



Instruction Manual  
Model: BD245

**PROTOCOL<sup>®</sup>**  
7D MII  
**Blood Pressure Monitor**



Office and manufacturing plant, Church St, Toronto 1934

## Trusted by Canadians for 3 Generations

At BIOS Diagnostics™, we are proud of our legacy in blood pressure monitoring in Canada. From the early 1930's to 1987 we manufactured "Tycos" brand professional blood pressure equipment for doctors and hospitals in Canada.

In the 1970's we pioneered the first blood pressure devices for monitoring at home, and in the 1980's we introduced digital technology in Canada. We haven't been counting, but we know that millions of our home-use monitors have been used by Canadians in the last 30 years.

All BIOS Diagnostics™ devices are developed in collaboration with physicians and clinically tested to prove their measurement accuracy. For more information on clinical tests and other BIOS medical products, visit our website at [www.biosmedical.com](http://www.biosmedical.com).

If you have questions about this device or blood pressure monitoring at home, email us at: [support@biosmedical.com](mailto:support@biosmedical.com)

Or: Call the **BIOS Medical Hotline 1-866-536-2289**

# Blood Pressure Monitor

## Instruction Manual

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## 1. Introduction

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Thank you for purchasing the BIOS Diagnostics™ Protocol 7D<sup>MII</sup> Blood Pressure Monitor. Designed for convenient and easy operation, this device provides a simple, yet accurate method to measure your blood pressure.

Your blood pressure is an important parameter that can be used to monitor your health. This device enables you to monitor your blood pressure regularly, and maintain a record of your blood pressure measurements. You can then use this record to assist your physician in diagnosing and maintaining your healthy blood pressure level.

### 1.1 Features

The blood pressure monitor uses oscillometric technology to measure the arterial blood pressure and pulse rate. The cuff is wrapped around the arm and automatically inflated by the air pump. The sensor in the device detects weak fluctuation of the pressure in the cuff produced by extension and contraction of the artery of the arm in response to each heartbeat. The amplitude of the pressure waves is measured, converted in millimeters of the mercury column, and is shown on the display.

- **Protocol software** is preinstalled in the device and simplifies home measurement procedures recommended by Canadian doctors. Physicians can use the results stored in the tamper-proof log to help diagnose your individual condition.
- **Memory Features** 2 users, 90 blood pressure readings each with time and date.
- **Free BP Toolbox APP** - This monitor will connect via Bluetooth to Android and iOS devices. The BP Toolbox APP enables users to send secure data to physicians for interpretation.
- **BP Assessment Indicator** displays the range between which your blood pressure values lie, according to Hypertension Canada.
- **Detects Irregular Heartbeat**
- **Averaging** - Averages last 3 readings
- **Time and Date**
- **Alarms** - Users can set reminders to take measurements at proper times.

This device is easy to use and has been proven in clinical studies to provide excellent accuracy. Before using the blood pressure monitor, read this instruction manual carefully and keep it in a safe place.

† European Society of Hypertension International Protocol

‡ The blood pressure monitor meets Hypertension Canada's accuracy standard according to the International Protocol for automatic blood pressure devices.

### 1.2 Important Information

Refer to the following sections to learn about important safety instructions and how to take care of the blood pressure monitor.

#### 1.2A Safety Information

- Self-measurement means control, not diagnosis or treatment. Your values must always be discussed with your doctor or a physician who is familiar with your family history.
- If you are undergoing medical treatment and receiving medication, consult your doctor to determine the most appropriate time to measure your blood pressure. Never alter the dosages of any medication without direction from your doctor.

- Your blood pressure depends on several factors, such as age, gender, weight, and physical condition. It also depends on the environment and your state of mind at the time of measurement. In general, your blood pressure is lower when you are asleep and higher when you are active. Your blood pressure may be higher when recorded at a hospital or a clinic and may be lower when measured in the relaxing comfort of your home. Due to these variations, we recommend that you record your blood pressure regularly at home as well as at your doctor's clinic.
- Try to record your blood pressure regularly at the same time of the day and under the same conditions. This will help your physician detect any extreme variations in your blood pressure and thus treat you accordingly.
- Morning Hypertension (> 135 / 85 mm Hg): Recently, several studies have identified elevated cardiovascular risks (heart failure, stroke, angina) associated with "morning hypertension". There is a typical rise in blood pressure during the physiological changes from sleep to arising for the day.
- The ideal time to measure your blood pressure is in the morning just after you wake up, before breakfast and any physical activity, and in the absence of the urge to urinate. If this is not possible, try to take the measurements later in the morning, before you start any physical activity. Relax for a few minutes before you record your blood pressure.
- Your blood pressure increases or decreases under the following circumstances:

Blood pressure is higher than normal:

- When you are excited, nervous, or tense
- While taking a bath
- During and after exercise or strenuous physical activity
- When it is cold
- Within one hour after meals
- After drinking tea, coffee, or other caffeinated drinks
- After smoking tobacco
- When your bladder is full

Blood pressure is lower than normal:

- After consuming alcohol
- After taking a bath

- The pulse display is not suitable for checking the frequency of heart pacemakers.
- If you have been *diagnosed* with a severe arrhythmia or irregular heartbeat, vascular constriction, liver disorders, or diabetes, have a cardiac pacemaker, or are pregnant, measurements made with this instrument should only be evaluated after consultation with your doctor.
- Take care while handling the batteries in the device. Incorrect usage may cause battery fluid leakage. To prevent such accidents, refer to the following instructions:
  - Insert batteries with the correct polarity
  - Turn off power after use. Remove and store the batteries if you are not planning to use the device for an extended period of time
  - **Do not** mix different types, brands, or size of batteries. This may cause damage to the product
  - **Do not** mix old and new batteries
  - Remove batteries and dispose of them according to the proper regulations in your area
  - **Do not** disassemble batteries or expose them to heat or fire
  - **Do not** short-circuit the batteries
  - **Do not** use rechargeable batteries

## 1.2B Care of the Device

For prolonged life of your blood pressure monitor, note the following instructions:

- **Do not** drop or bang the unit. Prevent sudden jerks, jars, or shocks to the device to prevent damage.
- **Do not** insert any foreign objects in any device openings or vents.
- **Do not** disassemble the unit.
- If the unit has been stored at very low or freezing temperatures, allow to reach room temperature before using it.
- **Do not** store the unit in direct sunlight, high humidity, or in places with a lot of dust.
- Clean the device with a soft dry cloth. **Do not use** gasoline, thinner or similar solvents. Carefully remove spots on the cuff with a damp cloth and soap. **Do not** wash the cuff.

## 1.3 About Blood Pressure

Your blood pressure level is determined in the circulatory centre of your brain. Your nervous system allows your body to adapt or alter blood pressure in response to different situations. Your body alters your pulse or heart rate and the width of blood vessels through changes in muscles in the walls of blood vessels.

Your blood pressure reading is highest when your heart pumps or ejects blood. This stage is called your **systolic blood pressure**.

Your blood pressure is lowest when the heart rests (in-between beats). This is called your **diastolic blood pressure**.

It is critical to maintain blood pressure values within a “normal” range in order to prevent cardiovascular diseases. Increased blood pressure values (various forms of hypertension) have associated long and medium term health risks. These risks concern the arterial blood vessels of your body, which are endangered due to constriction caused by deposits in the vessel walls (arteriosclerosis). A deficient supply of blood to important organs (heart, brain, muscles) can be the result. Furthermore, with long-term increased blood pressure values, the heart will become structurally damaged.

There are many different causes of the appearance of high blood pressure. We differentiate between common primary (essential) hypertension, and secondary hypertension. The latter group can be ascribed to specific organic malfunctions. Please consult your doctor for information about the possible origins of your own increased blood pressure values.

## 1.4 Normal Blood Pressure Values

Blood pressure is too high when, at rest, the diastolic pressure is above 85 mmHg or the systolic blood pressure is over 135 mmHg (140 mmHg/ 90 mmHg when taken in medical office).

If you obtain readings in this range, consult your doctor immediately. High blood pressure values over time can damage blood vessels, vital organs such as the kidney, and your heart.

Should the systolic blood pressure values lie between 135 mmHg and 160 mmHg or the diastolic blood pressure values lie between 85 mmHg and 95 mmHg, consult your doctor. Regular self-checks will be necessary.

With blood pressure values that are too low (i.e., systolic values under 105 mmHg or diastolic values under 60 mmHg), consult with your doctor.

Even with normal blood pressure values, a regular self-check with your blood pressure monitor is recommended. This way you can detect possible changes in your values early and react appropriately.

Refer to the following table for classifying blood pressure values (units: mmHg) according to the Canadian Heart and Stroke Foundation:

Category	Systolic Blood Pressure		Diastolic Blood Pressure
Optimal	< 120	and / or	< 80
Normal	< 130	and / or	< 85
High Normal	130 - 139	and / or	85 - 89
Grade 1: Mild Hypertension (Measured in office)	140 - 159	and / or	90 - 99
Grade 1: Mild Hypertension (Measure at home)	$\geq 135$		$\geq 85$
Grade 2: Moderate Hypertension (Measured in office)	160 - 179	and / or	100 - 109
Grade 3: Severe Hypertension	> 180	and / or	< 110

**Important for Canadians: Hypertension Canada recommends that patients with average measurements of  $\geq 135$  mmHg (systolic) or  $\geq 85$  mmHg (diastolic) at home be considered hypertensive. Should your average readings be in this range, consult your physician. For further information, see our website [www.biosmedical.com](http://www.biosmedical.com).**

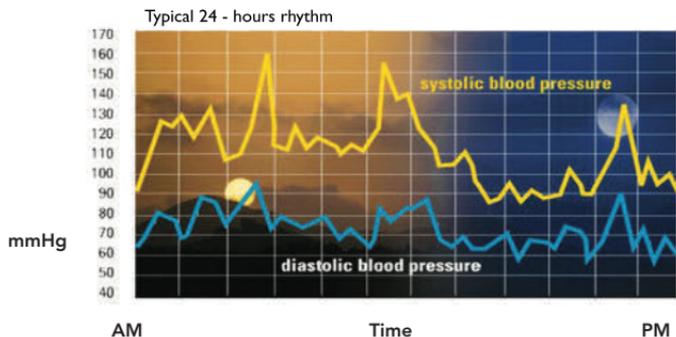
If your values are mostly “normal” under resting conditions but exceptionally high under conditions of physical or psychological stress, it is possible that you are suffering from so-called “labile hypertension”. In any case, please discuss the values with your doctor.

Correctly measured diastolic blood-pressure values above 120 mmHg require immediate medical treatment.

## 1.5 Common Blood Pressure Questions and Answers

### a) Why is my blood pressure reading always different?

Your blood pressure changes constantly. It is quite normal for blood pressure to fluctuate significantly (50 mmHg to 60 mmHg) throughout the day. Blood pressure is normally lowest at night, but increases during waking hours when the stress and activities of everyday life are highest.



Your blood pressure also increases and decreases under the following circumstances

**Blood pressure is higher than normal:**

- When you are excited, nervous, or tense
- While taking a bath
- During and after exercise or strenuous physical activity
- When it is cold
- Within one hour after meals
- After drinking tea, coffee, or other caffeinated drinks
- After smoking tobacco
- When your bladder is full

**Blood pressure is lower than normal:**

- After consuming alcohol
- After taking a bath

**b) Why is the doctor's reading different from the reading taken at home?**

Your blood pressure can vary due to the environment (temperature, nervous condition). When measuring blood pressure at the doctor's office, it is possible for blood pressure to increase due to anxiety and tension.

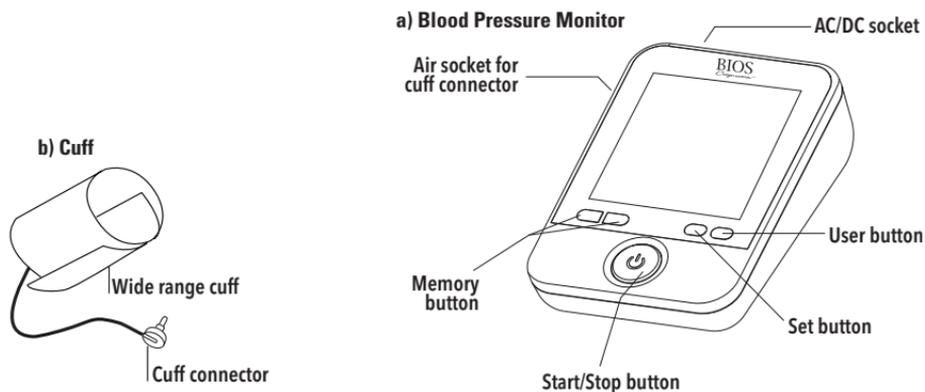
**c) Why should I monitor blood pressure at home?**

One or two readings will not provide a true indication of your normal blood pressure. It is important to take regular, daily measurements and to keep records over a period of time. This information can be used to assist your physician in diagnosing and preventing potential health problems.

## 2. Getting Started

### 2.1 About the Blood Pressure Monitor

This section describes the various components of the Blood Pressure Monitor.



#### Upper Arm Cuff:

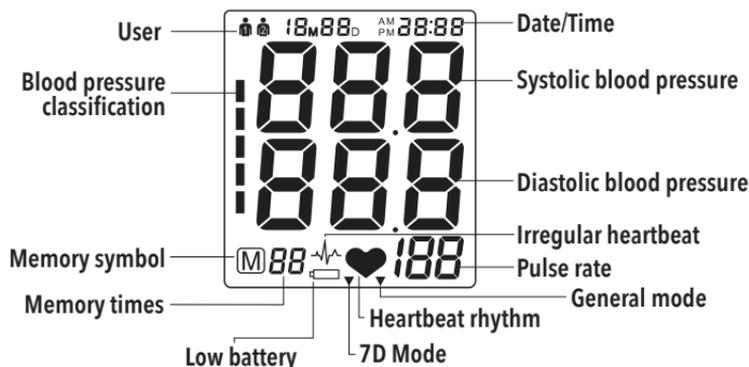
Wide range cuff for arm circumference 24 - 43 cm or 9.4" - 17".

#### Cuff connection:

Insert the cuff connector into the opening provided on the left side of the monitor as shown in the diagram.

### 2.2 About the LCD Screen

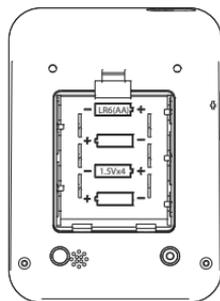
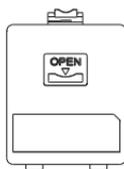
The LCD screen displays the systolic and diastolic blood pressure measurements along with your heart rate. It also displays previously recorded measurements and the date and time, when the appropriate button is pressed.



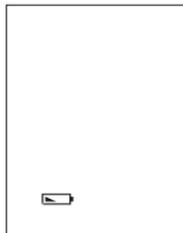
### 2.3 Inserting the Batteries

Follow these steps to insert four "AA" batteries in to the device.

1. Open the battery compartment cover in the direction shown.
2. Insert four "AA" batteries with the correct polarity as indicated.
3. Replace the battery compartment cover.



### Attention!

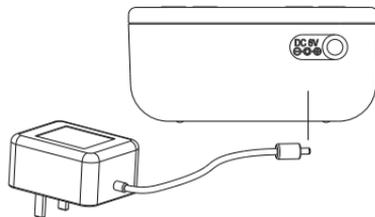


- After the battery warning appears, the device is blocked until the batteries have been replaced.
- Please use "AA" Long-Life or Alkaline 1.5V batteries.
- If the blood pressure monitor is left unused for long periods, please remove the batteries from the device.
- Do not mix old and new batteries. Do not mix alkaline, standard (carbon-zinc) or rechargeable batteries.

### 2.4 Using the AC/DC Power Adapter

You may also operate this monitor using the included AC/DC adapter. Use only the included adapter to avoid damaging the unit.

1. Ensure that the AC/DC adapter and cable are not damaged.
2. Plug the adapter cable into the AC/DC adapter port on the top of the blood pressure monitor.
3. Plug the adapter into your electrical outlet. When the adapter is connected, no battery current is consumed.



## 3. Using the Device

This section describes how to get the maximum benefit from your blood pressure monitor. Follow the instructions carefully to get an accurate measurement of your blood pressure and pulse rate.

Note: Setting the user, year, month, date and time is one sequential process

### 3.1 Select the User

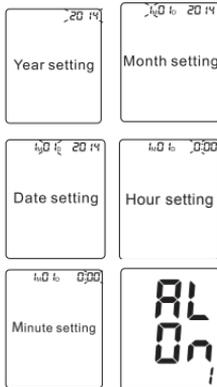
1. Start with the monitor OFF, but with batteries or adapter inserted.
2. Press the  /  button to switch between User 1 and User 2.
3. Press **START/STOP** button to confirm. The monitor will power off.

**NOTE: Press the START/STOP button to turn the monitor ON or OFF**



### 3.2 Setting the Time, Date and Year

1. When the monitor is powered OFF, press the **SET** button 3 times, the YEAR will flash. Use the "+" or "-" button to choose the year and press **SET** to store in the memory.
2. Repeat the same process to set the MONTH by using the "+" or "-" button. Press the **SET** button to store it in the memory.
3. The same process is repeated to set the DATE. The date will flash and can be changed with the "+" or "-" button. Afterwards, HOURS will begin to flash.
4. TIME; hours, and then minutes can be set following the same procedure by using the "+" or "-" buttons.
5. Next "AL OFF!" will flash, press the "+" or "-" buttons to switch between the alarm being OFF or ON. To set the alarm, select "AL ON!" and press the **SET** button. The HOURS will begin to flash, press "+" or "-" buttons to change the HOUR digits. Press the **SET** button to confirm.
6. Next the MINUTE digits will flash, follow the steps above to set the digits. Once Alarm 1 is set you can also set Alarm 2 following the same steps. (See section 3.12)
7. After the minutes have been set, "CL" will appear on the display. Press the **SET** button to disregard. See section 3.10 to clear the memory.



**NOTE: In order to change any setting you must repeat the process and confirm each setting by pushing the SET button.**

### 3.3 Obtaining Accurate Measurements

Your blood pressure can vary based on numerous factors, physiological conditions, and your surroundings. Follow these guidelines to obtain accurate and error-free measurements of your blood pressure and pulse rate.

#### 3.3A Before Measuring

- Avoid eating, smoking as well as all forms of exertion directly before the measurement. All these factors influence the measurement result. Relax by sitting in an armchair or at a table in a quiet atmosphere for about 5 minutes before the measurement.
- Always take measurements on the same arm (normally left) and in the same posture. Do not switch between right and left arms while recording your blood pressure as there may be a difference of up to 10mmHg pressure between the two arms.
- Attempt to carry out the measurements regularly at the same time of day, since blood pressure changes during the course of the day. The ideal time to measure your blood pressure is in the morning after you wake up, before breakfast and physical activity, and in the absence of the urge to urinate.
- Rest for 5 minutes sitting quietly and release all the tension in your body, especially the arm muscles, before beginning with the measurement. Remain calm and quiet when the measurement is in process. Do not speak or move your arm (as well as other body) muscles during the process.
- Ideally, you will be sitting at a table with both feet on the floor, and your arm resting on the table with the cuff at heart level.

#### 3.3B Common Sources of Error

All efforts by the patient to support the arm can increase the blood pressure. Make sure you are in a comfortable, relaxed position and do not activate any of the muscles in the measurement arm during the measurement. Use a cushion for support if necessary.

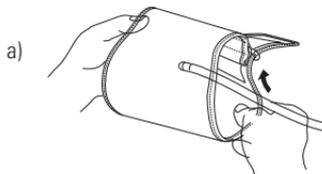
## ATTENTION!

**Comparable blood pressure measurements always require the same conditions with a peaceful and calm environment. Ensure that you take measurements under the same conditions to obtain an accurate estimate of blood pressure variation patterns.**

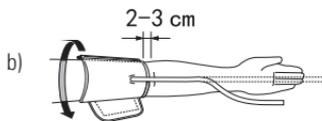
- If the arm artery lies considerably lower or higher than the heart, an erroneous value of blood pressure is measured. Each 15 cm difference in height results in a measurement error of 10 mmHg.
- A loose cuff causes false measurement values.
- With repeated measurements, blood accumulates in the arm, which can lead to false results. Consecutive blood pressure measurements should be repeated after at least a 15 second pause or after the arm has been held up in order to allow the accumulated blood to flow away.

### 3.3C Fitting the Wide Range Cuff

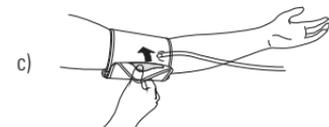
a) Put the end of the cuff (with fastener) through the metal ring, making the cuff a cylinder (ignore this step if your cuff is already set up). Proper assembly allows the Velcro® to match up properly.



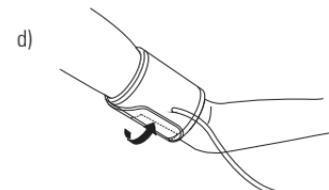
b) Place the cuff around your arm. Make sure the bottom edge of the cuff is about 1" (2-3 cm) above the elbow joint. Adjust the cuff so that the rubber tubing under the cuff lies over the brachial artery, which runs on the inside of the arm (see Fig. B). The red material should be over the brachial artery.



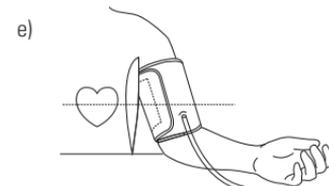
c) Pull the cuff and tighten it by attaching the Velcro® fastener. Normally, the left arm is used, unless there is a physical reason for using the right arm.



d) The cuff should fit snugly around the arm, but not too tight. You should be able to fit two fingers under the cuff.

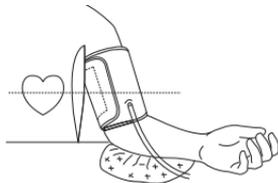


e) Place the arm on the table (palm facing upwards) so that the cuff is at the same level as the heart. Make sure there is no kink in the hose.



f) You can adjust the level of your arm by putting a cushion under your arm. Ideally the cuff should be at heart level.

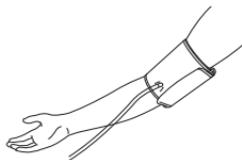
f)



g) Remain seated in a comfortable room temperature for at least 5 minutes, then start the measurement.

h) For those who cannot put the cuff on the left arm, put it on the right arm as shown.

h)



i) Consecutive measurements will cause blood accumulation in the lower arm which will affect the measuring results. To improve reading accuracy, raise the arm being measured, squeeze and relax your hand several times, then take another measurement. Another option is to take the cuff off and wait at least 5 minutes before repeating measurement.

i)



j) If this device was stored in low temperature, it is necessary to leave it in room temperature for at least 1 hour, otherwise the measurement can be inaccurate.

### Comment:

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

Comparable blood pressure measurements always require the same conditions (Relax for several minutes before taking a measurement).

**ATTENTION: Do not use a cuff other than the original cuff contained in this kit!**

### 3.4 Protocol Software (7D Mode)

7D Mode is used in consultation with your physician for assessing white coat hypertension or sustained hypertension, based on a protocol of measurements taken at home. The protocol calls for 2 measurements to be taken in the morning (AM) and 2 measurements in the evening (PM) for 7-days consecutively. The blood pressure monitor will automatically average the measurements according to the protocol and will indicate whether all data was fulfilled, at the proper times. 7D Mode simplifies the process for users and provides physicians with clear data from home measurement.

1. When the monitor is OFF, press the **SET** button, a small triangle will appear above 7D Mode on the monitor. Press the **SET** button to confirm.

**NOTE: Press the "+" or "-" buttons to switch between 7D Mode and General Mode.**

2. Next, select the user. When taking measurements in 7D Mode it is very important to select the correct user. Press the **SET** button to confirm, then press the **START/STOP** button to power the monitor OFF.

▼  
7D mode General mode

Preparation for measurement:

- Rest for 5 minutes before taking a measurement
- Sit at a table with your arm supported and legs uncrossed
- Avoid all movement and muscle tension
- Breathe normally and do not speak
- Wait at least 1 minute between consecutive measurements
- AM & PM measurements should be taken 10-12 hours apart

To start your measurement, see section 3.6 Measuring Your Blood Pressure.

Once the Protocol is complete, after the 7 days, you can view your average. See section 3.9B Recalling Memory in 7D Mode.

### **IMPORTANT:**

**It is critical that users follow the measurement protocol carefully to ensure reliable data for diagnosis.**

- 1. Take 2 measurements in the morning (ideally after going to the bathroom and before eating or drinking).**
- 2. Take 2 measurements in the evening approximately 10-12 hours after the morning measurements, and ideally not immediately after the evening meal.**
- 3. Repeat these 4 measurements per day for 7 days consecutively.**

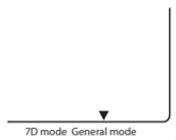
**NOTE 1: Missing measurements will cause ERR to appear on the display. Continue with the sequence of measurements and discuss with your doctor when you review the data.**

**NOTE 2: The machine only recognizes AM and PM readings each day. It does not exclude AM and PM measurements only a few hours apart. Each measurement has a time stamp. Discard any measurements that were not at least 6 hours apart with your doctor.**

### **3.5 General Mode**

In General Mode, a user can take blood pressure measurements outside of the Protocol Software (7D Mode).

1. When the monitor is OFF, press the **SET** button, a small triangle will appear above 7D Mode on the monitor. Press the "+" or "-" buttons to switch between 7D Mode and General Mode. Press **SET** to confirm.
2. Next, select the user. Press **SET** to confirm, then press **START/STOP** button to power off the monitor.
3. To start your measurement, see section 3.6 Measuring Your Blood Pressure.



### **3.6 Measuring Your Blood Pressure**

After the cuff has been appropriately positioned, and the correct mode has been selected, the measurement can begin:

1. Press the **START/STOP** button until all the symbols appear on the screen. Right after "bt" will flash on the screen, see section 3.8 to use the Bluetooth function OR press the **START/STOP** button again to continue with the measurement. You will hear 2 short beeps and after "BT" will flash for 2 seconds. The pump then begins to inflate the cuff. The increasing pressure in the cuff is shown on the display.



- After the suitable pressure has been reached, the pump stops and the cuff gradually deflates. The cuff pressure will then be displayed. In case the initial inflation is not sufficient, the device automatically re-inflates to a high pressure.
- When the device detects a heartbeat, the heart symbol “♥” on the display starts to flash and you can hear a beep for every heartbeat.
- When the measurement has been completed, you will hear a long beep and the systolic, diastolic and pulse rate will appear on the display.
- The measurement readings remain on the display until you switch off the device. If no button is pressed, the device switches itself off in 3 minutes.



**NOTE:** The symbol “♥” will be displayed along with the reading if irregular heartbeat has been detected during the measurement. If the “♥” symbol appears frequently (e.g. several times in a week), it may be an indication of a more serious heart problem, and you should consult your doctor.

### 3.7 Discontinuing a Measurement

To stop the measurement (eg. the patient feels unwell) press the **START/STOP** button. The device will immediately decrease the cuff pressure automatically.

### 3.8 Bluetooth and BP Toolbox APP

The APP will work with the following operating systems:

iOS Support: iPhone 5, iPhone 5s, iPhone 6, iPhone 6p, 6s, 6sP, iOS 7.1 and up, Bluetooth 4.0

Android: System 4.3 and up, Bluetooth 4.0

- To begin using the free **BP Toolbox** APP, download and install it onto your smartphone or tablet.



BP Toolbox

- Turn ON Bluetooth on your device.
- Open the **BP Toolbox** APP. You will need to register and create a password.
- Once in the APP, select Menu ☰ → Settings → Select User. Select User 1 or 2
- Next, scroll down on the Menu to Patient Info and fill out your information and press **SAVE**.
- You can now sync your BP monitor to the APP. On the BP monitor, press the **START/STOP** button, all symbols will appear on the screen, right after “bE” will flash on the monitor. On the APP, go to Settings → scroll down to Bluetooth and press Scan For Devices to connect the BP monitor (**see figures 1-4**). The name of the BP monitor should appear on the screen, select the BP monitor name and press Confirm. The BP monitor and APP should successfully connect.
- If connection is successful, the BP monitor will sync to the APP and the memory from the monitor will download onto the APP.

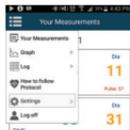


Figure 1

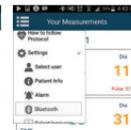


Figure 2



Figure 3



Figure 4

**NOTE:** You should see the memory count down on the BP monitor as its downloading the measurements to the APP. If there are no measurements this will not happen.

8. Once the memory download is complete, you can take your measurement. When the measurement is completed the monitor will sync with the APP automatically.

**NOTE: For more information on the APP and how to use it, visit our website [www.biosmedical.com](http://www.biosmedical.com) or call our BIOS Medical Hotline: 1-866-536-2289**

### 3.9 Memory Recall

This blood pressure monitor automatically stores 90 measurements for each user in its memory. The 90 memories are split between the two modes: 28 memories in 7D Mode and 62 memories in General Mode. The oldest record will be replaced by the latest measurement value when there are more than 90 sets for each user.

#### 3.9A Recalling Memory in General Mode

First select General Mode, then press the “-” button to see the most recent measurement value. Subsequent measurements can be displayed one after the other by continuously pressing the “-” or “+” button.



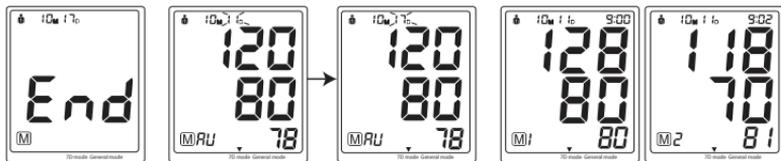
#### 3.9B Recalling Memory in 7D Mode

First select 7D Mode, then press the “+” or “-” button.

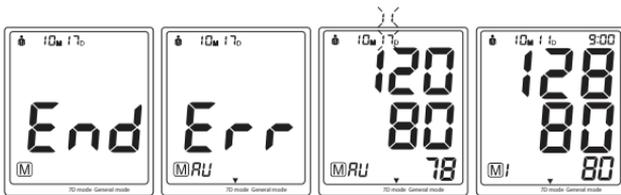
A. If the Protocol was done correctly, the monitor will display “End”, meaning all 28 measurements have been saved in the memory, and then display the Average Measurement as per the Protocol software. In the Average Measurement screen the date will display the second day the Protocol measurements were started and then change to the 7<sup>th</sup> day the Protocol measurements ended.

**For example:** If the first day of measurements are started on October 10th and ends 7 days later on October 17th, the date will appear as 10M11D then change to 10M17D and back and forth. 10M11D will display instead of 10M10D because the Protocol disregards the first day of measurements and averages the last 6 days of measurements. See section 3.4 for more explanation.

Press the “+” or “-” button to display the subsequent measurements.



B. If the Protocol was done incorrectly or if any measurements were missed, the monitor will display “End” then “Err” then the average measurement and then display the subsequent measurements.



Reasons why the Protocol Software is displaying **Err**:

- Not enough measurements have been saved in memory. For the Protocol Software to work there needs to be 28 measurements saved in memory, 4 measurements taken for 7 days.

### 3.10 Clear Measurements From Memory

If you are sure that you want to permanently remove all stored memories, first choose the mode you want to delete the memory from, then press the **SET** button 9 times until “**CL**” appears when the power is off. Press the **START/STOP** button until “**CL**” flashes 3 times to clear the memory. After this, press either the “+” or “-” button, the symbols “**M**” and “**NO**” will appear on the screen. This means that the memory has successfully cleared.

### 3.11 BP Assessment Indicator

The bars on the left hand side of the display show you the range within which the indicated blood pressure values lies. Depending on the height of the bar, the readout value is either within the normal (green), borderline (yellow) or danger (red) range.

The classification is based on standards adopted by Hypertension Canada.

The indicator bar rises according to your measurement.

- If your measurement has only one or two bars, your measurement is in the green zone, or “Normal”.
- If your measurement has three bars, it is in the yellow zone, or “High Normal”.
- If your measurement has four bars, it is in the red zone “High Blood Pressure with Self / Home Monitoring”.
- If your measurement has five bars, it is in the red zone or “Moderate to Severe Hypertension”.

	SYS (mmHg)	DIA
Red	145▲	95▲
Red	135-145	85-95
Yellow	121-134	80-84
Green	110-120	71-80
Green	▼110	▼70

### 3.12 Setting the Alarm

This blood pressure monitor allows you to set two alarm times at which an alarm signal will then be triggered. This can be a useful aid, for instance as a reminder to take your measurements for the Protocol Software (7D Mode) or to remind you to take medication.

1. To set the alarm, while the monitor is OFF, press the **SET** button 8 times, “**RL OFF!**” will flash, press the “+” or “-” buttons to switch between the alarm being OFF or ON. Select “**RL ON!**” and press the **SET** button. The HOURS will begin to flash, press “+” or “-” buttons to change the HOUR digits, press **SET** button to confirm.
2. Next the MINUTE digits will flash, press the “+” or “-” buttons to change the digits, press **SET** to confirm.
3. Once Alarm 1 is set, you can follow the same steps above to set Alarm 2.

#### 4. Error Messages / Malfunctions

If an error occurs during a measurement the LCD displays the corresponding error code.

Error	Possible Cause	Remedy
E-1	Weak signal or a sudden change in pressure	Ensure that the cuff is worn correctly and measure again. Avoid movement or talking when the cuff is being inflated.
E-2	External disturbance (eg. if there is a cell phone near by)	Electromagnetic interference can cause odd behaviour in the monitor. Move away from the source.
E-3	Appears when there is an error during the inflation process	Make sure the cuff is wrapped around the arm properly and that the air plug is properly connected to the unit.
E-5	Abnormal Blood Pressure	Rest for 5 minutes and try measurement again
Err	In 7D Mode - Protocol was not done correctly	Delete all measurements from the memory. Start Protocol again. Take 4 measurements a day (2 in the morning, 2 in the evening) for 7 days straight.
	Low battery	Replace batteries.

If problems occur when using the device the following points should be checked, and if necessary, the corresponding measures should be taken.

Malfunction	Remedy
The display remains blank when the device is switched on.	<ol style="list-style-type: none"><li>1. Check batteries for correct polarity.</li><li>2. If using the AC adapter, ensure it is correctly inserted.</li></ol>
The pressure does not rise even though the pump is running.	Check the connection of the cuff tube and connect properly, if necessary.
The device frequently fails to measure the blood pressure values, or the values measured are too low or too high.	<ol style="list-style-type: none"><li>1. Check the positioning of the cuff and cuff tension. The cuff should be snug but not tight.</li><li>2. Measure the blood pressure again, ensuring that you have remained motionless for a sufficient amount of time to ensure an accurate reading.</li></ol>
Every measurement produces varying results although the instrument functions normally and the values displayed are normal.	Note that blood pressure fluctuates continuously; therefore measurements will show some variability.
Blood pressure values measured differ from those measured by the doctor.	Record the daily development of the values and consult your doctor. <b>Note: Individuals visiting their doctor frequently experience anxiety which can result in a higher blood pressure reading than at home.</b>

**For assistance call the BIOS Medical Hotline: 1-866 -536-2289**

## 5. Care and Maintenance

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- a) Do not expose the device to either extreme temperatures, humidity, dust or direct sunlight.



- b) The cuff contains a sensitive air-tight bubble. Handle this carefully and avoid all types of stress through twisting or buckling.

- c) Clean the device with a soft, dry cloth. Do not use gas, thinners or similar solvents. Spots on the cuff can be removed carefully with a damp cloth and soapsuds. **The cuff with bladder must not be washed in a dishwasher, clothes washer, or submerged in water.**



- d) Handle the tube carefully. Do not pull on it. Do not allow the tubing to kink and keep it away from sharp edges.

- e) Do not drop the monitor or treat it roughly in any way. Avoid strong vibrations.



- f) **Never open the monitor.** This invalidates the manufacturer's warranty.

- g) Batteries and electronic instruments must be disposed of in accordance with the locally applicable regulations, not with domestic waste.



## 6. Lifetime Warranty

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This BIOS Diagnostics™ blood pressure monitor has a Lifetime Warranty to be free of manufacturing defects for the life of the original owner. This warranty does not include the inflation system including the cuff and inflation bladder. The cuff is warranted for 2 years. The warranty does not cover damage from misuse or tampering.

### 100% Satisfaction Guarantee

If at any time, you are not completely satisfied with the performance of this device, call our BIOS Medical Hotline and speak with a customer service person, who will make arrangements to have the device repaired or replaced to your full satisfaction.

If you have questions regarding the operation of your monitor call the

**BIOS Medical Hotline: 1-866-536-2289**

Should repair be necessary, return the unit with all component pieces. Enclose proof of purchase and \$5.00 for return shipping and insurance. Ship the unit **prepaid** and insured (at owners option) to:



16975 LESLIE STREET  
NEWMARKET, ON L3Y 9A1  
MADE IN CHINA / FABRIQUÉ EN CHINE  
WWW.BIOSMEDICAL.COM

Email: support@biosmedical.com

Please include your name, return address, phone number, and email address. Thermor will repair or replace (at Thermor's option) free of charge any parts necessary to correct the defect in material or workmanship.

Please allow 10 days for repair and return shipping.

## 7. Technical Specifications

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<b>Operating temperature:</b>	5 to 40°C / 41 to 104°F
<b>Storage temperature:</b>	-20 to 55°C / -4 to 131°F
<b>Weight:</b>	287 g (not including batteries)
<b>Dimensions:</b>	139 x 100 x 46 mm
<b>Measuring procedure:</b>	Oscillometric during deflation
<b>Measurement range:</b>	0 – 299 mmHg Pulse 40 – 199 beats per minute
<b>Resolution:</b>	1 mmHg
<b>Static accuracy:</b>	Pressure within $\pm 3$ mmHg
<b>Pulse accuracy:</b>	$\pm 5\%$ of the reading
<b>Voltage source:</b>	4 x 6 V Batteries; size AA AC adapter

Technical alterations reserved

Made in China

 Read the instruction manual carefully before using this device, especially the safety instructions, and keep the instruction manual for future use.

 Type BF applied part

 Batteries and electronic devices must be disposed of in accordance with the locally applicable regulations, not with domestic waste.