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Usage and Maintenance Instructions

Digi Blood Pressure Monitor - DL08146

Introduction

Your new digital blood pressure monitor uses the oscillometric method of blood pressure measurement. This means the monitor detects your blood's movement through your brachial artery and converts the movements into a digital reading. An oscillometric monitor does not need a stethoscope, so the monitor is simple to use.

This automatic blood pressure monitor could measure the systolic pressure, diastolic pressure and pulse, the components include the body, cuff and printed instruction manual. Batteries and adapter are optional. This unit is intended for adult use.

Intelligent inflation will reduce the uncomfortable feeling caused by incorrect inflation, and shorten the measurement time, prolonging the cuff's usage lifetime. 2*120 sets memory function, each measurement result will be displayed on the screen, and automatically stored .This unit has blood classification index and can easily check your blood pressure. Please read the manual carefully before you use the unit, and keep the manual safe after using.

Statement

- The intended use: the unit is intended to be used by adults at home or medical centers to measure blood pressure and pulse rate from the upper arm.
- The unit satisfies the requirements of EN 1060-1: 1995+A2 2009 Noninvasive sphygmomanometers, EN 1060-3: 1997+A2: 2009 Non-invasive sphygmomanometers.
- Blood pressure measurements determined with this device are equivalent to those obtained by a trained observer using the cuff/stethoscope auscultatory method, within the limits prescribed by the American National Standard, manual, electronic, or automated sphygmomanometers.
- The risk of patient and user can be lowered to an acceptable level.

Specification

Description	Arm type automatic blood pressure monitor	
Display	LCD digital display	
Measuring Principle	Oscillometric method	
Measuring Localization	Upper Arm	
Measurement Range	Pressure	0-299 mmHg (0-39.9kPa)
	Pulse	40-199 pulses/min
Accuracy	Pressure	±3mmHg (±0.4kPa)
	Pulse	±5% of reading
LCD Indication	Pressure	3 digits display of mmHg
	Pulse	3 digits display
	Symbol	Memory/Heartbeat/Low battery
Memory Function	2*120 sets memory of measurement values	
Power Source	4pcs AA alkaline battery DC. 6V or AC adapter	
Automatic Power Off	In 3 minutes	
Main Unit Weight	Approx. 415g (batteries included)	
Main Unit Size	L 130mm x W108mm x H56mm	
Main Unit Lifetime	5 years under normal use	
Battery Life	Could be used for 300 times for normal condition	
Accessories	Cuff. instruction manual	
Operating Environment	Temperature	5°C-40°C
	Humidity	15%-85%RH
	Air pressure	86kPa-106kPa
Storage Environment	Temperature -20°C-55°C . Humidity : 10%-85% avoid crash, sun burn or rain during transportation.	

To assure the correct use of the product, basic safety measures should always be followed.

Symbol Descriptions

The following symbols may appear in this manual, on the label, on the device, or on it's accessories. Some of the symbols represent standards and compliances associated with the device and its use.

WARNING: This alert identifies hazards that may cause serious personal injury or death.

CAUTION: This alert identifies hazards that may cause minor personal injury, product damage, or property damage.

Type BF applied part.

SN Specifies serial number.

CE 0197 CE Mark: conforms to essential requirements of the Medical Device Directive 93/42/EEC.

DISPOSAL: Do not dispose this product as unsorted municipal waste. Collection of such waste separately for special treatment is necessary.

Direct current.

CAUTION: Consult accompanying documents.

IP20 This alert identifies protection grade. The first "2" means this device can protected against solid foreign objects which diameter over 12mm, length below 80mm. The second number "O" indicates non-protected against the ingress of water.

Follow instructions for use.

Operating Instructions.

Keep Dry.

Safety Information

- Those who have arrhythmia, diabetes, blood circulation or apoplexy problem, please use under a physician's instruction.
- Contact your physician for specific information about your blood pressure. Self diagnosis and treatment which use measured results may be dangerous. Follow the instructions of your physician or licensed healthcare provider.
- Please place on a high shelf out of reach of children.
- Do not modify this equipment without authorization of the manufacturer.
- If this equipment is modified, appropriate inspection and testing must be conducted to ensure continued safe use of equipment.
- The cuff hose around neck may cause suffocation.
- The swallowing of small part like packaging bag, battery, battery cover and so on may cause suffocation.
- Please don't use a dilution agent, alcohol or petrol to clean the unit. Please don't hit heavily or drop the product from a high place. Use the correct cuff otherwise the product won't work properly.
- Don't leave batteries that are displaying the low symbol in the unit as these may leak and cause damage. Remove batteries if not using for 3 months.
- Replace the batteries if the unit displays a low battery symbol. Do not mix old and new batteries.
- Do not use a mobile phone near the unit. This may result in operational failure.
- Do not use the equipment where flammable gas (such as anaesthetic gas, oxygen or hydrogen) or flammable liquid (such as alcohol) are present.

Care and Maintenance

- Keep the unit in the storage case when not in use.
- Clean the unit with soft dry cloth. Do not use any abrasive or volatile cleaners.
- Never immerse the unit or any component in water.
- Make sure the monitor is switched off prior to cleaning. a mixture of distilled water and 10 percent bleach could be used.
- Using a spray bottle, moisten a soft cloth towel with the bleach or detergent mix until it is fully saturated. Squeeze any excess moisture from the cloth to avoid any dripping or potential over-saturation of the cuff.
- Wipe all surfaces of the blood pressure monitor cuff thoroughly, making sure to clean the inside and outside of the cuff. Be cautious not to get any moisture in the main unit.
- Using a dry cloth, gently wipe away any excess moisture that may remain on the blood pressure cuff. Lay the cuff flat in an unrolled position and allow the cuff to air dry.
- Do not clean the body and cuff with naphtha, thinner or gasoline etc.
- Do not wet the cuff or attempt to clean the cuff with water.
- Store the unit in a clean and dry location. Do not subject the unit to extreme hot or cold temperature, humidity and direct sunlight.

We are not responsible for any quality problem if you don't care and maintain the product as stated.

Error Indicators

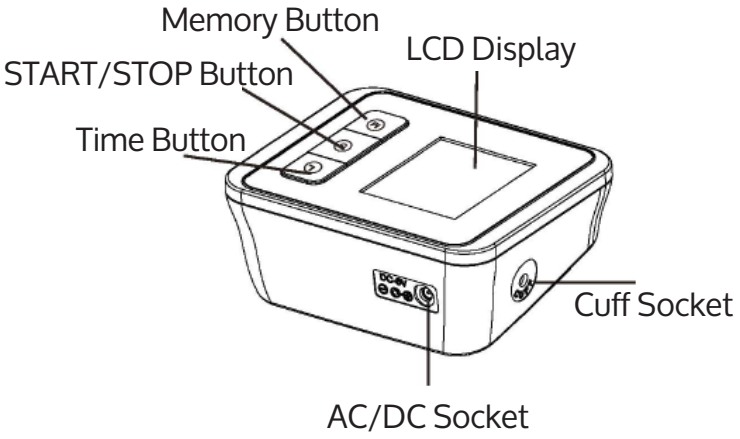
The following symbol will appear on the display when measuring abnormal activity.

Symbol	Cause	Correction
E-1	Weak Signal or pressure change suddenly.	Wrap the cuff properly.
		Remeasure the correct way.
E-2	External strong disturbance.	When near a mobile phone or other high radiant the measurement will fail.
		Keep quiet whilst in use.
E-3	Error appears during the process of inflating.	Wrap the cuff properly.
		Make sure that the air plug is properly inserted in the unit.
		Remeasure.
E-5	Abnormal blood pressure.	Repeat the measurement after relax for 30 mins, if get unusual readings 3 times please contact your doctor.
	Low Battery	Replace all of the worn batteries with new ones.

Classification

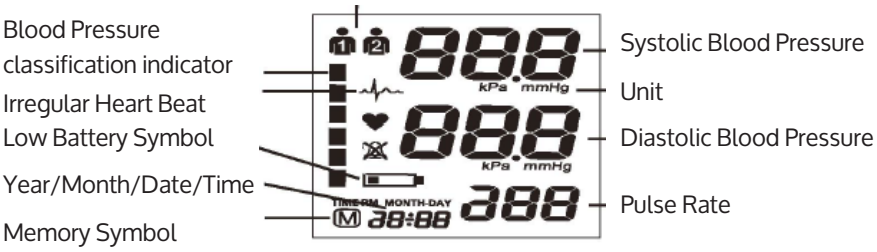
1. Internally powered equipment;
2. Type BF applied part;
3. Protection against ingress of water: IPXO;
4. Not category AP/ APG equipment;
5. Mode of operation: Continuous operation:

The user must check that the equipment functions safely and see that it is in proper working condition before being used.



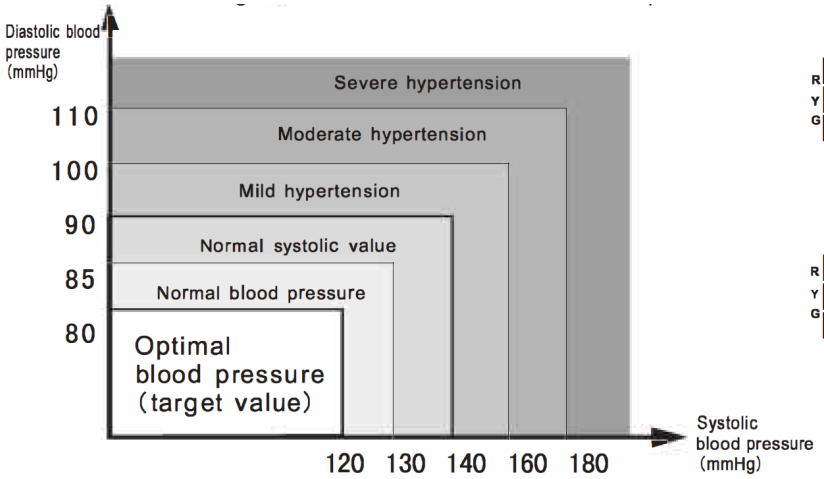
The accessories cuff is M size, for upper-arm circumference 22-32cm use. The cuff is treated as the applied part.

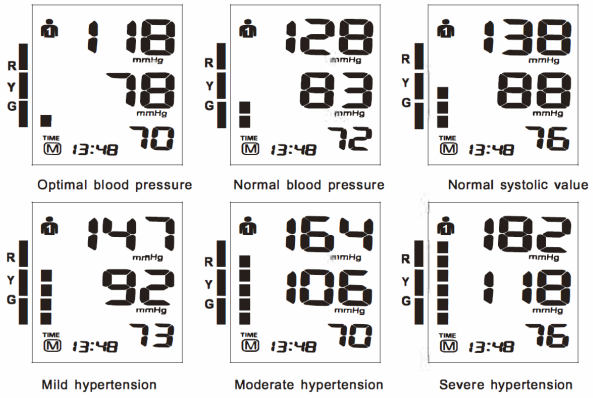
Insert the connector with cuff tube into the hole which is on the left side of the device as picture. (Only provided cuff can be used, can not change to any other branded cuff.)

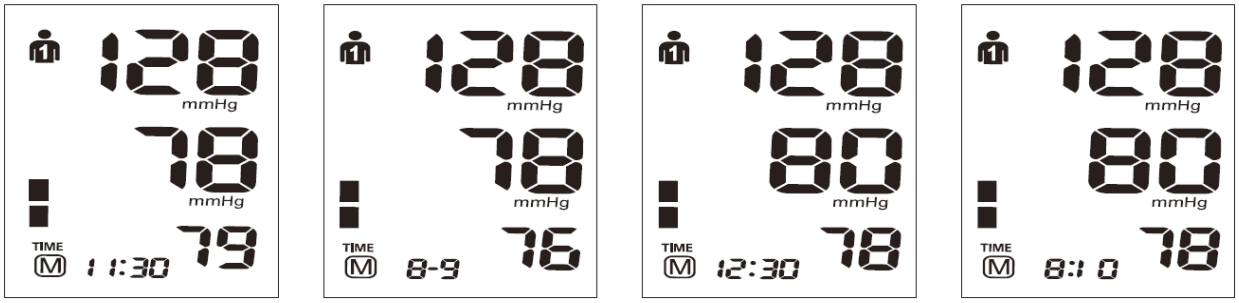


Blood Pressure

- According to the blood pressure classification by the WHO/ISH.
- SYS lower than 100mmHg (13. 3kPa) is considered as hypotension.
- SYS lower than 100mmHg (13 3kPa) is consider as Diastolic blood pressure





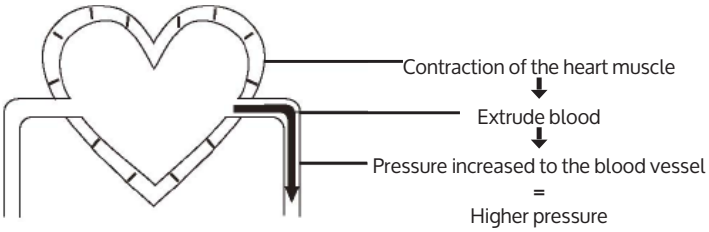


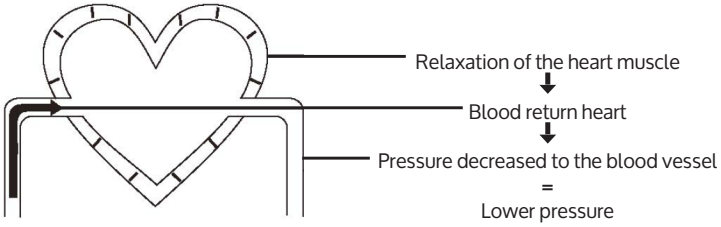
Memory - clear of measurements

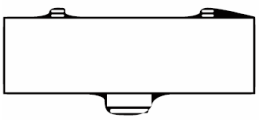
If you are sure that you want to permanently remove all stored memories. Press the button Ⓜ until it is shown CL, after this press button Ⓜ then all the records will be cleared.

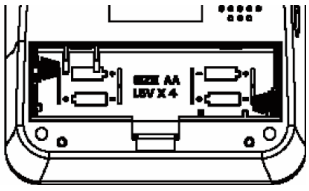
About Blood Pressure

Blood pressure is the pressure exerted on the arteries. The systolic blood pressure value represents the blood pressure produced by contraction of the heart muscle. The diastolic blood pressure value represents the blood pressure produced by relaxation of the heart muscle.









Battery Installation

1. Remove the battery cover as picture shown.
2. Insert 4 AA batteries into the compartment and ensure is battery is facing in the correct direction.

Low battery and replacement

If the battery is low the symbol will appear. Replenish the batteries with new ones in order to continue using the device.

Battery type and replacement

Please use 4pcs AA identical 1. 5V alkaline batteries. Do not use the batteries beyond their expiry date. Please remove the batteries if you do not need to use for long time.

Dispose of batteries safely and correctly. Do not pierce, puncture, burn or incinerate batteries.

Adapter usage (option)

1. Optional AC adapter should comply with the requirement of IEC 60601-1 :2005. Furthermore all configurations shall comply with the requirements for medical electrical systems (see IEC 60601-1-1 or clause 16 of the 3Ed. of IEC 60601-1, respectively). Anybody connecting additional equipment to medical electrical equipment configures a medical system and is therefore responsible that the system complies with the requirements for medical electrical systems. Attention is drawn to the fact that local laws take priority over the above mentioned requirements. If in doubt, consult your local representative or the technical service department.
2. When using AC power, to avoid possible damage to the monitor, use only the exclusive AC adapter that can be purchased from authorized dealers. Other adapters may vary in output voltage and polarities.
3. Insert the adapter plug into the hole on the backside of the unit as picture.
4. Insert the other side of the adapter into the outlet with 100-240V.
5. To remove the AC adapter, disconnect the adapter plug from the outlet first and then disconnect the cord from the unit's socket.

Adapter technical features:

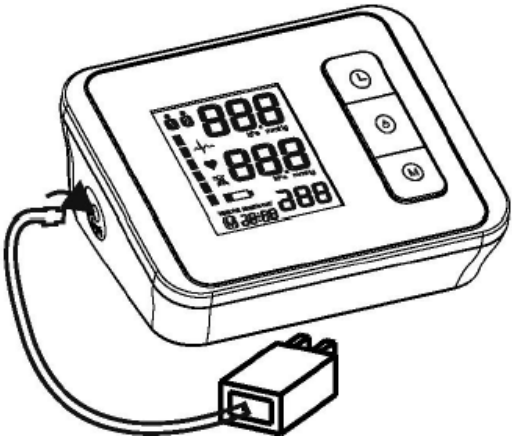
Output voltage: 6V 5%

Max. output current: At least 600 mA

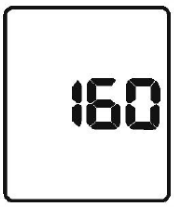
Output plug polarity: <+> inner

External diameter: 5.5mm 0.1 mm

Internal diameter: 2.1mm 0.1mm

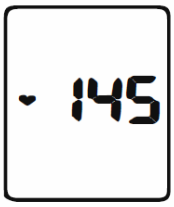


Measuring procedure:



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

1. Press the START/STOP button, all symbols appear on the display, you can hear 2 short beeps after 0 flashes for 2 seconds, then the pump begins to inflate the cuff, the rising pressure in the cuff is shown on the display.



2. After the suitable pressure has been reached, the pump stops and the pressure gradually falls. The cuff pressure is displayed. In case that the inflation is not sufficient, the device automatically re-inflates to a higher pressure.
3. When the device detects the signal, the heart symbol ♥ on the display starts to flash, you can hear the beep for every heartbeat once the heartbeat signal is detected.

4. When the measurement has been completed, you can hear a long beep, in the meantime, the systolic, diastolic and pulse rate will appear on the display.
5. The measurement readings remain on the display until you switch off the device. If no button is pressed for a period of 3 minutes, the device switches itself off order to save power.

Note: It will read in kPa as unit when you choose kPa, the symbol ⟿ will be displayed along with the reading if irregular heartbeat is detected during the measurement.

Discontinuing a measurement

If it is necessary to interrupt a blood pressure measurement for any reason (eg. the patient feels unwell) the START/STOP button can be pressed at any time. The device immediately decrease the cuff pressure automatically.

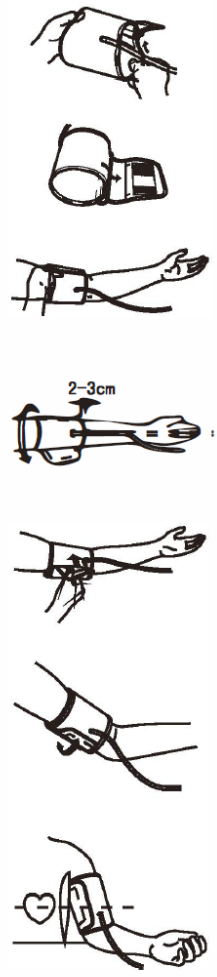
Memory-recall of measurements

This blood pressure monitor automatically stores 2*120 sets measurements value, the oldest record will be replaced by the latest measurement value when more than 120 sets each user.

Memory-recall of measurements

Press the button Ⓜ when power off, the last measurement value will be shown, and subsequent measurements can be displayed one after the other by pressing the button Ⓜ each time.

Fitting the cuff



1. Put the cuff on a table flatly with the velcro side down. Pass the end of the cuff through the metal loop so that a circle is formed. The velcro fastening will now be facing outwards (ignore this step if the cuff has already been prepared) .
2. Push the cuff over the left upper arm so that the tube points in the direction of the lower arm.
3. Wrap the cuff on the arm as illustrated. Make certain that the lower edge of the cuff lies approximately 2 to 3 cm above the elbow and the rubber tube leaves the cuff on the inner side of the arm.
4. Tighten the free end of the cuff and close the cuff by affixing the velcro.
5. The cuff should be snug on your upper arm so that you can fit 2 fingers between the cuff and your upper arm. Any piece of clothing that restricts the arm must be taken off.
6. Secure the cuff with the velcro closer in such a way that it lies comfortably and is not too tight. Lay your arm on a table (palm upwards) so that the cuff is at the same height as the heart. Do not bend the tube.

Note:

If it is not possible to fit the cuff to your left arm, it can also be placed on the right. However, all measurements should be made using the same arm.

Setting mode

Note: When using the AC adapter, the power of battery won't be consumed.

If the measurement is stopped suddenly for any reason, the process must be re-started in order to obtain an accurate reading.

How to set

Start to year:
Press button ◷ when you power on , the year will be flashing, and then use Ⓜ button to set year, press button Ⓜ to confirm the year.

Month and date setting
Continuing on from above step, the screen will display MONTH-DAY and XX-xx, and keep flashing on month, the digit will increase 1 when press button Ⓜ each time, you can choose from 1 to 12. Press button ◷ to confirm the month, then it will set the date. Same as the month setting, each time you press button Ⓜ , the digit will keep changing from 01 to 31. Press button Ⓜ when you confirm the date, then it will enter into the time setting mode.

Time Setting
Continuing on from above, the screen will display TIME and XX: XX, and keep flashing on the digits of hour, the digit will increase 1 when press button Ⓜ each time, you can choose from 0 to 23. Press button ◷ to confirm the hour, then the digits of minute start to flash , same as the hour setting , each time you press button Ⓜ the digits will keep changing from 00 to 59. Press button ◷ to confirm the minute, then the total setting mode is completed.

Unit Setting
Continuing on from above,the unit will be changed when press button Ⓜ each time. Press button ◷ to confirm the unit, then it will enter into the user setting mode.

Measurement

Pre-measurement

- Keep quiet for 5-10 minutes, and avoid eating, drinking alcohol, smoking, exercising and bathing before taking measurement. All these factors will influence the measurement result.
- Remove any garment that fits closely to your upper arm.
- Always measure on the same arm (normally left).
- Take measurement regularly at the same time of every day,as blood pressure changes even during the day.

Common factors of wrong measurement

- All efforts by the patient to support their arm can increase blood pressure.
- Make sure you are in a comfortable, relaxed position and do not activate any of the muscles in the measurement arm during measurement. Use a cushion for support if necessary.
- If the arm artery lies lower or higher than the heart,a false reading will be obtained.
- Only use clinically approved cuffs.
- A loose cuff or an exposed bladder causes false reading.
- With repeated measurements ,blood accumulates in the arm which can lead to false reading. Consecutive blood pressure measurements should be repeated after 1 minute pause or after the arm has been held up in order to allow the accumulated blood to flow away.

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