, as this will cause air leakages.

## PRECAUTIONS FOR USE AND MAINTENANCE

|  |  |
|--|--|
|  <b>Warning</b> | No modification of this device is allowed. |
|--|--|

### Symbols Explanation

-  : The CE marking is meant to provide information to market inspectors in the EU member countries.
-  : Type BF applied part
-  : Keep dry
-  : Warning
-  : Refer to instruction manual before use
-  : Appliance compliance WEEE directive
-  : Accumulators and battery packs for separate collection
-  : Manufacturer

|  |   |
|--|---|
|  <b>Warning</b> | The device has been tested and homologated in accordance with EN60601-1-2 for EMC. This does not guarantee in any way that the device will not be affected by electromagnetic interference. Avoid using the device in high electromagnetic environment. |
|--|---|

## PRECAUTIONS FOR USE AND MAINTENANCE

### Nature and frequency of maintenance:

This product is designed for use over an extended period of time; however, it is generally recommended that it be inspected every two years to ensure proper function and performance.

### Protect the nature environment:

Please help to protect natural environment by respecting national and/or local recycling regulations when disposing of the battery and the product at the end of their useful live.

### WEEE MARK

If you want to dispose this product, do not mix with general household waste. There is a separate collection systems for used electronics products in accordance with legislation under the WEEE Directive (Directive 2002/96/EC) and is effective only within European Union.



### Information for Users on Collection and Disposal of used Batteries.

The symbol in this information sheet means that used batteries should not be mixed with general household waste.

For proper treatment, recovery and recycling of used batteries, please take them to applicable collection points.

For more information about collection and recycling of batteries, please contact your local municipality, your waste disposal service or the point of sale where you purchased the items.



### Information on Disposal in other Countries outside the European Union.

This symbol is only valid in the European Union.

If you wish to discard used batteries, please contact your local authorities or dealer and ask for the correct method of disposal.

### Note for the battery symbol.

The symbol might be used in combination with a chemical symbol. In this case it complies with the requirement set by the Directive for the chemical involved.

### Reference European standard:

The blood pressure measuring device corresponds to regulation EN60601-1, EN1060-1, EN1060-3, EN1060-4.

### Calibration:

The blood pressure measuring device is generally recommended to have the monitor inspected every two years to ensure correct functioning and accuracy. Please contact a distributor.

## PRECAUTIONS FOR USE AND MAINTENANCE



Name : CITIZEN SYSTEMS JAPAN CO.,LTD.  
Address : 6-1-12, Tanashi-cho, Nishi-Tokyo-shi,  
Tokyo 188-8511, Japan

### European Representative:

Name : Ww elektronische Geräte Vertrieb GmbH  
Address : Fintelmanstraße 20/Eingang,  
Martin-Heydert-Straße, D-14109 Berlin, Germany

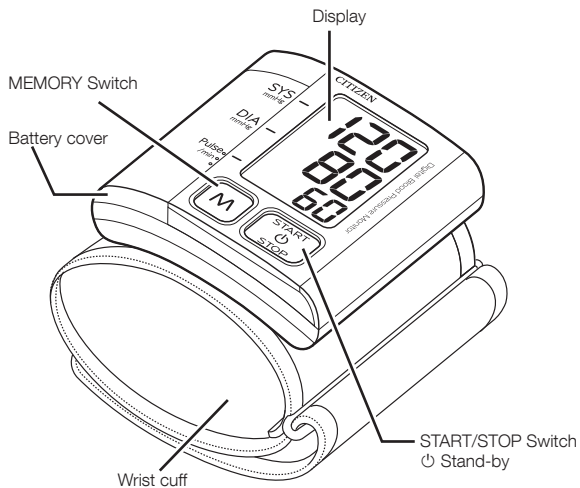
• For technical data, please contact our European Representative



# IDENTIFICATION OF PARTS

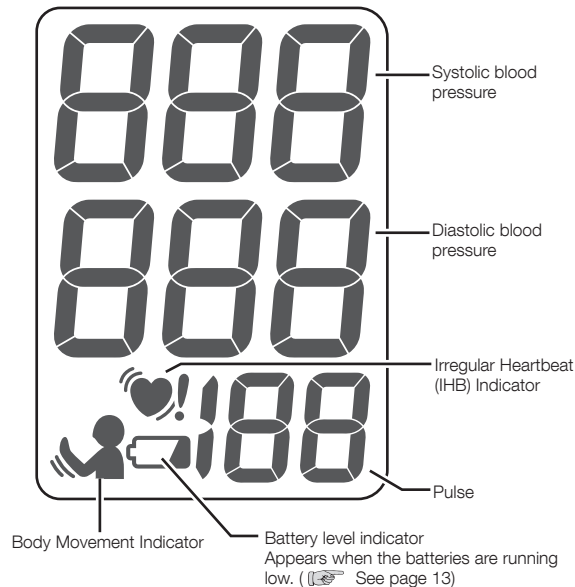
## Component names

### <Main Unit>



# IDENTIFICATION OF PARTS

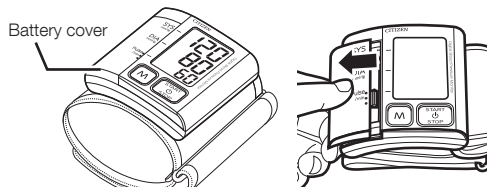
## <Display>



## LOADING THE BATTERIES

(Batteries supplied with the unit should be loaded in compartment before you use the blood pressure monitor.)

### 1 Open the cover of battery compartment.

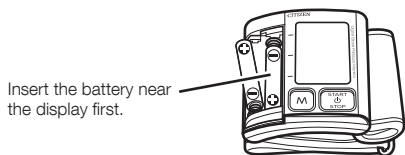


Pressing down on the battery cover, slide the cover off in the direction of the arrow.

### 2 Place batteries in the compartment.

Put the batteries paying attention to the positive and negative terminal symbols  $\oplus$  and  $\ominus$ .

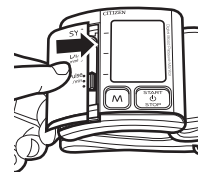
\* The battery goes in negative side  $\ominus$  first.




## LOADING THE BATTERIES

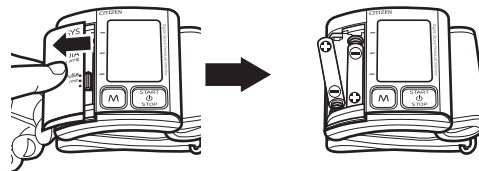
### 3 Close the battery cover.

Slide the cover in the direction of the arrow. Push the cover on until it clicks.



## REMOVING THE BATTERIES

- When the icon  is displayed or nothing appears in the display, replace the old batteries with two new ones. All two batteries should be changed at once.
- Use only alkaline batteries.
- Do not use rechargeable batteries.
- Do not use alkaline (LR03) and manganese (R03) batteries together.
- Batteries included are for demonstration purposes only. Battery life may be shorter than specified.
- When disposing of used batteries, comply with governmental regulations or environmental public institution's rules that apply in your country/area.

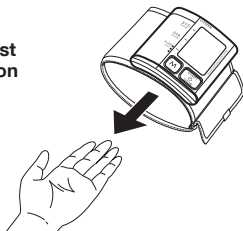


## HOW TO WRAP THE WRIST CUFF

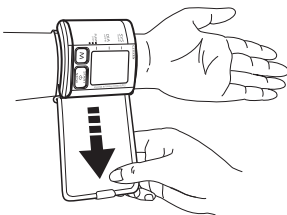
Wrap the wrist cuff around your wrist properly. Improper wrapping of the cuff may result in measuring errors.

- 1 Open the wrist cuff.
- 2 Wrap the cuff around your left wrist so that the monitor is positioned on the inside of your wrist.

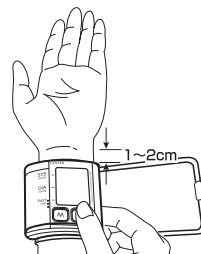
- Wrap the wrist cuff on bare skin.
- The wrist cuff is designed to fit wrists from 13.5 to 21.5 cm in circumference.



- 3 Loosely fit the wrist cuff by pulling the end of the cuff.

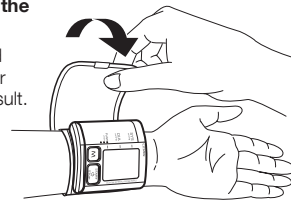


- 4 Position the top edge of the cuff approximately 1 to 2 cm away from the crease of your wrist.



- 5 Secure the wrist cuff with the hook-and-loop fastener.

- If the wrist cuff is wrapped too loose or tight, errors or incorrect readings may result.



**You may use your right wrist to measure your blood pressure.** However, your blood pressure may differ by about 10mmHg depending on whether measured on your left or your right wrist, so ideally you should measure your blood pressure on the same wrist each time.

### To obtain accurate measurements

- Wrapping the cuff too loosely or too tightly may prevent correct measurement.
- Sit up straight while taking the measurement.



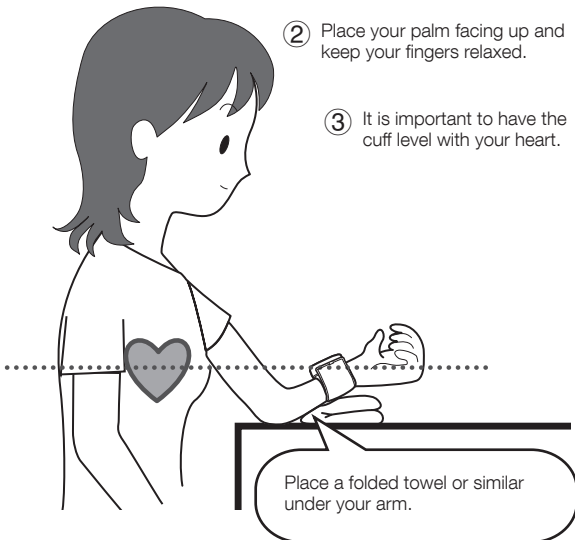
## TIPS FOR OBTAINING ACCURATE MEASUREMENTS

Your blood pressure varies according to your posture, the time of day and a range of other factors. Ideally, you should measure your blood pressure in the same posture at the same time every day.

- 1 Make sure that your posture is correct.  
Sit up straight, take a deep breath and relax.

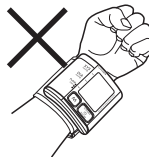
- 2 Place your palm facing up and keep your fingers relaxed.

- 3 It is important to have the cuff level with your heart.

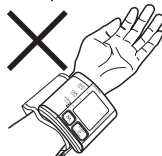


## TIPS FOR OBTAINING ACCURATE MEASUREMENTS

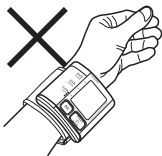
### To obtain correct measurements



- Do not clench your fist tightly.



- Do not wrap the wrist cuff too loosely.



- Do not change the position of the monitor.



- Do not move your body or talk during measurement

# MEASURING YOUR BLOOD PRESSURE

## 1 Wrap the wrist cuff around your left wrist.


(👉 See page 14 "HOW TO WRAP THE WRIST CUFF".)

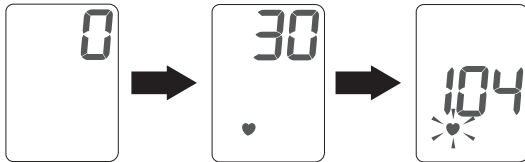
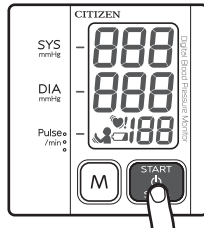
## 2 Make sure that your posture is correct.

(👉 See page 16 "TIPS FOR OBTAINING ACCURATE MEASUREMENTS".)

## 3 Press the "START/STOP" switch to start measurement.

- All digits displayed is an initial display, indicating that the monitor is functioning normal.

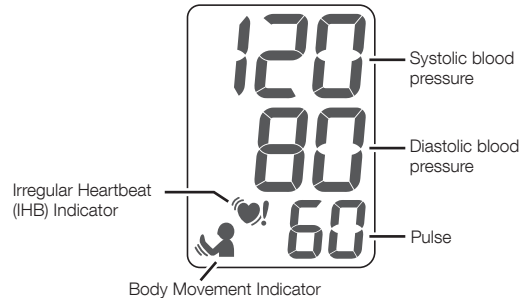
The  mark will also be displayed but this does not indicate that the battery needs to be replaced.



♥ is displayed when a pulse is detected.

# MEASURING YOUR BLOOD PRESSURE

## 4 The measurement results are displayed.



The Body Movement Indicator is displayed on the measurement results display if you move your hand or wrist during measurement, causing a substantial pressure change to be detected.

- If the Body Movement Indicator is displayed, measure your blood pressure again.



If an irregular heartbeat is detected during measurement, the Irregular Heartbeat (IHB) Indicator is displayed after measurement is completed.

An irregular heart beat is defined as a heart beat that varies by  $\pm 25\%$  from the middle of 5 heart beat intervals during the blood pressure measurement.

- Measurement may not be correct if your heartbeat fluctuates greatly during measurement. If the Irregular Heartbeat (IHB) Indicator is displayed, measure your blood pressure again.



If the Irregular Heartbeat (IHB) Indicator appears frequently, you are advised to consult a doctor about your health condition.

## MEASURING YOUR BLOOD PRESSURE

### 5 Finishing measurement.

- Press the "START/STOP" switch to turn the monitor off.

## AUTOMATIC POWER OFF FEATURE

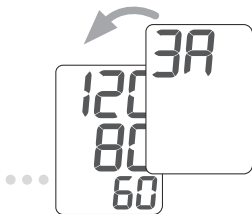
- After taking the blood pressure measurement, pressing the "START/STOP" switch will turn the monitor off. However, if you do not press the switch, the monitor's Auto OFF function will automatically turn the monitor off after 3 minutes.

## CALLING UP THE DATA STORED IN MEMORY

90 measurement results can be stored in the memory. The average value is calculated automatically to help you manage your daily health.

## HOW TO CALL UP THE DATA

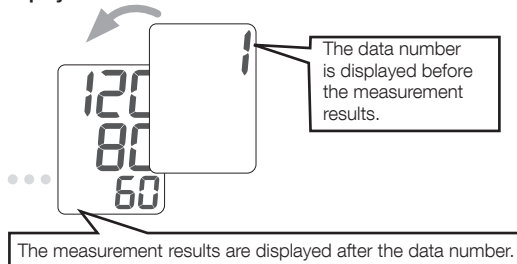
### 1 Press the "MEMORY" switch.



- "3A" indicating the average value appears on the left section of the display. Then, the average value, based on the last three measurements, is displayed. ("3A" and the average value do not appear if there are two or fewer measurements stored in memory.)

## CALLING UP THE DATA STORED IN MEMORY

### 2 Each time you press the switch, the measurement data are displayed in order from the most recent to the oldest.



- The value stored in memory is numbered in the order of measurements. For example, when 90 sets of data are stored in memory, the data number 1 represents the latest data.

**Data number: 1, 2, 3, ... .. 89, 90**

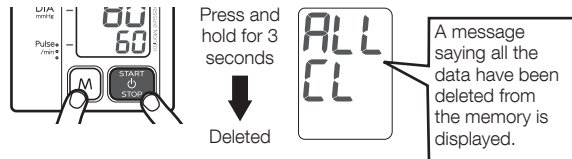
The latest data      The earliest data

## HOW TO DELETE THE DATA

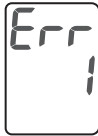



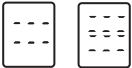
### 1 Press the "MEMORY" switch.

### 2 While pressing the "MEMORY" switch, press and hold the "START/STOP" switch for more than 3 seconds.

All the stored data will be deleted.



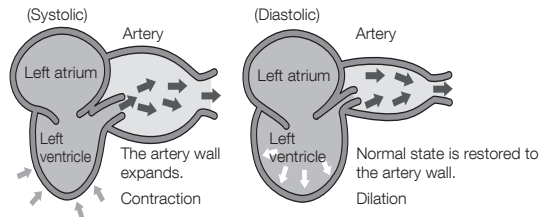
## ERROR INDICATIONS

| DISPLAY MARK  | CONDITION/CAUSE  | CORRECTIVE ACTION   |
|---|--|---|
|  | Appears when the wrist cuff is wrapped too loose.  | Re-wrap the wrist cuff snugly. Take another reading, making sure you remain still. (👉 See page 14 "HOW TO WRAP THE WRIST CUFF".)              |
|  | Appears when your wrist moved during the measurement.; or<br>Appears when the cuff is not wrapped correctly. | Re-wrap the wrist cuff correctly. Take another reading, making sure you remain perfectly still. (👉 See page 14 "HOW TO WRAP THE WRIST CUFF".) |
|  | Appears when the batteries have run out.   | Replace two alkaline batteries with new ones. (👉 See page 13 "REMOVING THE BATTERIES".)   |
|  | Appears when the pulse rate falls outside the measuring range (below 39 beats/min. or above 181 beats/min.)  | Re-wrap the wrist cuff properly. Take deep breaths to relax, and measure again. (👉 See page 16 "TIPS FOR OBTAINING ACCURATE MEASUREMENT".)    |
|  | The unit does not function properly.   | Contact the store where it was purchased or your local service center. (👉 See page 25 "BEFORE REQUESTING REPAIRS OR TESTING".)                |

## ABOUT "BLOOD PRESSURE"

### What is blood pressure?

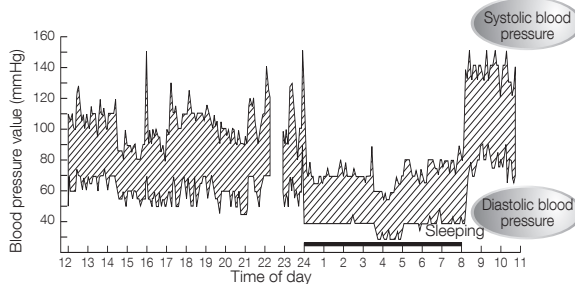
The heart is a pump that circulates blood throughout your body. Blood is pumped from the heart at a constant pressure into arteries. This pressure is called the arterial blood pressure and represents, in general terms, your blood pressure. Blood pressure is indicated by several kinds of pressures, including the systolic pressure that occurs when the heart pumps blood, and the diastolic pressure that occurs when blood returns to the heart.



### Your blood pressure changes all the time.

Your blood pressure differs according to your age, gender and a range of other factors. It is likely to be affected by your biorhythm during the day and by your posture, physical activities, mental activities, level of stress and even by the air temperature. The blood pressure of a healthy person generally varies within a day.

### [Example of blood pressure variations within a day]



(Blood pressure values measured at five-minute intervals through the day)

● Bevan AT, Honour AJ, Stott FH. Clin Sci 1969;36:329-44.

## BLOOD PRESSURE Q&A



- Q** Why is the blood pressure measured at home different from that measured by the physician or at a hospital?
- A** Your blood pressure may vary due to exercise, the ambient temperature or your mental state. When you have a physician or nurse measure your blood pressure, the pressure value is likely to be 10 to 20 mmHg higher than usual due to anxiety and/or stress. Knowing what affects your blood pressure helps you to better monitor your health.
- Q** Why does the blood pressure obtained vary with measurement?
- A** Our blood pressure is adjusted by automatic nerve function. Blood pressure differs with every heart beat. We are likely to think that our blood pressure is constant, but it varies if you take measurements in repetition. Blood pressure is susceptible to the time of day, such as morning and afternoon, season and atmospheric temperature. In addition, blood pressure is easily affected by mental stress or emotional ups and downs. It tends to increase when you feel tension or decrease when you are relaxed.
- Q** What is the benefit of measuring my blood pressure at home?
- A** Blood pressure measurements taken at home give reliable data as they can be taken when you are in a stable and relaxed condition. Physicians place considerable importance on blood pressure measurements taken at home. You should measure your blood pressure at the same time each day and record the variations in your blood pressure.



Always consult your physician for an interpretation of your blood pressure readings and to determine the proper treatment.

## BEFORE REQUESTING REPAIRS OR TESTING

Make sure to check the following before sending your blood pressure monitor away to be tested or repaired.

| Problem  | Checks   | Response   |
|--|--|--|
| Display stays blank when you press the "START/STOP" switch.                                    | Check whether the batteries are dead.  | Replace all the batteries with new ones.   |
|  | Check whether the batteries are installed the right way round (⊕ and ⊖ oriented correctly).  | Load the batteries in the correct direction.   |
| No measurements can be taken.  | Check whether the measurement icon  is displayed.         | Attach the cuff properly.  |
|  | Check whether the cuff is attached correctly.  |  |
|  | Did you stay calm during measurement?  | Measure your blood pressure again, making sure to remain still.                                  |
|  | Note that blood pressure measurement may not be possible for someone with an extremely weak pulse or cardiac arrhythmia (irregular pulse). |  |
| Your blood pressure readings are abnormally high or low compared with those taken in hospital. |  |  See page 24. |
| Other phenomena  |  | Remove the batteries from the unit and change them with new ones.                                |

# SPECIFICATIONS

|                                     |   |                            |
|-------------------------------------|---|----------------------------|
| Model Number                        | CH-657  |                            |
| Measurement system                  | Oscillometric method  |                            |
| Display                             | Digital display type  |                            |
| Wrist circumference range           | 13.5 to 21.5 cm   |                            |
| Measurement range                   | Pressure  | 0 to 280 mmHg              |
|                                     | Pulse   | 40 to 180 pulse/min        |
| Accuracy                            | Pressure  | ±3 mmHg                    |
|                                     | Pulse   | ±5% of reading             |
| Inflation                           | Automatic inflation by internal pump  |                            |
| Rated voltage                       | 3V DC (--- : direct current)  |                            |
| Exhaust                             | Electromagnetic quick exhaust valve   |                            |
| Power supply                        | 2 AAA batteries (LR03)  |                            |
| Battery duration                    | Approx. 400 times   | (180 mmHg, once/day, 22°C) |
| Operating conditions                | Temperature   | 10°C to 40°C               |
|                                     | Humidity  | 30% to 85% RH              |
| Storage conditions                  | Temperature   | -20°C to 60°C              |
|                                     | Humidity  | 10% to 95%RH               |
| Memory Function                     | Up to 90 measurements   |                            |
| Electric shock Protection           | Internal power unit   |                            |
| Degree of Protection                | ☒ Type BF applied part  |                            |
| Mode of operation                   | Continuous operation  |                            |
| Protection against ingress of water | IPX0  |                            |
| Dimensions                          | 69 (W) x 70 (H) x 15 (D) mm   |                            |
| Weight                              | Approx. 86g w/o batteries   |                            |
| Service Life                        | 5 years   |                            |
| Accessories                         | Set includes 2 AAA batteries (LR03) for the monitor, Instruction Manual, Storage case |                            |

\* Applied part for this device is Cuff.

\* A range in barometric pressure 105 kPa to 70 kPa

\* A range in altitude -300 m to 3000 m

\* Overall system accuracy of this device is met with the requirement of item 7.9 of EN1060-3.

EN1060-3 : Non-invasive sphygmomanometers Part 3 (European Standard)

- CITIZEN is a registered trade mark of Citizen Holdings Co., Ltd., Japan.
  - Design and Specification are subject to change without notice.
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