

**Digital Blood Pressure Monitor
for the upper arm**

Geratherm[®]
med control



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INSTRUCTION MANUAL

GT-5907

CE 0118

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Caution

1. Consult your physician to verify your blood pressure range before measuring it at home with this unit.
2. If the cuff causes any discomfort during measurement, press the start/stop button to turn off the unit immediately.
3. If the pressure is over 300mmHg and the cuff does not deflate automatically, pull off the velcro strap to detach the arm cuff.

Blood pressure measurements obtained with this unit are equivalent to those obtained by a trained person using the cuff/ stethoscope auscultation method.

WARRANTY:

Three years from the date of purchase.

Information you should know before operating the unit

What is blood pressure?

A force is created by the heart as the ventricle forcibly ejects blood into the blood vessels and through the vascular system. Another force is created by the arteries as they resist the blood flow. Blood pressure is the result of these two forces.

What are systolic and diastolic pressures?

Systolic pressure is the highest pressure at the height of the heart's contraction. Diastolic pressure is the lowest pressure when the heart is resting.

Is my blood pressure normal?

See the blood pressure classification chart released by the WHO (World Health Organization) on page 35 for evaluation of your blood pressure level.

What about low blood pressure?

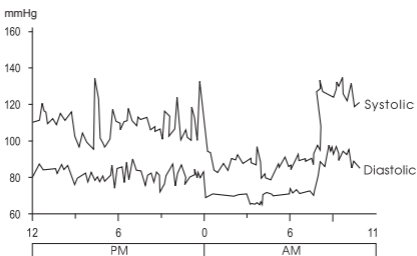
In general, a lower blood pressure reading is better unless it causes unpleasant symptoms such as fainting and/or lightheadedness.

Fluctuation and variation in blood pressure

The following chart shows possible blood pressure fluctuations during a 24-hour period.

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Information you should know before operating the unit



The following factors will influence blood pressure measurement results and cause variations.

- Bathing
- Breathing
- Conversation
- Drinking alcohol
- Exercise
- Moving
- Mental tension
- Eating
- Temperature change
- Thoughts
- Smoking etc.

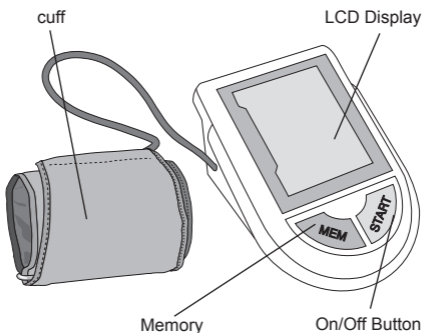
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About the Unit

Function description

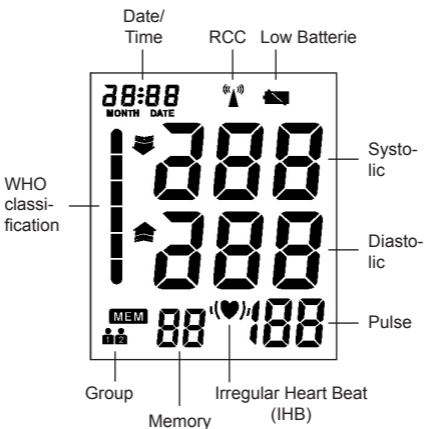
Based on oscillometric method and silicon integrate pressure sensor technology, blood pressure and heart rate can be measured automatically and non-invasively which helps to ease the operation. The Geratherm med control have 2 x 99 memories with date and time display, a big LCD screen and arrhythmia detection. The RCC (radio controlled clock) function can automatically receive the German radio clock signal (DCF77) to adjust the clock accurately. And the colour LED for indicates the class according to WHO of your blood pressure. Also the monitor has the function of averaging the latest three records.

About the unit



The cuff is designed to fit arm sizes between 22 and 30cm (8.7 to 11.81 inches.)

Explanation of displays



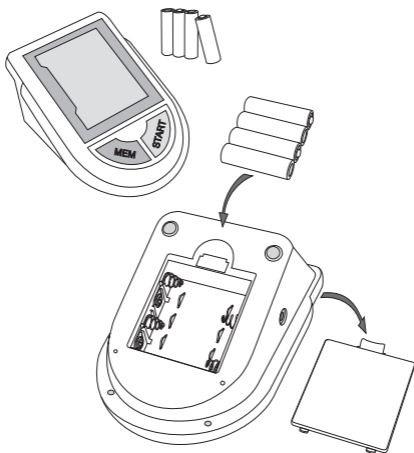
Preparation for use

Installing/ Replacing batteries

1. Insert the batteries into the battery compartment matching correct polarities "+" and "-".
2. Replace all batteries if the low battery indicator appears.
3. Remove the batteries if the unit will not be used for a long period of time.
4. REMOVE all of the BATTERIES when utilizing the optional AC adapter.

Note:

It is recommended that the same type of alkaline batteries be used to avoid incompatibility. Rechargeable batteries with a voltage of 1.2V are not suitable for this product.



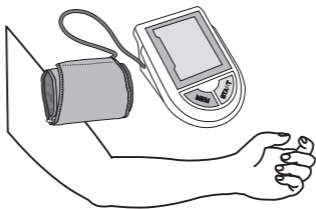
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Please dispose of defective appliances and used batteries in compliance with statutory regulations (disposal in general household waste is prohibited!).

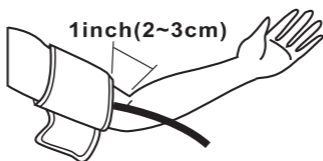
Preparation for Use

Attaching the pressure cuff

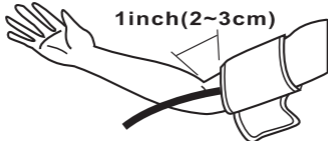
1. Wrap the cuff around the left arm. The arm should be bare.



2. Fasten the cuff. Don't pull it too strong or make the cuff too tight. The edge of the cuff should be approximately 1 inch from the crease of your elbow.



3. Attach the cuff on the right arm as shown in the figure if it is not possible to measure on the left arm.

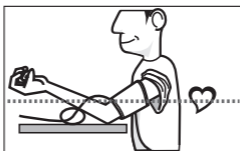


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Preparation for Use

Posture during measurement

1. Sit upright and ensure that the cuff is at heart level. Relax and retain a natural posture during measurement.



2. Measure and record blood pressure at the same time every day to establish your blood pressure pattern.

AC Adapter

It is possible to use a stabilized AC adapter (output 6 V DC/800 mA) to operate the device.

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Note:

1. No power is taken from the batteries while the AC adapter is connected to the device.
2. If AC adapter power is interrupted during measurement, the device must be reset by disconnecting the AC adapter from the device.
3. Please consult an appropriate dealer if you have questions relating to the adapter.

Power source

4 alkaline type "AA" batteries (1.5 V) or
stabilized AC/DC adapter
6 V DC 800 mA

Setting the clock and date

1. Clock Mode

Once you install the batteries, with two “beep”, the LCD will display the time and date by turns. At the same time, the machine enters the Radio Controlled Clock Mode with the RCC symbol “▲” twinkling. After the RCC receiving, the machine enters the Clock Mode and the LCD displays the time and date by turns. And the COLOUR CHANGE LED will twinkle with the colour changed in random turn.

2. Radio Controlled Clock(RCC) Receiving

a. Initial receiving:

Once you install the battery, the machine enters the RCC Receiving Mode. The RCC symbol twinkles during the receiving process. If clock data received, the time and date will be adjusted automatically. And then enter the Clock Mode. If no clock data received, the machine enters Clock Mode and keeps the time and date unchanged.

When the machine is in the RCC Mode, you can skip RCC receiving and enter the Clock Mode by pressing “START” button.

b. Forced RCC Receiving

When the machine is in Clock Mode, keep on pressing both the button “START” and “MEM” at the same time for two seconds, you will enter forced RCC mode and the RCC symbol is twinkling. If clock data received, the time and date will be adjusted automatically. And then enter the Clock Mode with two “beep”. If no clock data received, the machine enters Clock Mode with long beep and keeps the time and date unchanged.

You can skip forced RCC Mode by pressing the button “START”. Then the machine enters the Manual Clock Adjusting mode.

Operations

c. Periodical receiving

The machine will automatically receive the RCC signal at the time 2:05 and 14:05 every day. You can skip the receiving process by press the button "START" to enter clock mode.

3. Manual Clock Adjusting

Normally, the time and date can be adjusted by RCC signal automatically. But you also can try manual clock adjusting if no RCC signal or weak signal.

- a. When the machine is in Clock Mode, press the "START" and "MEM" button at the same time (abt. 2 sec.), the machine enters Forced RCC Receiving mode, then press "START" button, the machine enters manual Clock Adjusting Mode.
- b. The number of year will twinkle first (picture 4). Press "START" button continuously, the numbers of month, day, hour and minute will twinkle in turn. While the number is twinkling, press "MEM" button to increase the corresponding number. Keep on pressing the button "MEM", the number will increase fast.
- c. You can exit the Clock Adjusting Mode by pressing button "START" when the number of minute is twinkling, then enter the Clock Mode.
- d. When you change the batteries, the clock will be reset. You can readjust clock or let the monitor modifying the clock by RCC automatically.

Operations

Measuring blood pressure

- a. After your body is in a comfortable position, press the "START" button. After a long "beep", BPM will verify itself with LCD display all automatically, and the COLOUR CHANGE LED will lighten with 3 colours by turn (picture 1).



pict. 1

- b. Then the LCD twinkle the current group sign and show the total of memories in this group. Now you can modify the current group number by pressing the "START" button, and confirm the current group by pressing the "MEM" button.
- c. Once you choose the group, and if it already has memory, LCD will show the latest result with the LED indicator (picture 2). If machine does not have memory before, the LCD will show six "0".



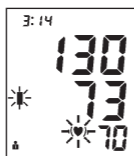
pict. 2

- d. One second later, LCD shows a single "0". While the "down arrow" does not twinkle until the air pressure is stable, and then it begins to measure automatically.

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Operations

- e. Then the monitor begins to pressurize automatically.
During the measurement, the current pressure will display on the LCD, and the bars will automatically rise up or fall down with the current pressure in the cuff. The heart sign will glimmer with the heartbeat during the pressure are falling down.
- f. After measurement, the result of systolic, diastolic and pulse rate will all display on LCD. And irregular heartbeat symbol and blood pressure classification indicator will twinkle (picture 3). The result will be automatically memorized by itself. And the COLOUR CHANGE LED will also indicate the blood pressure classification.



pict. 3

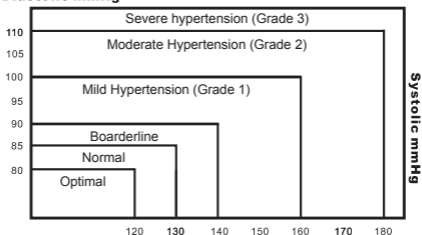
- g. During the measurement, you can turn off the monitor by press the "START" button.
- h. Pressing "START" button after measuring, machine will be turn off, or it will be automatically shut down after 1 minutes of none use.

Note:

If the symbol "⚡(♥)⚡" appears, it means the unit has detected irregular pulse during measurement. If the symbol appears regularly please consult a qualified physician for professional advice.

WHO classification of blood pressure for adults

Diastolic mmHg



Blood pressure classification	Systolic BP mm HG	Diastolic BP mm Hg	Color indicator
Optimal	< 120	< 80	Green
Normal	120 – 129	80 – 84	Green
High – Normal	130 – 139	85 – 89	Yellow
Stage 1 Hypertension	140 – 159	90 – 99	Red
Stage 2 Hypertension	160 – 179	100 – 109	Red
Stage 3 Hypertension	>= 180	>= 110	Red

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Please note that other risk factors (e.g. diabetes, obesity, smoking, etc.) need to be taken into consideration and may affect these figures. Consult with your physician for accurate assessment.

Operations





Recalling memories

- a. Under the clock-displaying mode, press button “MEM” will enter the mode of recalling memories. LCD will show how many results it has in the current group. Now you can modify the current group number by pressing the “START” button, and confirm the current group by pressing the “MEM” button.
- b. When the group is selected, the average of last three records will be displayed. If machine does not have memory before, the LCD will show four “0”.
- c. After that the latest result will be displayed, which is 01 for memory number. The time which you measured will also be displayed. Continuously press the “MEM” button, previously memories will show by turns.
- d. All memories have the WHO classification and the COLOUR CHANGE LED will also indicate the blood pressure classification.
- e. If it has no memory (or all memories have been deleted), then LCD will show “0” for systolic, diastolic, and show “00” for the numbers of memory, heart rate.
- f. Press “MEM” button again after the last memory, the machine will power off. Under the memory-displaying mode, it will be automatically power off after 1 minute of none use. Or you can press “START” button to shut down the machine.

Erasing memories



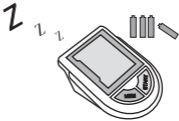

When it displays one memory (no matter which memory), holding on pressing “MEM” button for three seconds, all memories will be deleted with three “beep”. LCD will show the “- -” before you release the button, then it comes to the mode without memory.

Care and maintenance

<p>Do not drop the unit. It is not shock-proof.</p>	 An illustration of a handheld device falling from a height, indicated by two small black triangles above it. A large grey prohibition sign (a circle with a diagonal slash) is overlaid on the device, indicating that dropping it is prohibited.
<p>Do not modify or disassemble the unit or the arm cuff.</p>	 An illustration of a screwdriver being used to pry open the back of the device. A large grey prohibition sign is overlaid on the screwdriver, indicating that modification or disassembly is prohibited.
<p>Do not twist the arm cuff.</p>	 An illustration of the device's arm cuff being twisted. A large grey prohibition sign is overlaid on the twisted cuff, indicating that twisting it is prohibited.
<p>Use a cloth moistened with water or neutral detergent to clean the body of the unit and then wipe it dry.</p>	 An illustration of a hand holding a cloth and wiping the front surface of the device. This illustrates the correct cleaning procedure.

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Care and maintenance

<p>Avoid thinning agents, benzene, and other harsh cleaners.</p>	
<p>Keep the unit in a suitable place. Avoid high temperatures, direct sunlight, high humidity level, and dust.</p>	
<p>Remove the batteries if the unit will not be used for a long time.</p>	
<p>Do not press the POWER button if the cuff has not been properly wrapped around the arm.</p>	

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Error messages

Abnormality	Reason	Checkout
LCD shows low battery symbol	Batteries low	Change the batteries
LCD shows "Er 0"	Pressure system is unstable before measurement.	Don't move and try again.
LCD shows "Er 1"	Systolic pressure detect fail	
LCD shows "Er 2"	Diastolic pressure detect fail	
LCD shows "Er 3"	Pneumatic system blocked or cuff is too tight during inflation	Place the cuff correctly and try again
LCD shows "Er 4"	Pneumatic system leakage or cuff is too loose during inflation	

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Error messages

Abnormality	Reason	Checkout
LCD shows "Er 5"	Inflation above 300mmHg	Measure again after 5 minutes. If the monitor is still abnormal, please contact the local distributor or the factory.
LCD shows "Er 6"	Pressure is over 15 mmHg for longer than 3 min. At the start of measurement the pressure reading must be below 15 mmHg.	
LCD shows "Er 7"	EEPROM accessing error	
LCD twinkling all	Device parameter check error	
LCD shows "Er 9"	MCU self-verity error	
LCD shows "Er A"	Span error	
LCD shows "Er b"	EEPROM backup error	
BPM no response when you press button. BPM hang	Incorrect operation	Take out batteries for five minutes, and then reinstall all batteries.

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Specifications

Display System	Liquid Crystal Display
Measuring Method	oscillometric method, automatic air inflation and measurement
Power Source	4 alkaline "AA" type batteries (1.5V) or AC/DC adapter (optional)
Measuring Range	blood pressure measuring range: 0-295mmHg Heart pulse rate range 40-180 pulse beats/min
Accuracy	±3mmHg (blood pressure) ±5% (pulse beats per minute)
Memory	2 x 99 memories with time and date displaying
Low Battery Indicator	yes
Auto Power-Off	after 1 minute
Battery Life	Approx.200 measurements
Operating Environment	+5°C - +40°C; RH<80%
Storage Environment	-20°C - +55°C; RH<95%
Dimensions	160mm x 115mm x 69mm
Weight	364 g (monitor) +90 g (batteries)

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Specifications are subject to change without notice for purposes of product improvement.

It is recommended that the unit be calibrated by an authorised laboratory every two years.

Quality standard

The unit meets the requirements of Council Directive 93/42/EEC concerning medical devices. A Quality Management system, certified according to EN ISO 13485, guarantees that the product complies with the required quality criteria.

The blood pressure monitor conforms to EN 1060-1 (Non invasive sphygmomanometers part 1: General requirements) and EN 1060-3 (Non invasive sphygmomanometers part 3: Supplementary requirements for electromechanical blood pressure measuring systems).