

CITIZEN
Micro HumanTech

INSTRUCTION MANUAL
FOR
DIGITAL BLOOD PRESSURE MONITOR

English

REF **CHU304**
CHU305



English
Español
Français
Русский
हिन्दी
العربية



* Please read all of the information in the instruction manual before operating the monitor.

1501

English

Contents

English

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■ **Ensure that you have all the following components.**

- Blood pressure monitor unit • Instruction Manual
- 4 AA-size batteries (for monitor)
- Cuff (model: SCN-008) for CHU304
- Wide Range Cuff (model: SCW-009) for CHU305

GENERAL REMARKS

General remarks on blood pressure and blood pressure measurement

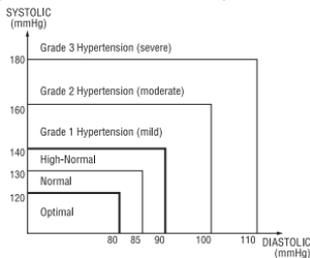
1. To deflate the cuff quickly, press the "START/STOP" switch.
2. Before applying your blood pressure cuff, be sure you have selected the appropriate size cuff:
Cuff (model: SCN-008) fits arm circumference: 22 cm – 30 cm.
Wide Range Cuff (model: SCW-009) fits arm circumference: 22 cm – 42 cm.
3. When attaching the cuff, adjust the position of the cuff so that the air hose is located in the center of your arm and the hem of the cuff is 1 cm – 2 cm above your elbow.
4. Self measurement is not therapy! In no event should you change the dosage of your medication prescribed by your physician.
5. As preparation for measuring your blood pressure, you should urinate and then remain relatively still for 10 to 15 minutes prior to measurement.
6. 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.

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.

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- Wrap the cuff around your arm and tighten it so that one finger can be inserted between the cuff and arm. ( See page 9, 10)
- DO NOT measure your blood pressure after bathing or drinking.
- 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.
- DO NOT try to measure your blood pressure immediately after drinking coffee or tea or after smoking.
- 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.
- DO NOT measure blood pressure when the cuff has been on your arm for a few minutes or more. During this time, your arm will have built up a higher blood pressure and you will not get valid reading.
- If the 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 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

* This unit is equipped an indicator which visually indicates the blood pressure classification (Optimal/Normal/High-Normal/Grade 1 Hypertension/Grade 2 Hypertension/Grade 3 Hypertension) of the result after each measurement.

11. 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.

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PRECAUTIONS FOR USE AND MAINTENANCE

English

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. Inflating to a higher pressure may result in bruising where the cuff is applied. If the cuff pressure feels abnormal or you experience any other irregularity while using the cuff, reduce the pressure immediately by pressing the "START/STOP" switch, detach the cuff or unplug the air hose connector from the monitor and then consult the sales outlet where you purchased the monitor.
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 and prolonged overinflation 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 arm.
10. DO NOT wrap the cuff around an arm 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 share the cuff with other infective person to avoid cross-infection.
12. If you have any doubt about the application of the cuff on the arm on the side of a mastectomy, consult your physician.
13. 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.
14. 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.
15. DO NOT use mobile phones near the monitor as this could result in a malfunction.
16. If you use a cardiac pacemaker, consult your physician before using the monitor.
17. Be sure to use this unit only for measuring blood pressure. DO NOT use it for any other purpose.
18. Be sure to use only our authorized parts and accessories. Parts and accessories not approved for use with the device may damage the unit.
19. DO NOT use this unit on infants.
20. Blood pressure measurement may not be possible for anyone with common arrhythmias such as atrial or ventricular premature beats or atrial fibrillation.

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Maintenance Precautions

1. DO NOT store the blood pressure monitor in locations exposed to direct sunlight, high temperatures (over 55°C), low temperatures (below -20°C), high relative humidity (over 90%) 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 the cuff and 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 or the cuff. Ask the service center which is designated by manufacturer.
5. DO NOT bend the cuff or the air hose excessively.
6. If the monitor and the cuff are very dirty, wipe them clean with a cloth moistened with sterilizing alcohol or a neutral detergent. Then wipe them with a dry cloth. If needed in hospital, the cuff should be disinfected 2 times every week.
7. NEVER clean the blood pressure monitor with alcohol, 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. Take care also not to get water into the air hose.
9. Clean the cuff after the usage of every 200 times is recommended.



Warning

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 (The cuff is type BF applied part.)



: Keep dry



: Warning



: Refer to instruction manual before use (The sign background color: blue. The sign graphical symbol: white.)



: Appliance compliance WEEE directive



: Accumulators and battery packs for separate collection



: Manufacturer



: Symbol for "EUROPEAN REPRESENTATION"



: Symbol for "DATE OF MANUFACTURE"



Warning

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.

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.

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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 life.

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.



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

European Representative:

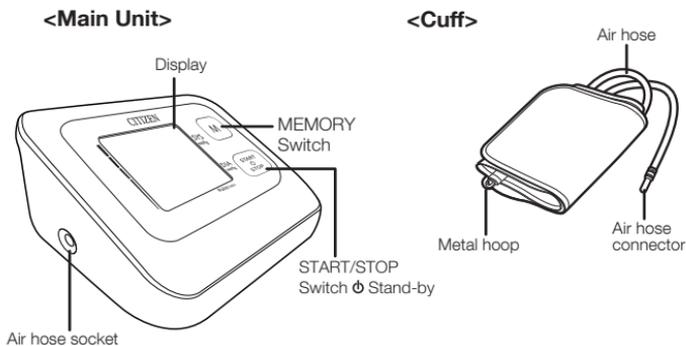
Name : WWW elektronische Geräte Vertrieb GmbH
Address : Fintelmanstraße 20/Eingang, Martin-Heydert-Straße,
D-14109 Berlin, Germany

- For technical data, please contact our European Representative

CE 0086

IDENTIFICATION OF PARTS

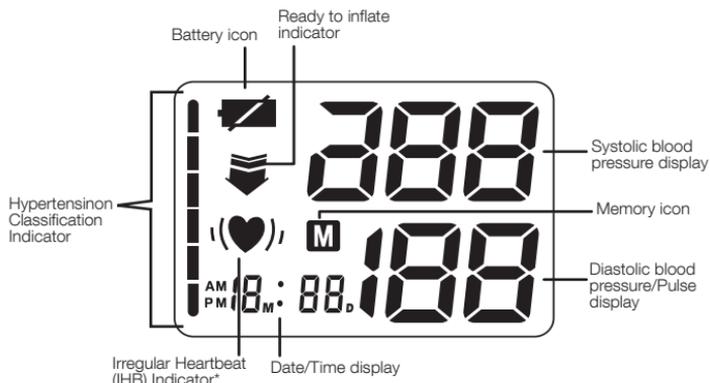
Component names



English

* See page 7 for the Battery compartment

<Display>



* See page 11 for the Irregular Heartbeat (IHB) Indicator.

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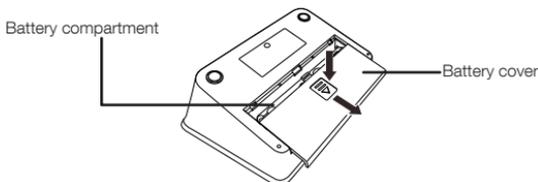
LOADING THE BATTERIES

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

English

1 Open the cover of battery compartment.

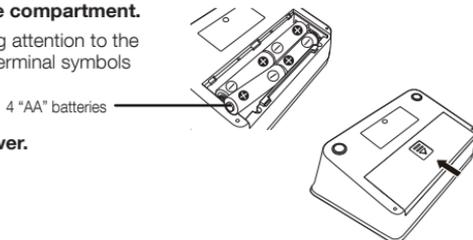
Pressing the upper part of the battery cover, pull the cover toward you to open.



* If the Blood pressure monitor is left unused for an extended period of time, the batteries should be removed from the compartment.

2 Place batteries in the compartment.

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



3 Close the battery cover.

REMOVING THE BATTERIES

- When the icon  is displayed or nothing appears in the display, replace the old batteries with four new ones. All four batteries should be changed at once.
- Adjust the clock after changing the batteries.
- The data stored in the memory is not deleted by changing the batteries.
- Do not use rechargeable batteries.
- Do not use alkaline (LR6) and manganese (R6P) 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.

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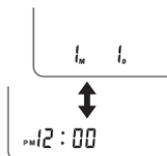
TIME ADJUSTMENT

Setting the clock enables measurements to be accurately recorded.

The monitor can record the date and time of measurement as well as the measurement results. Be sure to set the clock after inserting the batteries.

English

- 1** When you install the batteries for the first time, the monitor will display time and date by turns.



- 2** Press and hold both the “ START/STOP” switch and the “ MEMORY” switch for approximately two seconds, a beep is heard and the “month” indicator blinks at first.



- 3** Press the “ MEMORY” switch to adjust the “month”.

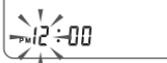
Press the “ MEMORY” switch to increase the number by one. Press the “ START/STOP” switch to confirm the setting. The “month” is set and the “day” indicator blinks.

* You can fast-forward the numbers in display by pressing and holding the “ MEMORY” switch.



- 4** Press the “ MEMORY” switch to adjust the “day”.

Press the “ MEMORY” switch to increase the number by one. Press the “ START/STOP” switch to confirm the setting. The “day” is set and the “hour” indicator blinks.



- 5** Press the “ MEMORY” switch to adjust the “hour”. Press the “ MEMORY” switch to increase the number by one. Press the “ START/STOP” switch to confirm the setting. The “hour” is set and the “minutes” indicator blinks.



- 6** Press the “ MEMORY” switch to adjust the “minutes”. Press the “ MEMORY” switch to increase the number by one. Press the “ START/STOP” switch to confirm the setting.

* Press the “ START/STOP” with the time signal on the radio, etc. to complete clock adjustment.



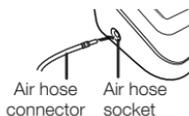
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MEASURING YOUR BLOOD PRESSURE

English

1 Plug the air hose connector into the main unit.

- Do not bend the air hose during measurement, which may cause inflation error, or harmful injury due to continuous cuff pressure.



2 ATTACHING THE CUFF

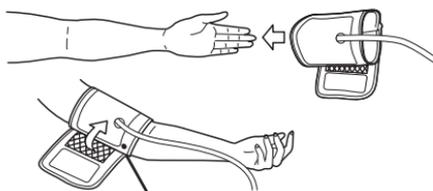
Before applying your blood pressure cuff, be sure you have selected the appropriate size cuff:

Cuff (model: SCN-008) fits arm circumference: 22 cm – 30 cm.

Wide Ragne Cuff (model: SCW-009) fits arm circumference: 22 cm – 42 cm.

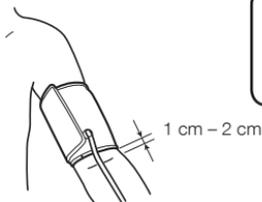
1 Unroll the cuff and thread the end through the metal hoop so that the side with the hook-and-loop fastener is on the outside.

2 Put the cuff around your arm so that the air hose comes to the palm side.



● The position of the artery.

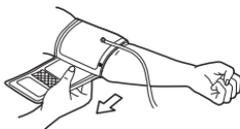
3 Adjust the position of the cuff so that the air hose is located in the center of your arm and the hem of the cuff is 1 cm – 2 cm above your elbow.



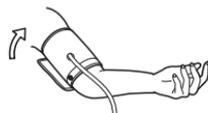
- * The cuff should be put on the bare arm or over a light-weight underwear.
- * If you wear a heavy-weight top, please remove it.

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- 4** Pull the end of the cuff outwards so that the cuff is snug around your arm and then secure the end to the hook-and-loop fastener.



- 5** Place your arm on a table or the like, so that the center of the cuff comes to the height of your heart.



* Carefully place the cuff on your arm, taking care to use the correct tightness. The tightness is correct if you can readily slide a finger between the cuff and your arm.



- 6** Relax your arm and lightly open your hand, with the palm upward.

- 3** Place the cuff at the height of the heart.

- 4** Press the “ START/STOP” switch.

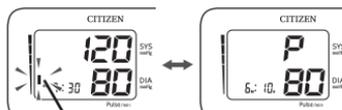
- A beep is heard and all digits displayed is an initial display, indicating that the monitor is functioning normal.
- The cuff is pressurized automatically.
- * If the unit judges that pressurization is insufficient, it automatically repressurizes.
- * The unit automatically sets the pressure based on the previous measurement.



- *  is displayed when a pulse is detected.
- * When you want to stop measurement, press the “ START/STOP” switch. The cuff is deflated and measurement stops.

- * If the previous user had a high pressure setting, that high pressure will automatically be used for the current measurement.
- * If the pressurization value exceeds 260 mmHg, if pressurization feels abnormal, or if you want to stop the measurement process, press the “ START/STOP” switch again. The cuff deflates, and the power turns off.

5 The measurement results are displayed.



Hypertension Classification Indicator

- Once measurement is complete, the cuff deflates and the measurement results (systolic/diastolic blood pressure values, pulse) are displayed.
- * Systolic/diastolic blood pressure values and pulse are displayed alternately.
- * Provided there is no error in the measurement results, they are stored automatically.

English

6 Finishing measurement.

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

Irregular Heartbeat Indicator



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

There are 2 conditions under which the signal of IHB will be displayed:

- 1) The coefficient of variation (CV) of pulse period > 25%
- 2) The difference of adjacent pulse period $\geq 0.14s$, and the number of such pulse takes more than 53 percentage of the total number of pulse.

- 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.



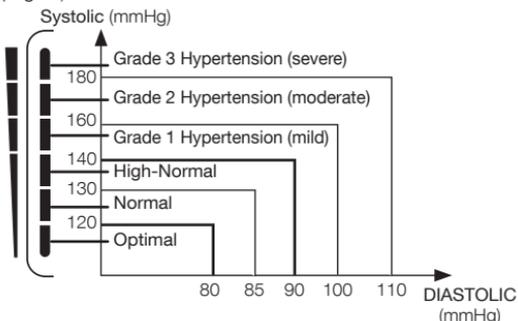
Caution

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

Hypertension Classification Indicator

The measured blood pressure value is displayed according to the WHO standards.

( See page 2)



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Technical Alarm Description

The monitor will show 'Hi' or 'Lo' as technical alarm on LCD with no delay if the determined blood pressure (systolic or diastolic) is outside the rated range specified in part SPECIFICACIONES. In this case, you should consult a physician or check if your operation violated the instructions.

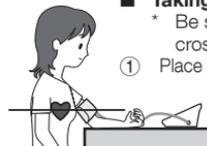
The technical alarm condition (outside the rated range) is preset in the factory and cannot be adjusted or inactivated. This alarm condition is assigned as low priority according to IEC 60601-1-8. The technical alarm is non-latching and need no reset. The signal displayed on LCD will disappear automatically after about 8 seconds.

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.

■ Taking measurements while sitting

* Be seated comfortably with your feet flat on the floor, and don't cross your legs.



- ① Place your arm on a table or similar surface with your forearm extended.
- ② It is important to have the cuff level with your heart.
- ③ Open your hand slightly on the table so that your palm is facing up and your fingers are relaxed.
- ④ Do not move your body or talk while taking the measurement.

■ Measurement in a reclining posture

* Relax yourself to avoid placing pressure on the cuff.



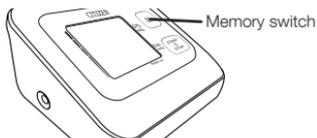
■ You may use your right arm to measure your blood pressure.

Blood pressure value is likely to differ by as much as 10 mmHg when measured on the right arm instead of the left (or vice-versa). Measure your blood pressure on the same arm each day.

CALLING UP THE DATA STORED IN MEMORY

99 measurement results can be stored in Memory.

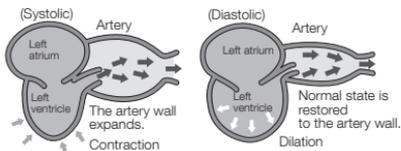
The average value is calculated automatically to help you manage your daily health.



ABOUT "BLOOD PRESSURE"

What is blood pressure?

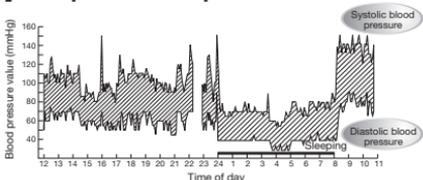
The heart is a pump that circulates blood throughout your body. Blood is pumped from the heart at a constant pressure into arteries. This pressure is called the arterial blood pressure and represents, in general terms, your blood pressure. Blood pressure is indicated by several kinds of pressures, including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

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BEFORE REQUESTING REPAIRS OR TESTING

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

English

Troubleshooting (1)

Problem	Possible Cause	Solution
LCD Display shows abnormal result	The cuff position was not correct or it was not properly tightened	Apply the cuff correctly and try again.
	Body posture was not correct during testing	Review the "BODY POSTURE DURING MEASUREMENT" sections of the instructions and re-test.
	Speaking, arm or body movement, angry, excited or nervous during testing	Re-test when calm and without speaking or moving during the test.
	Irregular heartbeat (arrhythmia)	It is inappropriate for people with serious arrhythmia to use this Electronic Sphygmomanometer.

Troubleshooting (2)

Problem	Possible Cause	Solution
LCD shows low battery symbol 	Low Battery	Change the batteries.
LCD shows "Er 0"	Pressure system is unstable before measurement	Don't move and try again.
LCD shows "Er 1"	Fail to detect systolic pressure	
LCD shows "Er 2"	Fail to detect diastolic pressure	
LCD shows "Er 3"	Pneumatic system blocked or cuff is too tight during inflation	Apply the cuff correctly and try again.
LCD shows "Er 4"	Pneumatic system leakage or cuff is too loose during inflation	
LCD shows "Er 5"	Cuff pressure above 300 mmHg	Measure again after five minutes. If the monitor is still abnormal, please contact the local distributor or the factory.
LCD shows "Er 6"	More than 3 minutes with cuff pressure above 15 mmHg	
LCD shows "Er 7"	EEPROM accessing error	
LCD shows "Er 8"	Device parameter checking error	
LCD shows "Er A"	Pressure sensor parameter error	
No response when you press button or load battery.	Incorrect operation or strong electromagnetic interference	Take out batteries for five minutes, and then reinstall all batteries.

* 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.

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SPECIFICATIONS

Model Number:	CHU304, CHU305	
Measurement system:	Oscillometric method	
Display	Digital display type	
Measurement Localization	Upper Arm	
Cuff:	Soft cuff	
Cuff circumference range:	22 cm – 30 cm (Cuff), 22 cm – 42 cm (Wide Range Cuff)	
Cuff pressure:	0 – 300 mmHg	
Measurement range:	Pressure	Systolic: 60 – 260 mmHg Diastolic: 40 – 199 mmHg
	Pulse	40 to 180 pulse/min
Accuracy:	Pressure	±3 mmHg
	Pulse	±5% of reading
LCD displays:	Pressure	3 digits
	Pulse	3 digits
	Icons	♥ : Measurement icon 🔊 : Ready to inflate indicator 🔋 : Battery icon ♥ : Irregular Heartbeat (IHB) Indicator M : Memory icon I : Hypertension Classification Indicator
Switch:	2 (START/STOP, MEMORY)	
Inflation:	Automatic Inflation by internal pump	
Deflation:	Automatic speed deflation system.	
Rated voltage:	6V DC --- (--- : direct current)	
Exhaust:	Electromagnetic quick exhaust valve	
Power supply:	4 X 15V --- SIZE AA batteries (LR6)	
Battery duration:	Approx. 800 times (Alkaline)	
Automatic Power Off function:	Approx. 1 min. (after activated)	
Main Unit Dimensions:	138 (W) x 54 (H) x 95 (D) mm	
Cuff Size:	Cuff	Approx. 148 x 510 mm
	Wide Range Cuff	Approx. 163 x 580 mm
Weight:		Unit: Approx. 207g w/o batteries
		Cuff: Approx. 128g, Wide Range Cuff: Approx. 134g
Operating conditions:	Temperature	10°C – 40°C
	Humidity	≤ 90%RH
Storage conditions:	Temperature	-20°C – 55°C
	Humidity	≤ 90%RH
Electric shock protection:	Internal power unit	
Degree of Protection	ⓘ Type BF applied part	
Mode of operation:	Continuous operation	
Memory:	1 x 99 readings, Average of last 3 readings	
Service Life:	10,000 measurements or 3 years	
Cuff's Life:	Approx. 1000 times	
Protection against ingress of water:	IPX0	
Accessories:	Set includes an cuff, 4 AA batteries (LR6) for the monitor, Instruction Manual	
Optional accessories:	Cuff 22 cm – 30 cm, Wide Range Cuff 22 cm – 42 cm	

* Applied part for this device is Cuff.

* A range in barometric pressure 105 kPa to 80 kPa

* A range in altitude -300 m to 2000 m

* The Electronic Sphygmomanometers corresponds to the below standards: IEC 60601-1:2005/EN 60601-1:2006/AC:2010 (Medical electrical equipment – Part 1: General requirements for basic safety and essential performance), IEC 60601-1-2:2007/EN 60601-1-2:2007/AC:2010 (Medical electrical equipment – Part 1-2: General requirements for basic safety and essential performance - Collateral standard: Electromagnetic compatibility - Requirements and tests), EN 1060 -1: 1995 + A1:2002 + A2: 2009 (Non-invasive sphygmomanometers - Part 1: General requirements), EN 1060-3:1997 + A1: 2005 + A2: 2009 (Non-invasive sphygmomanometers - Part 3: Supplementary requirements for electro-mechanical blood pressure measuring systems), IEC 80601-2-30: 2009+Cor. 2010 (Medical electrical equipment – Part 2-30: Particular requirements for the basic safety and essential performance of automated non-invasive sphygmomanometers)

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ELECTROMAGNETIC COMPATIBILITY INFORMATION

Appendix The use of accessories and cables other than those specified (other than CITIZEN original parts) may result in increased emissions or decreased immunity of the unit.

Guidance and manufacturer's declaration - electromagnetic emissions		
The [CHU304/CH305] is intended for use in the electromagnetic environment specified below. The customer or the user of the [CHU304/CH305] should assure that it is used in such an environment.		
Emissions test	Compliance	Electromagnetic environment - guidance
RF emissions CISPR 11	Group 1	The [CHU304/CH305] 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 [CHU304/CH305] 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	N/A	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	N/A	

Guidance and manufacturer's declaration - electromagnetic immunity			
The [CHU304/CH305] is intended for use in the electromagnetic environment specified below. The customer or the user of the [CHU304/CH305] 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	±6 kV contact	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
	±8 kV air	±8 kV air	
Electrical fast transient/burst IEC 61000-4-4	±2 kV for power supply lines ±1 kV for input/output lines	N/A	N/A
Surge IEC 61000-4-5	±1 kV line to line ±2 kV line to earth	N/A	N/A
Voltage dips, short interruptions and voltage variations on power supply IEC 61000-4-11	<5% U_T (>95% dip in U_T) for 0.5 cycle	N/A	N/A
	40% U_T (60% dip in U_T) for 5 cycles		
	70% U_T (30% dip in U_T) for 25 cycle		
	<5% U_T (95% dip in U_T) for 5 sec.		
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 characteristic of a typical location in a typical commercial or hospital environment.

Note: U_T is the A.C. mains voltage prior to application of the test level.

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Guidance and manufacturer's declaration - electromagnetic immunity

The [CHU304/CH305] is intended for use in the electromagnetic environment specified below. The customer or the user of the [CHU304/CH305] should assure that it is used in such an environment.

Conducted RF IEC 61000- 4-6	3 Vrms 150 kHz to 80 MHz	N/A	Portable and mobile RF communications equipment should be used no closer to any part of the [CHU304/CH305], including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance N/A $d = 1.2 \sqrt{P}$ 80 MHz to 800 MHz $d = 2.3 \sqrt{P}$ 800 MHz to 2.5 GHz where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in metres (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, should be less than the compliance level in each frequency range. ^(a) Interference may occur in the vicinity of equipment marked with the following symbol: 
	Radiated RF IEC 61000- 4-3	3 V/m 80 MHz to 2.5 GHz	

NOTE 1 At 80 MHz and 800 MHz, the higher frequency range applies.

NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

- 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 [CHU304/CH305] is used exceeds the applicable RF compliance level above, the [CHU304/CH305] should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the [CHU304/CH305].
- b). Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

Recommended separation distances between portable and mobile RF communications equipment and the [CHU304/CH305]

The [CHU304/CH305] is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the [CHU304/CH305] can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the device 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 N/A	80 MHz to 800 MHz $d = 1.2 \sqrt{P}$	800 MHz to 2.5 GHz $d = 2.3 \sqrt{P}$
0.01	N/A	0.12	0.23
0.1	N/A	0.38	0.73
1	N/A	1.2	2.3
10	N/A	3.8	7.3
100	N/A	12	23

For transmitters rated at a maximum output power not listed above, the recommended separation distance d in metres (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

NOTE 1 At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

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