HL168ZA

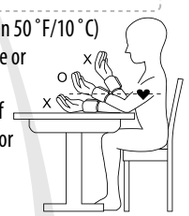
EASY OPERATION

H & L Automatic Blood Pressure Monitor

A Important reminders

*Do not use this manual and product as a substitute for advice, diagnosing or treating a health problem or prescribing any medication by your doctor. If you have a medical problem, promptly consult your healthcare provider.
*Read the Instruction Manual thoroughly before measuring and keep it at hand for your reference at any time.

*This device uses the oscillometric method to measure systolic and diastolic blood pressure as well as your pulse rate. It's recommended for use by people over the age of 18 and not to be used on children.
*The device is designed for home use and not suitable for clinical use.

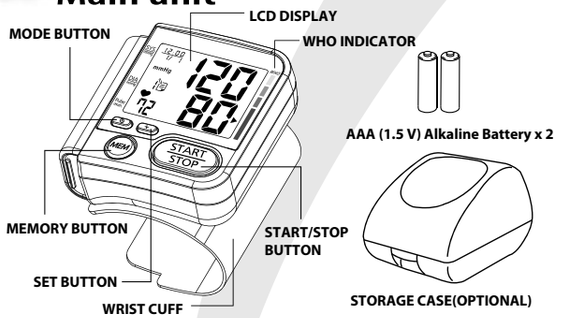


- Do not take a measurement in a low (less than 50 ˚F/10 ˚C) or high (more than 104 ˚F/40 ˚C) temperature or you may get the inaccurate readings.
- Wait 30 ~ 45 minutes before measurement if you've just consumed caffeinated beverages or smoked cigarettes.
- Rest at least 5 ~ 10 minutes before taking a measurement.
- Relax at least 3 ~ 5 minutes in between measurements.
- We recommend you using the same wrist (preferably the left wrist) and measuring around the same time each day.
- Sit down comfortably and place your elbow on the table with your feet flat on the floor.
- Keep the device at heart level. Relax your hand with the palm facing up.
- Perform measurements in a quiet and relaxed environment at room temperature.
- Do not move or shake the device during a measurement.
- Blood pressure measurements should be interpreted by a physician or a trained health professional who is familiar with your medical history. Using the unit and recording the results regularly for your physician to interpret, you will keep your physician informed of the continuing changes in your blood pressure.
- If you have one of the circulatory problems as arteriosclerosis, diabetes, liver disease, kidney disease, severe hypertension, peripheral circulation….., please consult your healthcare professional before using the device.
- This product is not suitable for people with arrhythmias.
- Blood pressure measurements taken with this device are equivalent to those obtained by a trained observer using the cuff / stethoscope auscultation method and are within the accuracy limits prescribed by the American National Standard for Electronic or Automated Sphygmomanometers.

*Note !
Blood pressure naturally varies from time to time throughout the day and is also affected by many different factors such as smoking, alcohol consumption, medication and physical activity. Normally the blood pressure rises while at work and is at its lowest during sleeping period..

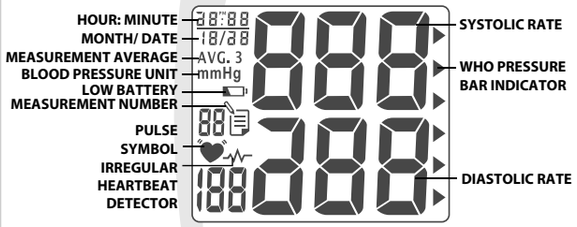
B Knowing your device

Main unit

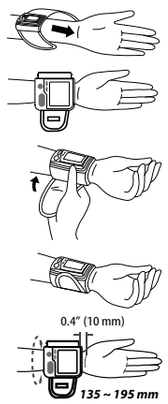


*Caution!
Substitution of a component different from that supplied might result in measurement error.

Unit display



Applying the cuff

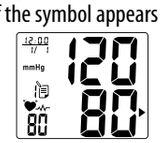


- Do not place the pressure cuff over a jacket or sweater sleeve. Wrap the pressure cuff around the bare wrist with the monitor facing you.
- Wrap the cuff snugly. Do not make it too tight.
- Fold the remaining part of the cuff back out of the way.
- Leave approximately 10 mm (Approx. 0.4 inch) between the cuff and the bottom of your hand palm.

*Note !
- Do not use this device if your wrist has any wound or injury.
- Do not wrap the cuff around any body part other than your wrist.

Irregular Heartbeat Detector (IHB)

The symbol will appear on screen indicating a certain heartbeat irregularity was detected during measurement.
The heartbeat rhythm that is more than or less than 25% from the average rhythm is usually defined as an irregular heartbeat rhythm.
Talking, moving, shaking or an irregular pulse during the measurement can result in the appearance of this symbol.
Usually this is not a cause for concern, however if the symbol appears often, we recommend you seek medical advice.
And please note that the device does not replace a cardiac examination, but serves to detect pulse irregularities at an early stage.



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*Note !
- No Irregular Heartbeat Detector measurement will be stored in memory.
- The pulse display is not suitable for checking the frequency of heart pacemarkers. If a certain pulse irregularity is detected during measurement often, we recommend you seek medical advice.
- The device is safe and accurate to use with pulse irregularities. However, as a safeguard, we recommend that if you have arrhythmias such as atrial or ventricular premature beats and atrial fibrillation or any other special conditions you should check with your physician before using your device.
- The IHB function is not designed for use by people with arrhythmias nor for diagnosing or treating an arrhythmic problem. It's aimed only for the reference on pulse variations/tendency of healthy people.
  Therefore, the average of heart beat intervals is calculated with the first 3 normal effective heart beat values, and is used for the evaluation base of irregular heart beat.
- At least 3 beats with at least 25% difference from the average heart beat interval will generate the IHB icon on the screen.

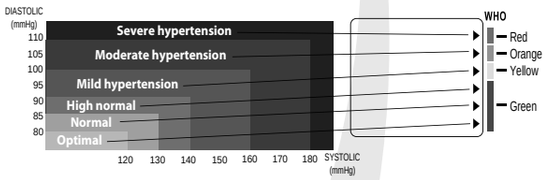
WHO Indicator

This device is equipped with WHO Blood Pressure Indicator which classifies your blood pressure measurements into six stages (Optimal to Severe hypertension) based on WHO classification on blood pressure levels as shown in below chart:

Stages of blood pressure levels		Systolic (in mmHg)	Diastolic (in mmHg)	Our recommendation
Grade 3	Severe hypertension	≧ 180	≧ 110	Take medical treatment at once
Grade 2	Moderate hypertension	160 ~ 179	100 ~ 109	Seek medical advice
Grade 1	Mild hypertension	140 ~ 159	90 ~ 99	Check it regularly by doctor
High-normal		130 ~ 139	85 ~ 89	Check it regularly by doctor
Normal		120 ~ 129	80 ~ 84	Check it yourself
Optimal		< 120	< 80	Check it yourself

*Source: WHO, 1999

After each measurement is completed, the LCD display will show your position automatically on the six segments of the bar indicator which corresponds to WHO Blood Pressure Indicator.

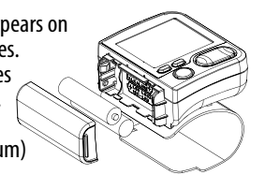


*Note !
When a person's systolic and diastolic pressures fall into different categories, the higher category should apply.

e.g. systolic rate 181 & diastolic rate 99
→ the result should be in Red category (Severe hypertension)
systolic rate 110 & diastolic rate 95 Yellow
→ category (Mild hypertension)

Inserting/ Replacing the batteries

When the low battery symbol appears on the display, please change the batteries.
Replace all the batteries with new ones and do not mix new and old batteries.
Do not mix alkaline, standard (carbon-zinc) or rechargeable (cadmium) batteries either.
It may shorten the battery life or cause the device to malfunction.
Remove the battery cover at the rear side of the unit and insert 2 AAA alkaline batteries into the battery compartment as shown.
Make sure the polarities "+" and "–" ends are properly positioned.



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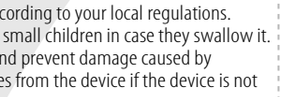
*Attention !
- Batteries are hazardous waste. Do not dispose of them together with the household garbage. Please take the used batteries to the recycling collection point according to your local regulations.
- Keep the battery away from small children in case they swallow it.
- To prolong the battery life and prevent damage caused by leakage, remove the batteries from the device if the device is not to be used for a long period.
- Memories (if any) will not be deleted during battery replacement.
- After replacing the batteries, reset the year, date and time

Setting the date and time

1. Press button ("year" starts flashing).
   Press + button to set the current year (2009, 2010, 2011,….).
2. Press button ("month" starts flashing).
   Press + button to set the current month (1, 2, 3,……,12).
3. Follow the above step to set the current date (1, 2, 3,…..,31), hour (1, 2, 3,…….12), and minute (00,01,02,03,.....59).
4. Press button again to save the settings and switch to Standby Mode. (month, date, hour and minute appear on the display)

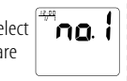
Taking a measurement

1. Open battery cover and insert the batteries. Make sure that the polarities are correct.
2. All display symbols will appear on screen for 3 seconds.
3. Press + button to select a particular memory zone (1,2, or 3).



4. Press START/STOP button to start measurement.
   All display symbols appear on the screen for 3 seconds.
   The monitor will automatically inflate to the level that is right for you.

*Note !
When taking repeat measurements, make sure to select the same memory zone so that the measurements are recorded in the appropriate memory.



5. After the initial inflation of the cuff, the pressure will slowly decrease and when a pulse is detected, the PULSE RATE SYMBOL will start flashing.

*Note !
If the cuff does not stop inflating, remove the cuff at once.

6. When the measurement is finished, the systolic pressure, diastolic pressure, pulse rate and WHO INDICATOR SYMBOL will be displayed for 1 minute.

7. The monitor will automatically shut off after 1 minute if without any operation.

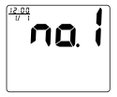
E

Using the memory function

Storing data

After each measurement, the systolic and diastolic pressure, pulse rate with the time and date will be automatically stored. The monitor features a 3 zone memory capability. Each memory zone holds the last 40 measurements, replacing the oldest data with new one.

Recalling data

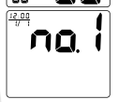


1. Press + button to select the memory zone.
2. Press the MEM button to enter Memory Mode.
   If there is no data in the selected memory zone, nothing (except month, date, time and memory zone number) will appear on the display.
   If there's 1 data, the first reading will be the measurement with AVERAGE SYMBOL.

If there're 2 data, the first reading will be the average of the 2 measurements with AVERAGE SYMBOL (then comes the last measurement by pressing MEM button).
If there is enough data (3 above), the first reading will be the average of the latest 3 measurements (then comes the last measurement by pressing MEM button).

*Note !
- Data are recalled from the latest measurement to the oldest.
- Read and scroll the data stored in memory by pressing MEM (scroll backwards) or + (scroll forwards) button.

3. Press MEM button. The latest measurement will appear with the number as well as the recording date and time.
4. Press MEM button to read the next measurement.
5. To stop reading the memories, press the START/STOP button to switch to Standby Mode.



Erasing data

1. Press + button to select the memory zone (1, 2 or 3), then press MEM button.
2. Press and hold on + and ⏲ buttons simultaneously, all stored data , including the average reading, in the selected memory zone will be erased.
3. To confirm the data has been erased, press MEM button and no data (except month, date, time and memory zone number) should appear.

Maintenance and storage

- Use a piece of cloth with water or mild cleansing agent to wipe the device and dry it immediately with a dry cloth.
- Do not use detergent or any strong chemicals to clean the device.
- Use only a dry cloth to wipe the cuff.
- If the device is not to be used for a long time, please remove the batteries from the device (leaking of battery acid can cause the device to malfunction).
- Do not in any way twist the cuff
- Do not press the START button if the cuff is not wrapped around the wrist.
- Do not drop the product and avoid any strong impacts.
- Do not attempt to disassemble or change any parts of the monitor, including wrist cuff, due to substitution of a component different from that supplied might result in measurement error.
- If any suggestion or service is requested, please consult your service station.
- Always store the unit in the storage case (optional) after use.
- Do not place the device directly under sunlight, in high temperature, or in humid or dusty places.
- Do not store the device in extremely low (less than –20 ˚C/ –4 ˚F) or high (more than 70 ˚C/ 158 ˚F) temperature.
- Limited Warranty
  To ensure continued measurement precision, all digital blood pressure monitors require recalibration regularly.

F

- After 2 years from the manufacturing date, we recommend you have your monitor recalibrated at the local distributor or importer.
  Please contact your distributor/importer for the details about the recalibration service and the charge of shipping and handling.
  Please also note that this service does not cover damage caused by misuse or abuse; accident; the attachment of any unauthorized accessory; alteration to the product; improper installation; unauthorized repairs or modifications; improper use of electrical/power supply; loss of power; dropped product; malfunction or damage of an operating part from failure to provide manufacturer's recommended maintenance; transportation damage; theft; neglect; vandalism; or environmental conditions; loss of use during the period the product is at a repair facility or otherwise awaiting parts or repair; or any other conditions whatsoever that are beyond the control of importers or distributors.

Symbol indication / Troubleshooting

Display symbol	Condition/Cause	How to correct
Pulse rate symbol	The flashing heart will appear when the pulse is detected during a measurement.	Measurements in process. Do not talk or move.
Low battery symbol	Appears when the battery voltage is excessively low or the position of batteries is incorrect.	■ Replace all batteries with new ones. ■ Make sure the +/- polarities are properly positioned
IHB symbol	Appears for 1 minute when the user was talking, moving or shaking or an irregular heart beat was detected during measurement.	■ Repeat the measurement. ■ Note that you be relaxed for at least 5 minutes and sit comfortably and quietly before you restart a measurement.
AVG. 3 *Measurement avgerage symbol*	Indicates the average of last 3 measurements.	
Measurement number symbol	Indicates the number of measurements stored in the memory.	
EE *Measuring error symbol*	Appears when measurement error occurs or the blood pressure value is displayed excessively low or high.	■ Replace all batteries with new ones. ■ Make sure the +/- polarities are properly positioned
E1 *Measuring error symbol*	Air circuit abnormality. Cuff tube may not be plugged into monitor correctly.	■ Check the cuff connection. ■ Measure again.
E2 *Measuring error symbol*	Inflation pressure exceeding 300 mmHg.	■ Turn the device off, then measure again.
E3 *Measuring error symbol*	Error determining measurement data.	■ Measure again.

Specifications

Model No.	: HL168ZA
Measurement method	: Oscillometric
Measurement range	: Pressure 0 ~ 300 mmHg, Pulse 40 ~ 199 beats/ minute
Accuracy	: Pressure +/- 3 mmHg, Pulse +/- 5%
Inflation	: Automatic inflation (air pump)
Deflation	: Automatic air release control valve
Display	: Liquid Crystal Display
Memories	: 3 databases of 40 memories each
Dimensions	: 69 x 66 x 31 mm (L x W x H)
Unit weight	: Approx. 115 g (excluding battery)
Cuff size	: Wrist circumference approx. 135 ~ 195 mm (5.3 ~7.7 inches)
Operating temperature	: 10 ºC ~ 40 ºC (50 ºF~ 104 ºF), less than 85% R.H.
Storage temperature	: -20 ºC ~ 70 ºC (-4 ºF ~ 158 ºF), less than 85% R.H.
Power supply	: AAA (1.5 V) alkaline battery x 2
Battery life	: Approx. 250 measurements
Accessories	: Instruction manual, 2 AAA batteries, Storage case (Optional)

These specifications are subject to change without notice for purpose of improvement.

G

Note

CE 0197 This blood pressure monitor complies with the EC Directive and bears the CE mark.
This blood pressure monitor also complies with mainly following standards (included but not limited):

Safety standard:
EN 60601-1 Medical electrical equipment part 1: General requirements for safety
EMC standard:
EN 60601-1-2 Medical electrical equipment part 1-2: General requirements for safety- Collateral standard: Electromagnetic compatibility- Requirements and tests
Performance standards:
EN 1060-1 Non-invasive sphygmomanometers - General requirements
EN 1060-3 Non-invasive sphygmomanometers - Supplementary requirements for electromechanical blood pressure measuring systems.
EN 1060-4 Non-invasive sphygmomanometers - Test procedures to determine the overall system accuracy of automated non-invasive sphygmomanometers.

Important/Caution/Note! Read the operating instructions.

Consult instructions thoroughly before use.

BF Classification:
- Internally powered equipment
- BF type applied part
- IPX0
- Not suitable for use in presence of flammable anesthetic mixture with air or with Oxygen or nitrous oxide
- Continuous operation with short-time loading

To avoid inaccurate results caused by electromagnetic interference between electrical and electronic equipments, do not use the device near a mobile phone or microwave oven.

Discard the used product to the recycling collection point according to local regulations.

Manufacturer: HEALTH & LIFE Co., Ltd.
9F, No. 186, Jian Yi Road, Chung Ho City 235, Taipei, Taiwan.

EC REP Authorized Representative in the European Community
Innovative business promotion GmbH Botzstrasse 6, 07743 Jena, Germany

Appendix:

Guidance and manufacturer's declaration – electromagnetic emissions

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

Emissions test	Compliance	Electromagnetic environment – guidance
RF emissions CISPR 11	Group 1	The device 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 deivce 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	Class A	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Complies	

Guidance and manufacturer's declaration – electromagnetic immunity

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

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment – guidance
Electrostatic discharge (ESD) IEC 61000-4-2	±6 kV contact ±8 kV air	±6 kV contact ±8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30 %.
Electrical fast transient/burst IEC 61000-4-4	±2 kV for power supply lines ±1 kV for input/ output lines	±2 kV for power supply lines ±1 kV for input/ output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV line(s) to line(s) ±2 kV line(s) to earth	±1 kV line(s) to line(s) ±2 kV line(s) to earth	Mains power quality should be that of a typical commercial or hospital environment.
interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5 % U_T (>95 % dip in U_T) for 0.5 cycle	<5 % U_T (>95 % dip in U_T) for 0.5 cycle	Mains power quality should be that of a typical commercial or hospital environment. If the user of the device requires continued operation during power mains interruptions, it is recommended that the deivce be powered from an uninterruptible power supply or a battery.
	40 % U_T (60 % dip in U_T) for 5 cycles	40 % U_T (60 % dip in U_T) for 5 cycles	
	70 % U_T (30 % dip in U_T) for 25 cycles	70 % U_T (30 % dip in U_T) for 25 cycles	
	<5 % U_T (>95 % dip in U_T) for 5 sec	<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 UT is the a.c. mains voltage prior to application of the test level.

H

Guidance and manufacturer's declaration – electromagnetic immunity

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

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment – guidance
			Portable and mobile RF communications equipment should be used no closer to any part of the device, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. **Recommended separation distance**
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	3 Vrms	d = 1,2 √P
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2,5 GHz	3 V/m	d = 1,2 √P 80 MHz to 800 MHz d = 1,2 √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, 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:

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 deivce is used exceeds the applicable RF compliance level above, the deivce should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the deivce.
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 device

The device is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the device 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 d = 1,2 √P	80 MHz to 800 MHz d = 1,2 √P	800 MHz to 2,5 GHz d = 2,3 √P
0,01	0,12	0,12	0,23
0,1	0,38	0,38	0,73
1	1,2	1,2	2,3
10	3,8	3,8	7,3
100	12	12	23

For transmitters rated at a maximum output power not listed above, the recommended separation distance d in 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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