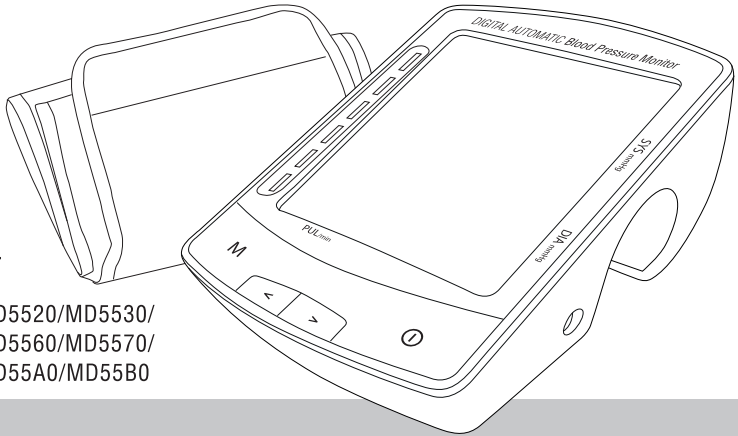
DIGITAL AUTOMATIC
BLOOD PRESSURE MONITOR



USER MANUAL

MODEL :
MD5500/MD5510/MD5520/MD5530/
MD5540/MD5550/MD5560/MD5570/
MD5580/MD5590/MD55A0/MD55B0

INTRODUCTION

Thank you for purchasing this blood pressure monitor. Please read this manual thoroughly before use. Contact your physician if you have any queries about your blood pressure.

This fully automatic instrument utilizes the non-invasive oscillometric method, which detects your blood movement through you brachial artery, for measuring your blood pressure and pulse rate, and the result will display on a digital panel. Without using a stethoscope, you can get the readings promptly and easily.

This device conforms to European Council Directive 93/42/EEC concerning medical devices. This is made evident by the CE mark of conformity accompanies by the reference number of the designated authority.

This device complies with :

- EN ISO 81060 standard relating to non-invasive sphygmomanometers Part 1: Requirements and test methods for non-automated measuremnt types and EN 1060 standard relating to non-invasive sphygmomanometers Part 3: Supplementary requirements for electro-mechanical blood pressure measuring systems.
- EN 60601 standard relating to medical electrical equipment – Part 1-2: General requirements for basic safety and essential performance and essential performance – Collateral standard: Electromagnetic compatibility – Requirements and tests.
- EN 1060-4:2004 standard relating to non-invasive sphygmomanometers - Part 4: Test procedures to determine the overall system accuracy of automated non-invasive sphygmomanometers.
- ISO 81060-2:2013 standard relating to non-Invasive sphygmomanometers - Part 2: Clinical validation of automated measurement type.
- IEC 80601-2-30:2009+A1:2013 standard relating to medical electrical equipment - Part 2-30: Particular requirements for the basic safety and essential performance of automated type non-invasive sphygmomanometers.

Indication for Use

This device is for use by medical professional or home users. It is intended to measure the systolic and diastolic blood pressure of an adult individual by using a non-invasive technique, in which an inflatable cuff is wrapped around the upper arm.

SAFETY NOTES

WARNING	WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.
CAUTION	CAUTION indicates a hazardous situation which, if not avoided, may result in minor or moderate injury.

WARNING

- Consult your physician before starting to measure your blood pressure.
- Like any oscillometric blood pressure measurement devices, certain medical conditions can affect the measurement accuracy, among others:
  - Disorder of the cardiac rhythm
  - Very low blood pressure
  - Very low blood perfusion
  - Patients in shock
  - Diabetes
  - Vessel anomalies
  - People with electrical implants such as a cardiac pacemaker
  - Women who are pregnant
  - Patient who are pre-eclamptic
  - Patient motion during measurement

  Due to their condition the oscillometric measurement method can produce incorrect readings. This represents a risk for your health, since values may be interpreted incorrectly. Always consult your physician to determine what will be suitable for you.
- This product does not and is not intended to provide a medical diagnosis. Measurement results are for reference only. Self-diagnosis and treatment, e.g. regarding medication, using measured results represents a risk for your health. Always consult with a licensed physician for determination of appropriate medication and dosage thereof. Follow the instructions of your physician or licensed healthcare provider.

SAFETY NOTES

- Please note that technically related measuring tolerances are possible. Please see the section “TECHNICAL SPECIFICATION”.
- Any cuff related blood pressure measurement in high repetition rates, can lead to severe measurement side effects, e.g.
  - A nerve compression with temporary wrist/ hand paralysis
  - The release of an arterial or venous thrombus, which can cause a life threatening situation.

  Please contact your physician about the specific risks of cuff pressure in your specific case.
- The “irregular heartbeat” function does not replace a cardiac examination, but may help to detect potential heart rate irregularities at an early stage. Always consult your physician to determine what will be suitable for you.
- The “irregular heartbeat” function is not designed for diagnosing or treating an arrhythmic disorder. Arrhythmia can only be ascertained by a licensed physician.
- The “WHO BLOOD PRESSURE CLASSIFICATION” chart is not intended to replace a medical diagnosis. This chart is only for reference for different classifications of blood pressure.
- If you notice abnormal or suspicious variations in blood pressure measurements, consult your physician immediately.
- Women who underwent a breast or axillaries lymph node removal operation should consult a physician or licensed healthcare provider before starting blood pressure measurements.
- This device must be used in accordance to the specified ambient conditions, otherwise the accuracy of readings might be affected. See “TECHNICAL SPECIFICATION” for details.
- Do not wrap the cuff around body parts other than your upper left arm. Misuse represents a risk to your health.
- This product is not intended for use by or on children, toddlers and infants or on persons who cannot express their consent, e.g. persons with mental disorders or the like. Consult your physician for alternative methods of measuring a child’s blood pressure.
- Packaging materials are a deadly hazard for children and can cause suffocation. Remove all packaging materials immediately and keep them away from children at all times.
- This product contains small parts that may present a choking hazard to children. Keep the unit and all parts out of reach of children.

SAFETY NOTES

- Proper cuff size is important for accurate measurements. Only use the device on adults who have the right upper arm circumference for this unit. See “TECHNICAL SPECIFICATION” for suitable arm circumferences.
- Electromagnetic interference: Avoid strong electrical or electromagnetic fields in the direct vicinity of the device (e.g. mobile phones, microwave ovens) while it is in operation, an inaccurate measurements may result. To prevent such interference, use the unit at a sufficient distance from such devices or turn the disturbances off.
- Batteries should not be charged or reactivated by any other means. The batteries may explode.
- Take extra precaution to keep a leaking battery away from fire as there is a risk of ignition or explosion.
- In case battery fluid leaks and come into contact with your eyes or skin, do not rub and immediately rinse with plenty of clean water and seek medical advice.
- Do not use the equipment where flammable gas (e.g. anaesthetics gas, oxygen or hydrogen) or flammable liquid (e.g. alcohol) are present.
- Do not use any cuffs and accessories other than those explicitly recommended by the manufacturer for use with this product. Cuffs and accessories not approved for use with this device may cause damage to your health and to the product.
- The tubing presents a strangulation hazard. Keep this product away from children and those who require close supervision, e.g. people with mental disorders.
- Do not drape tube around neck. This presents a strangulation hazard.
- Do not use the device during patient transport outside home use environment for interference source existing as well.
- If it is used in the environment or status of the movement (such as in the process of transportation, in the moving car, ambulance or helicopter, or in the process of running, fitness, etc.), it may lead to a measurement error.
- Please operate, transport and store this device in the environment noted in this manual. Otherwise inaccurate measurement results will be obtained.

SAFETY NOTES

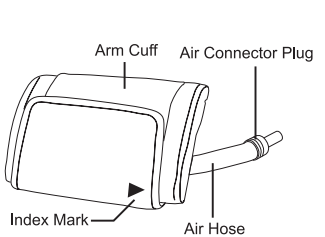
CAUTION

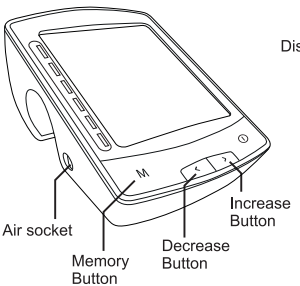
- This device should not be used when your arm has been wounded/ injured or when a catheter has been inserted. Such use may result in injury.
- Remove any kind of arm jewellery or the like before taking a measurement. This could cause bruises.
- Do not place the arm cuff over heavy clothing (e.g. a jacket or sweater sleeve) as the blood pressure monitor will not be able to take a proper measurement and there is an elevated danger of acquiring hematoma or skin marks during the course of the measurement.
- In case the cuff does not stop inflating, interrupt the measurement by pressing the ON/OFF button and open the cuff at once.
- In case battery fluid leaks, do not touch the battery fluid. Avoid skin contact (e.g. put on protective gloves) and clean the battery compartment with dry cloth.
- Do not disassemble the device, it may cause damage to yourself and to the product. If you cannot fix the problem using the “TROUBLESHOOTING” instructions, request service from your dealer.
- When applying the cuff, make sure there are no wrinkles in the cuff as this could cause bruises.
- Blood pressure measurements can lead to temporary marks on the skin at the site of the cuff placement. This is especially the case in high repetition rates, in hypertonic patients and in patients with weak heart rates. In rare cases a mark may persist for couple of days. Please contact your physician about these specific risks of cuff pressure in your specific case.
- Do not exert any kind of pressure on the hose during measurement, e.g. laying your arms or any other object on the hose. This could cause incorrect measurements.

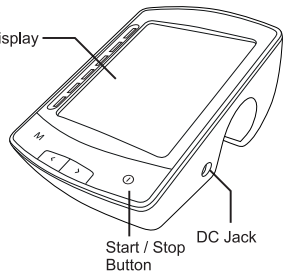
MAINTENANCE AND STORAGE

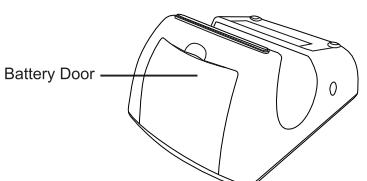
- The blood pressure monitor is constructed by precision electronic components. Accuracy of readings and the instrument's service life depend on careful handling. Protect the unit against hard knocks (e.g. dropping the unit), moisture, water, dirt, dust, chemicals, extreme hot or cold temperatures, major temperature fluctuations, direct exposure to sunlight and heat sources which are too close (e.g. stoves, heating radiators). This may damage the unit. The device must be stored in the specified ambient conditions. Please see section "Technical Specification" for details.
- The device is designed and manufactured for a long service life. However it is generally recommended to have the monitor inspected every 2 years to ensure proper functioning and accuracy. Please contact your dealer for maintenance.
- Never immerse and/or spill water or any other liquid onto the monitor or any components, otherwise liquid may enter it and cause damage.
- Never use rechargeable batteries. This may damage the unit.
- Replace all batteries at the same time and use batteries of the same type. Do not mix old and new batteries.
- Never attempt to repair, open and/or disassemble the unit or adjust it yourself. This may cause damage to the unit and impair functions. If you cannot fix the problem using the "TROUBLESHOOTING" instructions, request service from your dealer.
- Do not drop or insert any object into any openings or hoses. This may damage the unit.
- Do not press the buttons with excessive force or with pointed objects.
- Clean your device and cuff carefully only with a slightly moistened soft cloth and dry it immediately with a soft dry cloth. Do not press.
- Do not use any aggressive solvents, cleaning agents, detergents or any other strong chemicals (e.g. thinner, alcohol, benzene) to clean the device.
- When storing the device, make sure that no heavy objects are placed on top of it.
- Do not fold the cuff and tubing tightly. The cuff tube should not have any sharp kinks and keep it away from sharp edges.
- Leaking batteries may damage the unit. If you do not intend to use the unit for longer periods, remove the batteries from the battery compartment before placing the device in storage.
- Used equipment, parts and batteries are not treated as ordinary household waste, and must be disposed according to applicable local regulations for material disposal. Unlawful disposal may cause environmental pollution.
- Never attempt to repair, open and/or disassemble the unit or adjust it yourself. This may cause damage to the unit and impair functions. If you cannot fix the problem using the "TROUBLESHOOTING" instructions, request servicefrom your dealer

PART IDENTIFICATION









Button Operations

• Go to standby mode

Press ⏻ button.

* The device goes to clock mode if idle for 2 min.

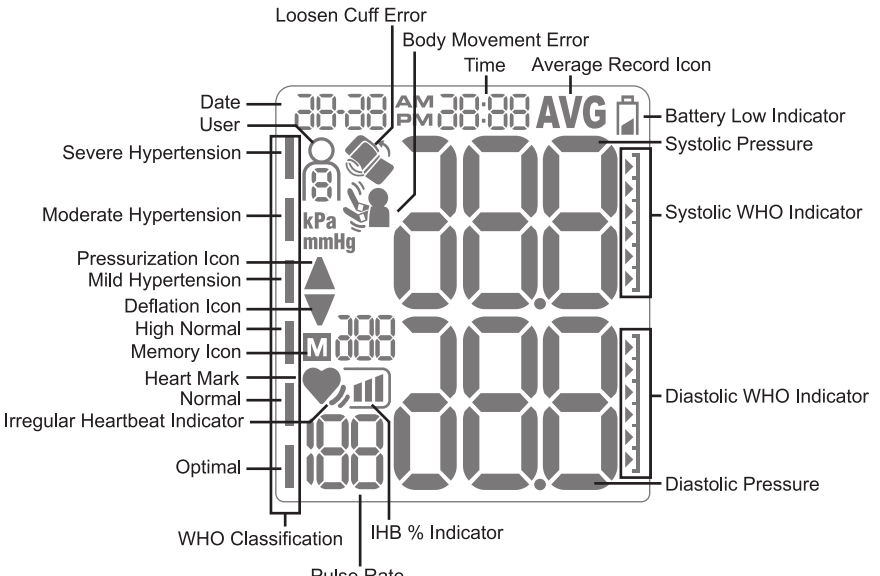
• Recalling average data

Press M button.

• Select between different users
(User 1 / User 2 / User 3 / User 4)

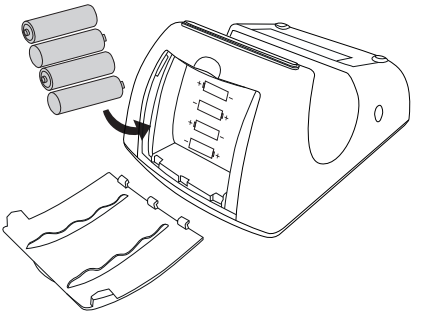
Press [<] or [>] button

DISPLAY READINGS



INSTALL/ CHANGE BATTERIES

1. Push the battery cover located on the bottom side on the unit as shown in the figure.
2. Remove old batteries and insert new ones. Use LR06 or AA alkaline batteries and use batteries of the same type only.
3. Make sure the battery polarities (+) and (-) match the making on the battery compartment.
4. Place back the battery door.

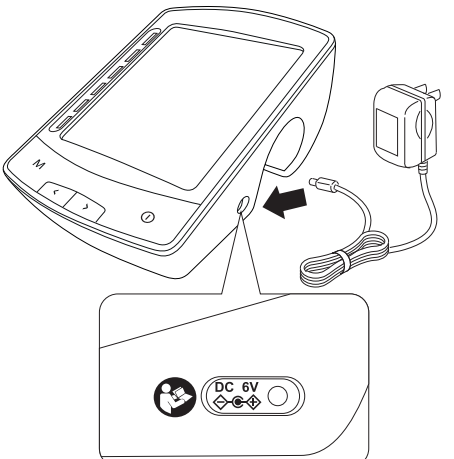


NOTE:

- Insert the batteries as shown in the battery compartment. If not, the device will not work or even be damaged.
- When battery power becomes weak, the [▭] icon and “E6” appear in the display, replace all batteries with new ones. Do not mix old and new batteries.
- Never use rechargeable batteries. This may damage the unit.
- Battery life may vary with ambient temperature and may be shorter at low temperature.

USE OPTIONAL AC ADAPTOR (Accessory item sold separately)

1. Insert the AC adapter cord into the socket on the right side of the device.
2. Insert the AC adapter plug into the outlet.
3. To remove the AC adapter, first disconnect the adapter plug from the AC outlet, then the adapter cord from the device.



NOTE:

- Optional AC adaptor should comply with the requirement of IEC 60601-1 standard.
- Use only the exclusive AC adapter specified by authorized dealers. Other AC adapter may vary in output voltage and polarities and may represent a risk on your life and damaging the device.
- When the AC adapter is in use, the device does not draw power from batteries.

TO SET CLOCK

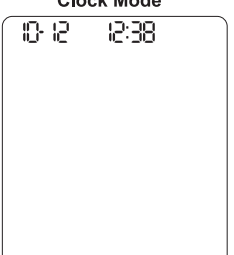
When new batteries are installed

1. “mmHg” will blink on the display.
2. Press [<] or [>] key to select between “mmHg” and “kPa” to set the pressure unit.
3. Press [M] key to confirm and then “YEAR” will start to blink.
4. Press [<] or [>] key to set the current Year.
5. Press [M] key to confirm and then "MONTH" will start to blink.
6. Press [<] or [>] key to set the current Month.
7. Press [M] key to confirm and then "DAY" will start to blink.
8. Press [<] or [>] key to set the current Day.
9. Press [M] key to confirm and then "HOUR" will start to blink.
10. Press [<] or [>] key to set the current Hour.
11. Press [M] key to confirm and then "MINUTE" will start to blink.
12. Press [<] or [>] key to set the current Minute.
13. Press [M] key to confirm. Date and time setting is completed.

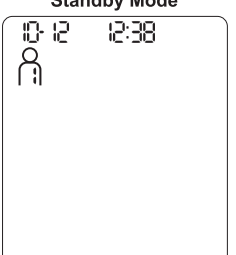
When device is in Clock Mode

1. Press [⏻] or [M] key to Standby Mode.
2. Press and hold [M] key for about 5 seconds until "YEAR" blinks on the display.
3. Follow the same procedure above to set the date and time.

Clock Mode

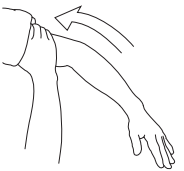


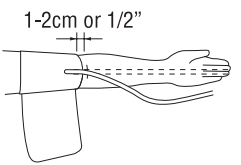
Standby Mode

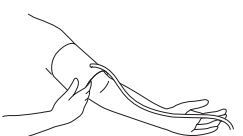


TO APPLY ARM CUFF

1. Pass the end of the cuff furthest from the tubing through the metal ring to form a loop. The smooth cloth should be the inside of the cuff loop.
2. Put your left arm through the cuff loop. The bottom of the cuff should be approximately 1-2 cm above the elbow. The white artery mark on the cuff should lie over the brachial artery on the inside of the arm. The tube should run down the centre of arm and even with the middle finger. Do not place the arm cuff over heavy clothing (e.g. jacket or sweater sleeve) as the blood pressure monitor will not be able to take proper measurement. Blood circulation in the arm should not be restricted by tight clothing or other objects.
3. Pull the cuff so that the top and bottom edges are fitted evenly around your arm.
4. When the cuff is positioned correctly, press the sewn hook material firmly against the pile side of the cuff.
5. Make sure the cuff fits snugly around your arm. The cuff should make good contact with your skin.
6. If the cuff is assembled correctly, the sewn hook material will be on the outside of the cuff loop and the metal ring will not touch your skin.
7. Insert the cuff tubing into the socket on the left side of the unit. Make sure it is inserted firmly in the main unit that there are no kinks in the cuff tubing.

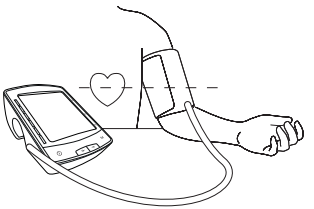






BEFORE MEASURING BLOOD PRESSURE

1. Applying the arm cuff, following the instruction in “TO APPLY ARM CUFF”.
2. Rest at least for 5 minutes before each measurement. Otherwise there may be erroneous results.
3. Sit comfortably on a chair with your feet flat on the floor. Do not cross your feet. Place your left arm on a table so the cuff is level with your heart.
4. Relax your arm and turn your palm upward.
5. Relax, keep still and do not talk during the measurement in order not to distort the result.



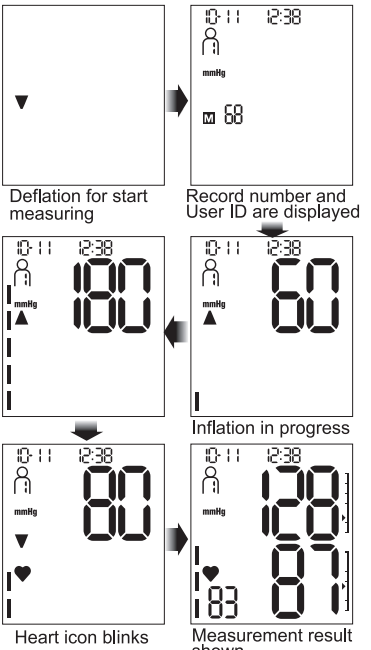
NOTE:

- This instrument is intended for use on and by adult only. Do not use this device on or by children, toddlers and infants.
- For reliable monitoring and reference of blood pressure, it is recommended to do the measurement daily at the same time.
- In order to obtain a resting condition blood pressure, do not take alcoholic and caffeinated beverages, smoke, exercise or bath for at least 30 minutes before taking a measurement.
- To minimize measurement variations due to physical activity, relax for five to ten minutes before taking a measurement. If you are excited by emotional stress or muscular movement, the measurement result may be inaccurate.
- You should not be physically tired or exhausted while taking measurement.
- Perform measurements in a quiet and relaxed environment at room temperature.
- Remain relax, still and do not speak during measurement since the accuracy of any blood pressure measurement with this device can be affected by those multitude of causes.
- Always wait at least 5 minutes between measurements to allow the blood circulation in your arm to return to normal. You may need to increase the waiting time depending on your individual physiological characteristic.
- Should the device detect an abnormal condition, it stops the measurement and will display an error code. See “TROUBLESHOOTING” for more details.
- This device measures blood pressure based on heartbeat. If you have a very weak or an irregular heartbeat, the device may have difficulty in determining your blood pressure. (An irregular heartbeat is defined as a heartbeat that varies by 25% from the average of all heartbeats during measurement.)
- Do not exert any kind of pressure on the air tube during measurement, e.g. laying your arm or any other object on the air tube. This could cause incorrect measurements.

TO MEASURE YOUR BLOOD PRESSURE

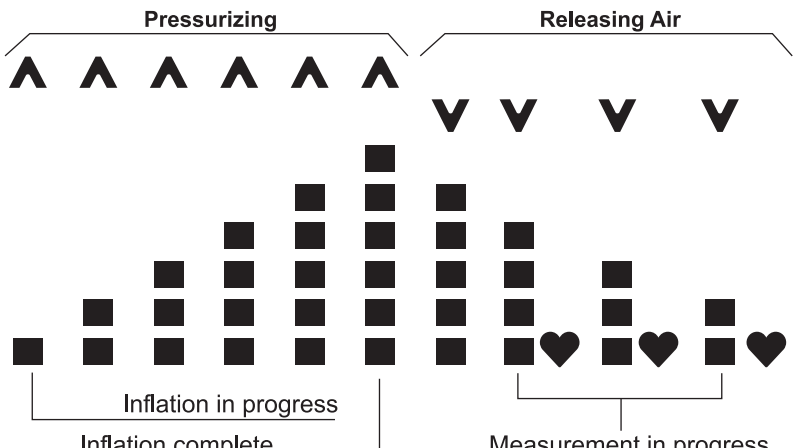
1. Follow the instruction in “BEFORE MEASURING BLOOD PRESSURE” to make yourself ready.
2. Press [⏻] button to turn the device from clock mode to standby mode.
3. Press [<] / [>] to select user memory 1,2,3 or 4. Confirm selection by pressing [⏻] button. Then press [⏻] to start the measurement.
4. The cuff starts to inflate. It is normal for the cuff to feel very tight. A pressure bar indicator is displayed during measurement. See “PRESSURE BAR INDICATOR” for more details.
5. Once the pulse is detected, the [♥] blinks with each pulse beat, indicating that the measurement is in progress.
6. When the measurement is complete, the systolic and diastolic pressure and pulse rate are displayed and stored.

NOTE:
You can stop inflation by pressing [⏻] button at any time.



PRESSURE BAR INDICATOR

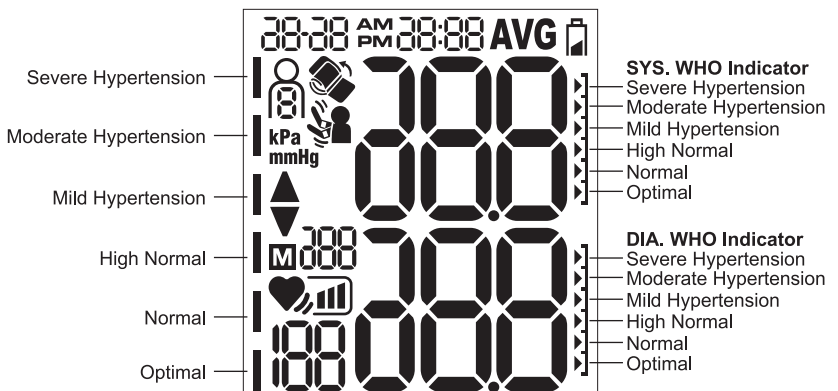
The indicator monitors the progress of pressure during measurement.



WHO CLASSIFICATION INDICATOR

Each of the six segments of the bar indicator corresponds to the WHO blood pressure classification.

WHO Classification Indicator:



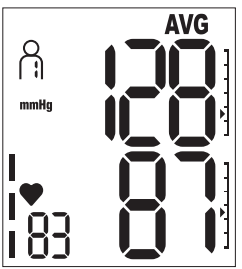
TO RECALL AVERAGE AND PREVIOUS MEASUREMENT DATA

This device has a memory capability to store the measurement readings for each user. Every time you complete the measurement, the device automatically stores the measurement result.

1. Press [M] button in standby mode to enter the memory mode, the average value of all measurements of the selected user will display.
2. Press [>] button to view average data for lastest 7 days AM record (5:00 - 9:00 am).
3. Press [>] button to view average data for lastest 7 days PM record (6:00 - 8:00 pm).
4. Press [>] button to view the lastest measurement record.
5. Continue to press [>] button to view older measurement records.
6. Press [<] button to view previous measurement records.

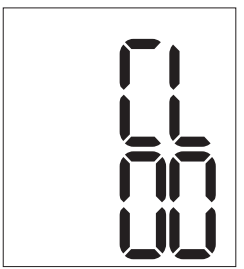
TO DELETE MEASUREMENT DATA

1. Press [M] button simultaneously when the device is showing average or previous measurement data of selected user.
2. Press and hold [<] and [>] for 3 seconds until [CL] and [00] are shown.
3. All measurement data for the selected user will be deleted.



Press [M]

Press and hold
[<] and [>] at
the same time



All memories cleared

WHAT IS AN IRREGULAR HEARTBEAT

This blood pressure monitor provides a blood pressure and pulse rate measurement even when an irregular heartbeat occurs. An irregular heartbeat is defined as a heartbeat that varies by 25% from the average of all heartbeats during the blood pressure measurement. It is important that you are relaxed, remain still and do not talk during measurements.

About IHB % Indication

IHB % Indicator is only enabled when showing average results of the data. (All AVG, AM AVG and PM AVG)

Calculation of IHB %

$$\text{ALL AVG IHB \%} = \frac{\text{Number of detected IHBs in memory}}{\text{Total number of measurements}} \times 100\%$$

$$\text{AM AVG IHB \%} = \frac{\text{Number of detected IHBs in latest 7 days morning}}{\text{Total number of measurements in latest 7 days morning}} \times 100\%$$

$$\text{PM AVG IHB \%} = \frac{\text{Number of detected IHBs in latest 7 days night}}{\text{Total number of measurements in latest 7 days night}} \times 100\%$$

Frequency of IHB

Normal

Irregular Heartbeat Indicator (frequency of IHB 0-24%)

Irregular Heartbeat Indicator (frequency of IHB 25-49%)

Irregular Heartbeat Indicator (frequency of IHB 50-74%)

Irregular Heartbeat Indicator (frequency of IHB 75-100%)

NOTE:

- We recommend you to contact your physician if you see this [ ] indicator frequently.
- The “irregular heartbeat” function does not replace a cardiac examination, but may help to detect potential heart rate irregularities at an early stage. Always consult your physician to determine what will be suitable for you.
- The “irregular heartbeat” function is not designed for diagnosing or treating an arrhythmic disorder. Arrhythmia can only be ascertained by a licensed physician.

ABOUT BLOOD PRESSURE

What Is Blood Pressure?
Blood pressure is the force exerted by blood against the walls of the arteries. Systolic pressure occurs when the heart contracts. Diastolic pressure occurs when the heart expands. Blood pressure is measured in millimeters of mercury (mmHg). One's natural blood pressure is represented by the fundamental pressure, which is measured first thing in the morning while one is still at rest and before eating.

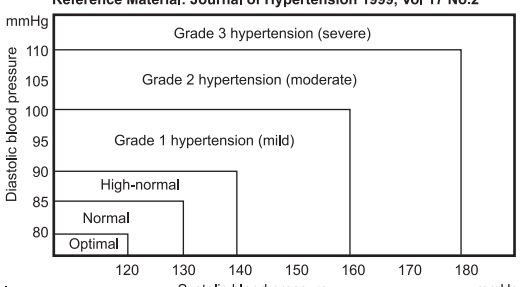
What Is Hypertension And How Is It Controlled?
Hypertension, an abnormally high arterial blood pressure, if left unattended, can cause many health problems including stroke and heart attack. Hypertension can be controlled by altering one's lifestyle, avoiding stress, and with medication under a doctor's supervision. To prevent hypertension or to keep it under control:

- Do not smoke
- Exercise regularly
- Reduce salt and fat intake
- Have regular physical checkups
- Maintain proper weight

Why Measure Blood Pressure At Home?
Blood pressure measured at a clinic or doctor's office may cause apprehension and can produce an elevated reading, 25 to 30 mmHg higher than that measured at home. Home measurement reduces the effects of outside influences on blood pressure readings, supplements the doctor's readings and provides a more accurate, complete blood pressure history.

WHO Blood Pressure Classification
Standards to assess high blood pressure, without regard to age, have been established by the World Health Organization (WHO), as shown in the chart below.

Reference Material: Journal of Hypertension 1999, Vol 17 No.2



TROUBLESHOOTING

Nothing appears in the display, even when the power is turned on	Batteries are drained	Replace all batteries with new ones
	Battery polarities are not in the correct position	Re-install the batteries with their negative and positive ends matching their indicated in the battery compartment
	Loose in plug or contact with outlet (IF AC adaptor is used)	Check the wiring to make sure plug & outlet are properly secured
ERROR code 1 (E1) appears	The cuff position is not correct	Sit comfortably and still. Ensure that the cuff is at the same level as the heart
ERROR code 2 (E2) appears	You moved your arm or body during measurement	Make sure you remain very still and quiet during the measurement
ERROR code 3 (E3) appears	The cuff position is not fastened properly	Fasten the cuff correctly

TROUBLESHOOTING

ERROR code 3 (E3) appears	The cuff may not be applied	Check whether tube connection of the cuff is secured to the unit properly
ERROR code 4 (E4) appears	The unit does not measure	If you have a very weak or irregular heart beat, the device may have difficultly in determining your blood pressure
	There is a measuring Error	Sit comfortably and still. Fasten the cuff again carefully
ERROR code 5 (E5) appears	Cuff over inflated	The measurement range is over 300 mmHg. It is recommended to see the doctor as soon as possible.
ERROR code 6 (E6) appears	Low battery	The battery power is too low to function. Replace the batteries with new ones.
The monitor keeps inflating	Circuit locked	Remove and reinsert the batteries and then proceed to take measurement again.

TECHNICAL SPECIFICATION

Display	: LCD Display
Measurement Range	: Systolic Pressure: 50-250 mmHg ; Diastolic Pressure: 30-200 mmHg Cuff Pressure: 0-300 mmHg ; Pulse : 40-180 beats/minute
Accuracy	: Pressure : +/-3 mmHg Pulse : +/-5% of reading
Resolution	: Pressure : 1 mmHg Pulse : 1 beat / minute
Measurement Method	: Non-invasive, Oscillometric method
Power Source	: 4 x 1.5V AA batteries (battery life 300 times)
Optional AC Adaptor	: Input 100-240V, 50-60 Hz ; Output 6V@600mA (service life 5000 times)
Operating Temperature / Humidity	: +5˚C to +40˚C, 15-90% RH maximum
Storage Temperature / Humidity	: -25˚C to +70˚C, up to 90% RH maximum
Operation, storage and transport atmospheric pressure	: 700hPa to 1060hPa
Outer Dimensions	: Approx. 110 x 154 x 77mm
Arm Circumference	: 22-36cm (Original), 17-22cm (Optional), 35-44cm (Optional), 22-44cm (Optional)
Accessories	: Cuff, User Manual, Storage Pouch, Batteries(Optional), AC Adaptor(Optional)
Classification	: Application part Type BF
Key to symbols	: Application part Type BF : Class II equipment symbol

SYMBOLS

Symbols	Function / Meaning
SN	Serial Number
	Manufacturer
	Type BF: Device, cuff and tubing are designed to provide special protection against electrical shocks.
SYS	Systolic Blood Pressure in mmHg
DIA	Diastolic Blood Pressure in mmHg
PUL	Pulse
	EC Directive Medical Device Label
	Caution
	Authorized Representative in the European Community
	WEEE Label
	Refer to instruction manual / booklet
	Keep dry

NOTICE:
• Operation mode : Continuous
• ⚠ Attention, Consult ACCOMPANYING DOCUMENTS.

Appendix I

Guidance and manufacturer's declaration - electromagnetic emissions	
The Sphygmomanometer (MD5500/MD5510/MD5520/MD5530/MD5540/MD5550/MD5560/MD5570/MD5580/MD5590/MD55A0/MD55B0) is intended for use in the electromagnetic environment specified below. The customer or the user of the Sphygmomanometer (MD5500/MD5510/MD5520/MD5530/MD5540/MD5550/MD5560/MD5570/MD5580/MD5590/MD55A0/MD55B0) should assure that it is used in such an environment.	
Emissions test	Compliance
RF emissions CISPR11	Group 1
RF emissions CISPR11	Class B
Harmonic emissions IEC 61000-3-2	Class A
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Compliance

Appendix II

Guidance and manufacturer's declaration - electromagnetic Immunity

The Sphygmomanometer (MD5500/MD5510/MD5520/MD5530/MD5540/MD5550/MD5560/MD5570/MD5580/MD5590/MD55A0/MD55B0) is intended for use in the electromagnetic environment specified below. The customer or the user of the Sphygmomanometer (MD5500/MD5510/MD5520/MD5530/MD5540/MD5550/MD5560/MD5570/MD5580/MD5590/MD55A0/MD55B0) should assure that it is used in such an environment.

Immunity test	IEC 60601-1-2 Test level	Compliance level
Electrostatic discharge (ESD) IEC 61000-4-2	±8 kV contact ±2 kV, ±4 kV, ±8 kV, ±15 kV air	±8 kV contact ±2 kV, ±4 kV, ±8 kV, ±15 kV air
Electrical fast transient/burst IEC 61000-4-4	Power supply lines: ±2 kV	Power supply lines: ±2 kV
Surge IEC 61000-4-5	line(s) to line(s): ±1 kV 100 kHz repetition frequency	line(s) to line(s): ±1 kV 100 kHz repetition frequency
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	0% 0.5 cycle At 0˚, 45˚, 90˚, 135˚, 180˚, 225˚, 270˚ and 315˚ 0% 1 cycle And 70% 25/30 cycles Single phase: at 0 0% 300 cycle	0% 0.5 cycle At 0˚, 45˚, 90˚, 135˚, 180˚, 225˚, 270˚ and 315˚ 0% 1 cycle And 70% 25/30 cycles Single phase: at 0 0% 300 cycle
Power frequency magnetic field IEC 61000-4-8	30 A/m 50Hz/60Hz	30 A/m 50Hz/60Hz
Conduced RF IEC 61000-4-6	150KHz to 80MHz: 3Vrms 6Vrms (in ISM and amateur radio bands) 80% Am at 1kHz	150KHz to 80MHz: 3Vrms 6Vrms (in ISM and amateur radio bands) 80% Am at 1kHz
Radiated RF IEC 61000-4-3	10 V/m 80 MHz - 2,7 GHz 80% AM at 1 kHz	10 V/m 80 MHz - 2,7 GHz 80% AM at 1 kHz

NOTE U_T is the a.c. mians voltage prior to application of the test level.

Appendix III

Guidance and manufacturer's declaration - electromagnetic Immunity

The Sphygmomanometer (MD5500/MD5510/MD5520/MD5530/MD5540/MD5550/MD5560/MD5570/MD5580/MD5590/MD55A0/MD55B0) is intended for use in the electromagnetic environment specified below. The customer or the user of the Sphygmomanometer (MD5500/MD5510/MD5520/MD5530/MD5540/MD5550/MD5560/MD5570/MD5580/MD5590/MD55A0/MD55B0) should assure that it is used in such an environment.

	Test Frequency (MHz)	Band (MHz)	Service	Modulation	Modulation	Distance (m)	IMMUNITY TEST LEVEL(V/m)
Radiated RF IEC61000-4-3 (Test specifications for ENCLOSURE PORT IMMUNITY to RF wireless communications equipment)	385	380-390	TETRA 400	Pulse modulation 18Hz	1,8	0.3	27
	450	430-470	GMRS 460, FRS 460	FM ± 5 kHz deviation 1 kHz sine	2	0.3	28
	710	704-787	LTE Band 13, 17	Pulse modulation 217 Hz	0,2	0.3	9
	745						
	780						
	810	800-960	GSM 800/900, TETRA 800, iDEN 820, CDMA 850, LTE Band 5	Pulse modulation 18 Hz	2	0.3	28
	870						
	930						
	1720	1700-1990	GSM 1800; CDMA 1900; GSM 1900; DECT; LTE Band 1, 3, 4, 25; UMTS	Pulse modulation 217 Hz	2	0.3	28
	1845						
	1970						
	2450	2400-2570	Bluetooth, WLAN, 802.11 b/g/n, RFID 2450, LTE Band 7	Pulse modulation 217 Hz	2	0.3	28
	5240	5100-5800	WLAN 802.11 a/n	Pulse modulation 217 Hz	0,2	0.3	9
	5500						
	5785						

Appendix IV

Recommended separation distances between
portable and mobile RF communications equipment and the Sphygmomanometer
(MD5500/MD5510/MD5520/MD5530/MD5540/MD5550/MD5560/MD5570/MD5580/MD5590/MD55A0/MD55B0)

The Sphygmomanometer (MD5500/MD5510/MD5520/MD5530/MD5540/MD5550/MD5560/MD5570/MD5580/MD5590/MD55A0/MD55B0) is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the Sphygmomanometer (MD5500/MD5510/MD5520/MD5530/MD5540/MD5550/MD5560/MD5570/MD5580/MD5590/MD55A0/MD55B0) can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the Sphygmomanometer (MMD5500/MD5510/MD5520/MD5530/MD5540/MD5550/MD5560/MD5570/MD5580/MD5590/MD55A0/MD55B0) 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)	
	3 V_{rms}	10 V/m
0.01	0.200	0.060
0.1	0.632	0.190
1	2.000	0.600
10	6.33	1.90
100	20.0	6.00

For transmitters rated at a maximum output power not listed above, the recommended separation distance d in meters (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 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

Appendix V

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced technician for help.

WARNING

- Don't near active HF surgical equipment and the RF shielded room of an ME system for magnetic resonance imaging, where the intensity of EM disturbances is high.
- Use of this equipment adjacent to or stacked with other equipment should be avoided because it could result in improper operation. If such use is necessary, this equipment and the other equipment should be observed to verify that they are operating normally.
- Use of accessories, transducers and cables other than those specified or provided by the manufacturer of this equipment could result in increased electromagnetic emissions or decreased electromagnetic immunity of this equipment and result in improper operation."
- Portable RF communications equipment (including peripherals such as antenna cables and external antennas) should be used no closer than 30 cm (12 inches) to any part of the equipment, including cables specified by the manufacturer. Otherwise, degradation of the performance of this equipment could result.

Symbol for the marking of electrical and electronics devices according to Directive 2002/96/EC.
The device, accessories and the packaging have to be disposed of waste correctly at the end of the usage. Please follow Local Ordinances or Regulations for disposal.

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EC REP

MedNet EC-REP GmbH
Borkstrasse 10, 48163 Munster, Germany

CE 0123 MD

P/N: 83-M5500-SEN00A-R
MADE IN CHINA

If the instruction manual is damaged or if you no longer have the instruction manual in your possession and in case of any complaints or unexpected events, please contact us at: www.grandway.com.hk