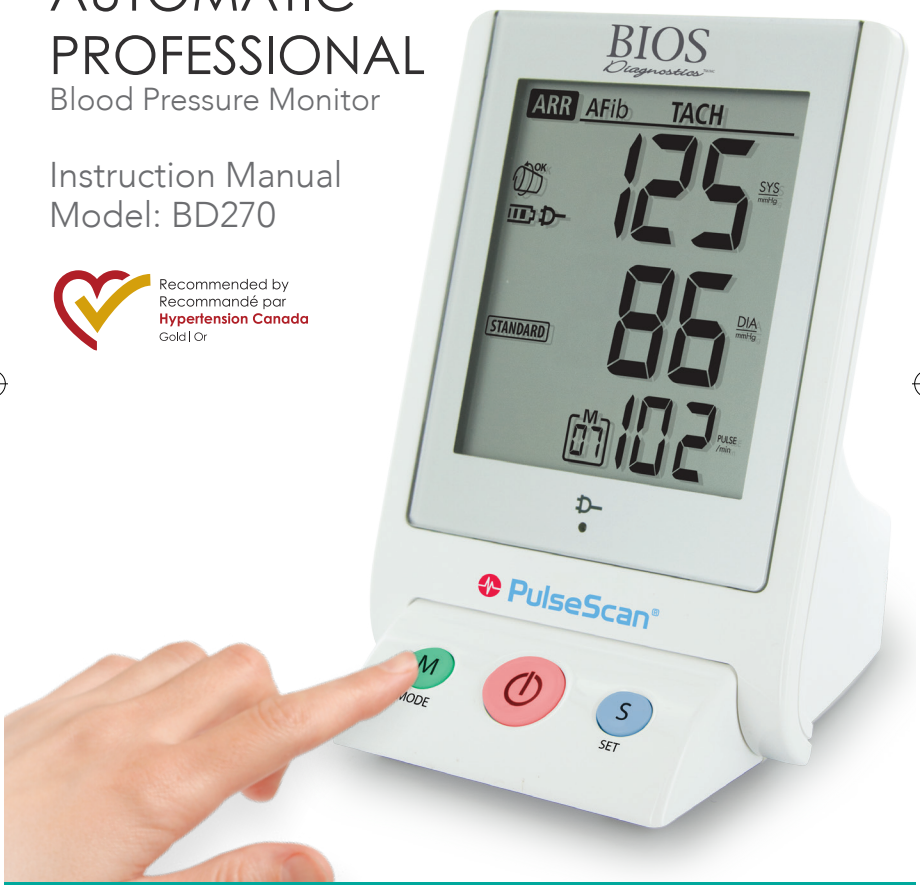
BIOS Diagnostics

AUTOMATIC PROFESSIONAL

Blood Pressure Monitor

Instruction Manual
Model: BD270

Recommended by
Recommandé par
Hypertension Canada
Gold | Or



www.biosmd.com

03.30.23

Mark Beaton accepts the 2017 Hypertension Canada Certificate of Excellence from Angelique Berg, CEO of Hypertension Canada

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.

If you have questions about this device or blood pressure monitoring at home, email us at: **support@biosmedical.com** or **Call the BIOS Medical Hotline 1-866-536-2289.**

Automatic Professional Blood Pressure Monitor
Instruction Manual

Table of Contents

1. Introduction

This manual is a comprehensive guide designed to help you understand the capabilities and operation of the BD270 Blood Pressure Monitor. Before using this blood pressure monitor, read this manual carefully to setup, configure, use, troubleshoot, or maintain the device.

Indications for Use:

This blood pressure monitor (BD270) is intended to measure the systolic/diastolic pressure, and pulse rate of an adult individual by using a non-invasive oscillometric technology. This device is designed to be portable, and used in both home and professional environments for every day blood pressure monitoring.

1.1 Features

The BD270 BPM is a non-invasive, digital, blood pressure measuring device using oscillometric technique and an upper-arm cuff to measure systolic and diastolic blood pressure and pulse rate.

The device detects arrythmia during measurement, including Atrial Fibrillation, Tachycardia, Bradycardia and Premature Contraction, and displays a warning with the reading once the irregular heartbeat is detected.

⚠ 1.2 General Warnings and Cautions

1. The information in this manual is a comprehensive guide to the operation of the BD270. For best results, read this manual thoroughly before using the device.
2. The unit contains high-precision components. Therefore, avoid extreme temperatures, humidity, and direct sunlight or places with a lot of dust.
3. **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 opening or vents.
4. The device is designed for medical clinician use. Only a trained clinician should use this device.
5. Fire and explosion hazard. **Do not** operate the device in the presence of a flammable anesthetic mixture with air, oxygen, or nitrous oxide; in oxygen enriched environments.
6. **Do not** use the device on patients who are connected to heart/lung machines. The device may have difficulty in determining the proper blood pressure for users diagnosed with diabetes, poor circulation of blood, kidney problems, or for users suffered from stroke, or for unconscious users.
7. Before cleaning the device, disconnect the power cord from the power source and the device. Clean the device and the cuff carefully with a slightly damp, soft cloth. **Do not** press. **Do not** wash the cuff or use chemical cleaner on it. Never use thinner, alcohol or petrol as cleaner.
8. There are no user-serviceable parts inside the BD270. You should not use any tool to open the device nor should you attempt to adjust anything inside the device.
9. Defective batteries can damage the device. If the battery shows any signs of damage,

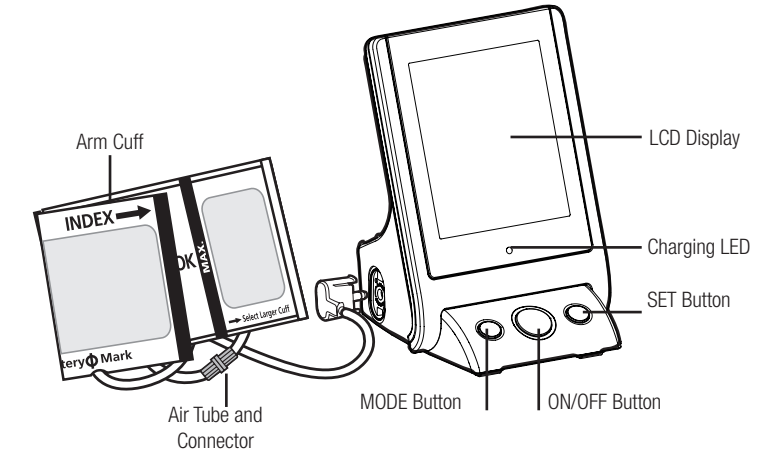
leakage, or cracking, it must be replaced immediately, and only with a battery recommended for or supplied with the device. Remove the battery when the unit is not used for a long period of time.

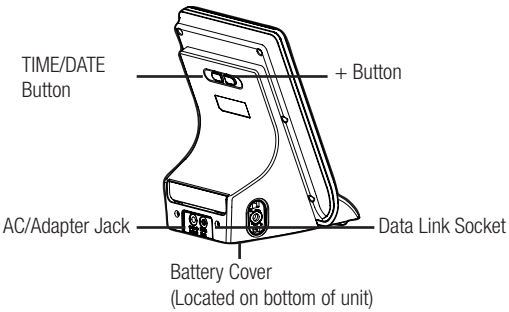
10. Improper disposal of batteries may create an explosion or contamination hazard. Never dispose of batteries in refuse containers. Do not dispose of the battery in fire. Always recycle batteries according to local regulations.
11. Improper handling of the battery can lead to heat generation, smoke, bursting or fire.
12. **Do not** disassemble, modify or solder the battery.
13. For proper patient electrical isolation and battery charging, use only the provided external power supply to charge the device.
14. Electromagnetic interference: The device contains sensitive electronic components. Avoid strong electrical or electromagnetic fields in the direct vicinity of the device. These may lead to temporary impairment of measurement accuracy.
15. This monitor may not meet its performance specification if stored or used outside temperature and humidity ranges specified in this manual.
16. **Do not** use the device if you think it is damaged or if anything appears unusual.
17. Ensure that children do not use this device unsupervised; some parts are small enough to be swallowed.
18. During blood pressure measurement, blood circulation must not be stopped for an unnecessarily long time. If the device malfunctions, remove the cuff from the arm.
19. **Do not** allow sustained pressure in the cuff or frequent measurements. The resulting restriction of the blood flow may cause injury.
20. Avoid any mechanical restriction, compression or bending of the cuff line.
21. Ensure that the cuff is not placed on an arm in which the arteries or veins are undergoing medical treatment.
22. Only use the cuffs provided with the monitor or original replacement cuffs, otherwise erroneous results will be recorded.
23. The position and physiologic condition of the subject can affect a blood pressure reading.
24. The device is not heat-resistant. **Do no**t autoclave.
25. The patient is an intended operator.
26. **Do not** service or maintain device and cuff while in use.
27. **Do not** use the tubing and/or AC adaptor for any other purpose than those specified, as they can cause risk of strangulation.

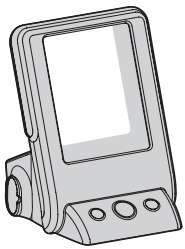
2. Getting Started

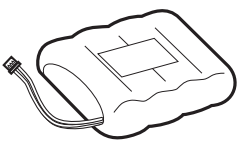
2.1 About the BD270

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

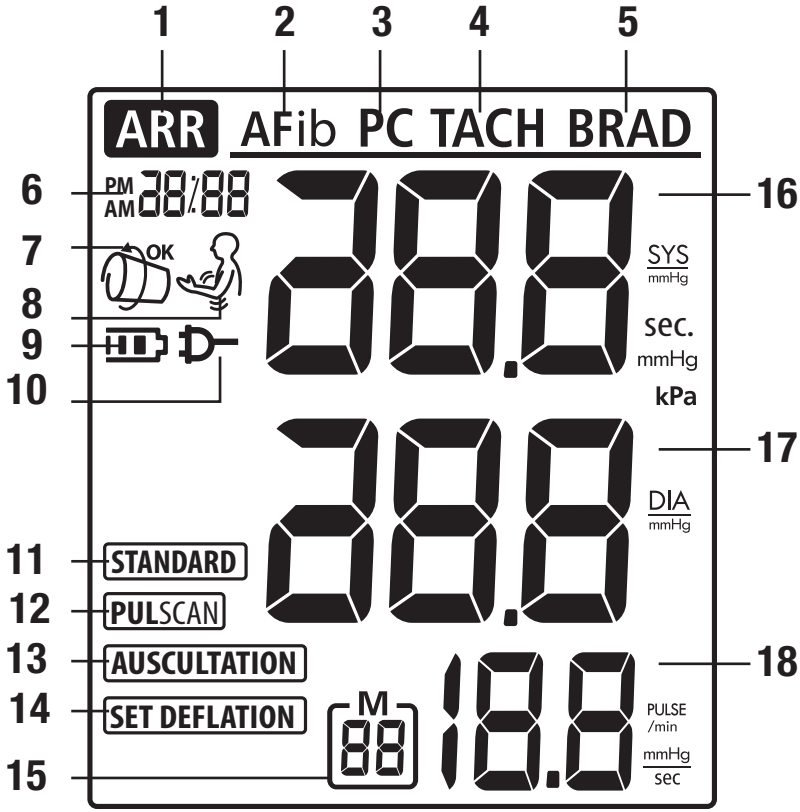





Protection Cover


Battery Pack:
4.8V, 1800mAh
NIMH Battery

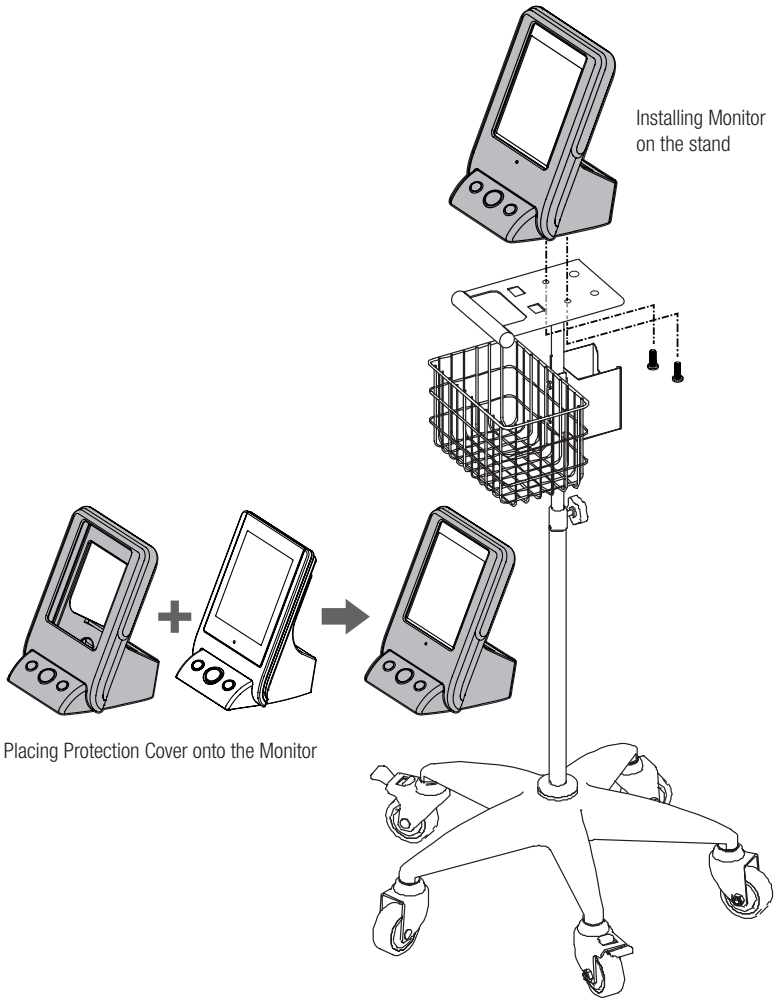
2.2 About the LCD Screen



1. Arrhythmia Detection (ARR)
2. Atrial Fibrillation Detection (AFib)
3. Premature Contraction Detection (PC)
4. Tachycardia Detection (TACH)
5. Bradycardia Detection (BRAD)
6. Time and Date
7. Loose Cuff Detection
8. Movement Detection
9. Battery Charge Icon
10. AC Power Icon
11. Standard Mode
12. Pulsescan Mode
13. Ausculatation Mode
14. Set Deflation Rate
15. Memory
16. Systolic Blood Pressure
17. Diastolic Blood Pressure
18. Pulse Rate

2.3 Monitor Installation - Stand (Optional)

Model number for stand - BD271



Installing Monitor on the stand

Placing Protection Cover onto the Monitor

2.4 PulseScan (Pulse Arrhythmia) Technology

PulseScan (ARR) technology specifically detects the existence of pulse arrhythmia, including Atrial Fibrillation (AFib), Atrial and / or Ventricular Premature Contractions (PC), Tachycardia (TACH), and Bradycardia (BRAD). Pulse Arrhythmia may be related to cardiac disorders, needs medical attention and thus early diagnosis is of paramount importance. The PulseScan technology detects arrhythmia during regular blood pressure checks without any additional user skills, user interaction and measurement prolongation. Beside the blood pressure diagnosis a specific pulse arrhythmia diagnosis is provided with PulseScan.

Note: PulseScan screens for AFib, PC, TACH and BRAD is provided with a clinically proven high detection probability [1]. However, the sensitivity and specificity is limited, thus most, but not all pulse arrhythmia will be detected and displayed. In certain patients with uncommon clinical conditions the PulseScan technology may not be able to detect pulse arrhythmia. This partly comes from the fact that some arrhythmia can only be found with an ECG diagnosis, but not with a pulse diagnosis. Thus PulseScan is not meant to replace any medical ECG diagnosis by your doctor. PulseScan provides an early detection of certain pulse arrhythmia, which inevitably need to be presented to your doctor in charge. Remark: [1] Clinical Investigation of PulseScan - A new Oscillometric Pulse Arrhythmia Type Discriminating Detection Technology

2.5 Atrial Fibrillation Detection (AFib)

The upper chambers of the heart (the atria) do not contract, but quiver and thus blood is driven irregularly and with lower efficiency into the ventricles. Subsequently irregular heartbeats occur, which mostly are associated with a fast, yet highly instable heart rate. This condition is associated with a higher risk for the formation of cardiac blood clots. Amongst others, they may elevate the risk of brain strokes. Beside this Atrial Fibrillation may contribute to the severity of a chronic or acute heart failure condition and may be associated with other heart-related complications. Age dependent, about 10%-20% of patients who suffer from an ischemic stroke also suffer from Atrial Fibrillation.

Atrial Fibrillation most often initially occurs with temporary periods of arrhythmia and may progress to a permanent state of this disorder in the course of time. No matter, whether you intent to safeguard yourself from an undetected AFib state, or you measure during an ongoing period of active Atrial Fibrillation, or you measure in between periods of AFib, the PulseScan technology can be applied at any of these conditions. This unit is able to detect Atrial Fibrillation **AFib**. The **ARR** and **AFib** icons are displayed right after the measurement if Atrial Fibrillation was detected.

Note: It is strongly recommended, that you consult your physician, if either the AFib icon occurs several times, or, if your AFib is known to your doctor, but the incidence of AFib readings changes over time. Your doctor will then be able to provide all required medical test and possible therapeutic procedures.

Note: The presence of a cardiac pacemaker may impair the AFib detection by PulseScan.

2.6 Premature Contraction Detection (PC)

Extra abnormal heartbeats generated in irregular excitation sites of your heart, either in the atria (PAC), the ventricle (PVC) or the cardiac conduction nodes (PNC). These extra beats may disrupt the regular rhythm, they may come in early or cause a significant pause regarding your perceivable pulse. This is called palpitations, which can be felt in your chest. They may occur as isolated, single events, as a series of irregular pulses or can be distributed all over your pulse beats. If they are not related to mental stress, or acute demanding physical load, they may be a marker for a multitude of cardiac disorders. Some of these disorders go along with an elevated risk profile for ischemic events, either in the heart (e,g, coronary heart disease) or outside the heart, e.g. an elevated risk for a stroke. Some PCs may indicate on valvular or myocardial disorders and become very important if a myocarditis (infection of the heart muscle) is suspected. This unit is able to detect premature contractions (**PC**). The **ARR** and **PC** icons are displayed right after the measurement if premature contractions have been detected.

NOTE: It is strongly recommended, that you consult your physician, if either the **PC** icon occurs several times, or, if your **PC** is known to your doctor, but the incidence of **PC** readings changes over time. Your doctor will then be able to provide all required medical test and possible therapeutic procedures.

2.7 Tachycardia Detection (TACH)

A fast heart rate of higher than 100 beats per minute (bpm) in adults. Unless being caused by physical or mental stress, a tachycardia may be an indicator for both cardiac (e.g. Coronary heart disease, valvular disorder), or extra-cardiac disorders (e.g. hyperthyroidism, fever, hypoxemia), as well as medication and stimulant substance side effects (e.g. caffeine). The unit is able to detect Tachycardia (TACH). The **ARR** and **TACH** icons are displayed right after the measurement if tachycardia has been detected.

NOTE: It is strongly recommended, that you consult your physician, if either the **TACH** icon occurs several times, or, if your **TACH** is known to your doctor, but the incidence of **TACH** readings changes over time. Your doctor will then be able to provide all required medical test and possible therapeutic procedures.

2.8 Bradycardia Detection (BRAD)

A slow heart rate of less than 55 beats per minute (bpm) in adults. Unless not genetically determined or subsequent to a high cardiac endurance training adaptation, bradycardia may be related to multitude of cardiac disorders (e.g. valvular heart disease, heart failure) or extracardiac disorders (e.g. hypothyroidism, electrolyte imbalance) or medications (e.g. beta-receptor blocker). This unit is able to detect Bradycardia (BRAD). The **ARR** and **BRAD** icons are displayed right after the measurement if bradycardia was detected.

NOTE: It is strongly recommended, that you consult your physician, if either the **BRAD** icon occurs several times, or, if your **BRAD** is known to your doctor, but the incidence of **BRAD** readings changes over time. Your doctor will then be able to provide all required medical test and possible therapeutic procedures.

2.9 Pulse Arrhythmia Detection (ARR)

Once the occurrence of pulse arrhythmia has been detected in the course of your blood pressure measurement, the icon **ARR** is displayed. In the case, that the found pulse arrhythmia can be specified by the PulseScan technology, the **ARR** icon is accompanied by the specifically detected type of arrhythmia, e.g. PC, AFib, TACH or BRAD. If the kind of found pulse arrhythmia cannot be determined by PulseScan, the device is displaying **ARR** without any additional pulse arrhythmia type icon.

The PulseScan technology is able to detect and display combined pulse arrhythmia findings.

NOTE: It is strongly recommended, that you consult your physician, if either the **ARR** icon occurs several times, or, if your **ARR** is known to your doctor, but the incidence of **ARR** readings changes over time. Your doctor will then be able to provide all required medical test and possible therapeutic procedures.

Display	Results
-	Normal finding
ARR	Pulse Arrhythmia without type-specific detection
ARR PC	Pulse Arrhythmia-Premature ventricular, atrial or nodal beat detection
ARR AFib	Pulse Arrhythmia-Atrial Fibrillation detection
ARR TACH	Tachycardia detection
ARR BRAD	Bradycardia detection
ARR PC BRAD	Combined Pulse Arrhythmia: Premature beats & Bradycardia detection
ARR PC TACH	Combined Pulse Arrhythmia: Premature beats & Tachycardia detection
ARR AFib TACH	Combined Pulse Arrhythmia: Atrial Fibrillation & Tachycardia detection
ARR AFib PC	Combined Pulse Arrhythmia: Atrial Fibrillation & Premature beats detection
ARR AFib PC TACH	Combined Pulse Arrhythmia: Detection of Atrial Fibrillation, Premature Beats and Tachycardia.

2.10 Preliminary Remarks

This Blood Pressure Monitor complies with European regulations. The quality of the device has been verified and conforms to the provisions of the EC council directive 93/42/ EEC (Medical Device Directive), Annex I essential requirements and applied harmonized standards.

EN 1060-1: 1995/A2: 2009 Non-invasive sphygmomanometers - Part 1 - General requirements

ISO 81060-2: 2013 Non-invasive sphygmomanometers - Part 2 -Clinical investigation of automated measurement type

EN 1060-3: 1997/A2: 2009 Non -invasive sphygmomanometers - Part 3 - Supplementary requirements for electro-mechanical blood pressure measuring systems

EN 1060-4: 2004 Non-invasive sphygmomanometers - Part 4: Test Procedures to determine the overall system accuracy of automated non-invasive sphygmomanometers.

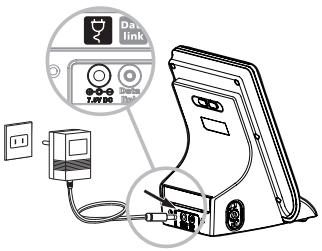
This blood pressure monitor was designed for long service periods. In order to ensure continued accuracy, it's recommended that all digital blood pressure monitors require re-calibration.

3. Initial Setup

3.1 Using the Adapter

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

1. Ensure that the adapter and cable are not damaged.
2. Plug the adapter cable into the adapter port on the blood pressure monitor.
3. Plug the adapter into an outlet. The battery will be recharged as long as the device is attached to an AC power source. After the battery is fully recharged, the charging will stop. No battery power will be used as long as the adapter is plugged in.



⚠ Warning:

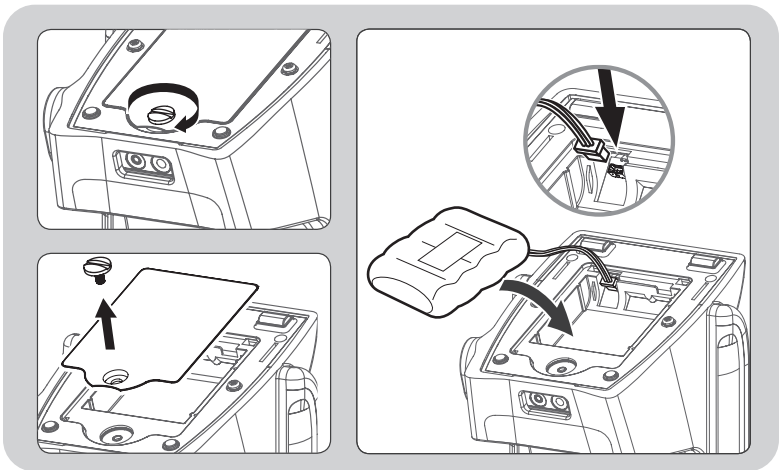
- **Do not** use this unit in places where inflammable gas, such as highly inflammable anesthetic, may be generated or in a high pressure oxygen room or an oxygen tent. It may cause ignition and explosion.
- **Do not** touch the AC adapter with wet hands. You may suffer electric shock.
- **Do not** install or store this unit where it may be sprayed with water or medication. You may suffer electric shock.

3.2 Installation and Replacement of Battery Pack

⚠ Warning:

- If the fluid in the battery gets into your eye, wash the eye with sufficient water without rubbing the eye, then immediately consult the doctor for treatment. There is danger in losing your eyesight.
- **Do not** use the exclusive battery pack other than for this unit.
- **Do not** throw the battery pack into fire, or heat, or disassemble it. It may cause heat, ignition, short-circuit, or rupture.
- **Do not** short-circuit the polarities of the battery pack with a metal object such as a wire.
- If the fluid in the battery is stained on your skin or clothes, immediately wash off the fluid with water. You may suffer injury, or the battery may leak, heat, ignite fire, or explode.

3.2A Using the Rechargeable Battery



1. Remove the screw on the battery cover (Located on the bottom of the unit).
2. **Installation:** Connect the battery pack to the connector in the battery cover to install it.
   Replacement: Disconnect the battery pack from the connector and replace with a new one.
3. Install the battery cover and fasten it with screws. At this time, be careful not to pinch the lead wire.
4. Connect the main unit and the AC adapter, then charge the battery pack. The battery pack is not charged when you purchase the monitor.

Important: When using the battery pack for the first time, charge for more than twelve hours before use.

Battery life:

- You can use the unit for approximately 600 measurements with one charge.
- Approximate life of battery pack is two years. However, the battery pack life from each charge may be shortened depending on the state of use.
- If the unit is not being used for a long period of time, remove the battery

Charging time:

- After connecting the AC adapter, the battery pack will start charging automatically.
- While the battery is being charged, the and battery marks turn on and LED shows orange light.
- When the charging is completed, LED shows green light.

Battery low:

- If a mark is displayed, the battery is low (blood pressure cannot be measured). Please charge the battery.

Full battery Low battery

Automatic Power Off:

- If you use the unit with the battery pack only, the unit will turn off automatically in approximately five minutes even if you forget to turn off the power.
- While the AC adapter is connected, the Auto Power Off function does not work.

3.3 Obtaining Accurate Measurements

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

3.3A Tips on Taking Accurate Measurements


In morning before breakfast, 2 hours after dinner, before taking medication.


Avoid coffee and smoking within the hour, and no exercise 30 minutes before measuring.


Do not speak while taking the measurement.


Sit with legs uncrossed so as not to restrict blood flow.


Ensure that the cuff is level with the heart while the arm is supported on the table.


Empty bladder (if necessary).


Rest quietly for 5 minutes. Remain calm and quiet while the measurement is in process.


Take measurements on the non dominant arm.


Sit with back supported and measurement arm resting on a table. Sit with feet flat on the floor.

3.3B Common Sources of Error

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

ATTENTION!

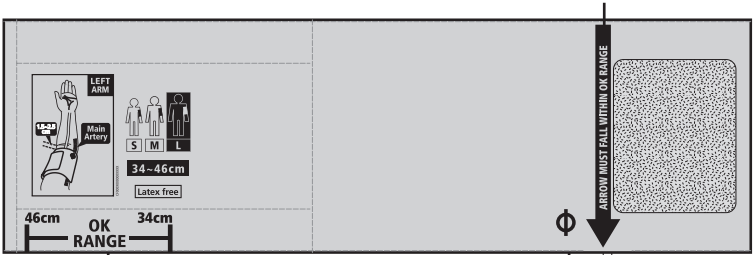
Comparable blood pressure measurements always require the same conditions with a peaceful and calm environment. Ensure that you take measurements under the same conditions to obtain an accurate and reliable readings.

- 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 Cuff

a) Select cuff according to arm size:

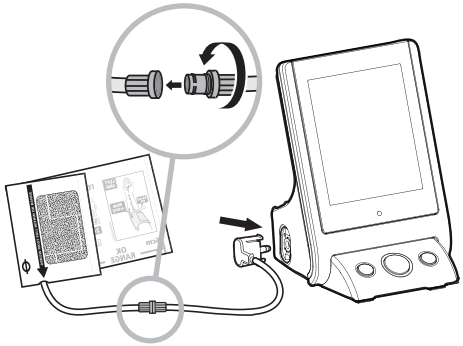
Cuff size	Arm circumference	Results
L size	34 - 46 cm (13.4”-18.1”)	
M size	24 - 36 cm (9.4” - 14.2”)	
S size	16 - 26 cm (6.3” - 10.2”)	



The cuff is suitable for you if the arrow falls within the OK range line. If the arrow falls outside the OK range line, you will need a cuff with another circumference.

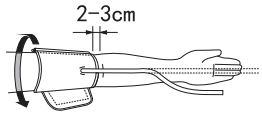
b) Connect the air tube securely.

- Connect the air tube to the main unit by securing the air plug to the base of the air connector.
- Securely connect the air tube and the cuff set by rotating Luer connector.



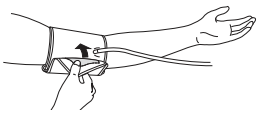
c) Place the cuff around the patients bare arm. Make sure the bottom edge of the cuff is about 1" (2-3 cm) above the elbow joint. Adjust the cuff so that the rubber tubing under the cuff lies over the brachial artery, which runs on the inside of the arm (see Fig. c).

c)



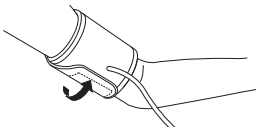
d) Pull the cuff and tighten it by attaching the Velcro® fastener. Measure on the non-dominant arm, unless there is a >10 mmHg difference with the other arm, in which case use the arm with the higher pressure.

d)



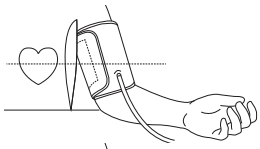
e) The cuff should fit snugly around the arm, but not too tight. You should be able to fit two fingers under the cuff. If the cuff is the wrong size, the deivce will not measure blood pressure accurately.

e)



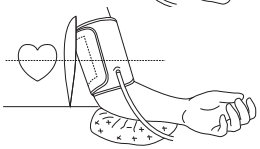
f) Place the arm on the table (palm facing upwards) so that the cuff is at the same level as the heart. Make sure there is no kink in the hose.

f)



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

g)



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

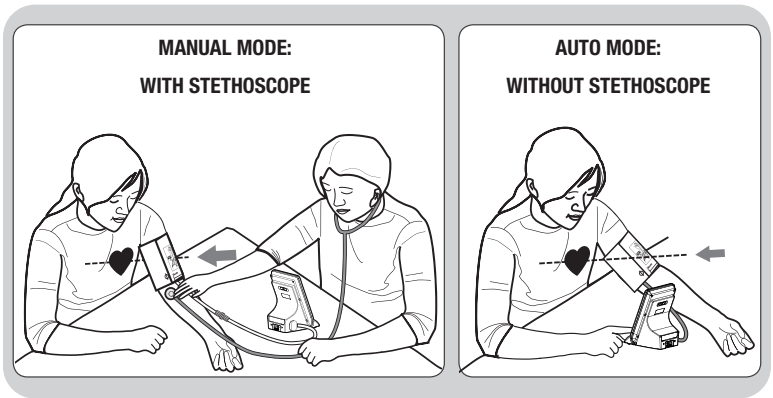
i) If this device was stored in low temperature, it is necessary to leave it in room temperature for at least 1 hour, otherwise the measurement can be inaccurate.

Comment:

Continue to use the same arm for comparisons. It is not unusual for there to be a difference in blood pressure between arms.

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

ATTENTION: Do not use cuffs other than the original cuffs contained in this kit!



4. Using the Device

Follow instructions carefully to get an accurate measurement of your blood pressure and pulse rate.

4.1 Setting the Date and Time

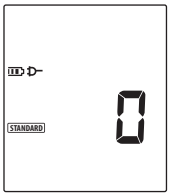
NOTE: Setting the Year/Month/Day/Hour/Minute is one sequential process

- Start with the power off, but with batteries or adapter inserted into the machine.
- Press the **ON/OFF** to turn the monitor on.
- Press and hold the **DATE/TIME** button on the back of the monitor, until the year starts to flash.
- Use the "**+**" button to select the correct year.
- Press the **DATE/TIME** button to confirm and repeat the same process to set the month/day/hour/minute.

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

4.2 Measurement Procedures

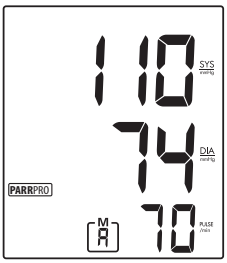
4.2A Standard Mode:



- Start with the power off, but with batteries or adapter inserted into the machine.
- Power on the machine by pressing the **ON/OFF** button. The LCD will show 0 on the screen.
- The default mode is standard mode, STANDARD will appear on the screen.
- If STANDARD is not displayed on the screen, press the **"M" MODE** button until STANDARD is displayed.
- The blood pressure monitor will begin to take your blood pressure measurement
- When the measurement is completed, the cuff will exhaust the rest of the pressure and the measurement will show on the LCD screen.

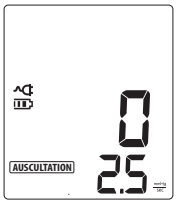
4.2B PulseScan Mode (PULSCAN):

Pulsescan mode takes 3 measurements in succession and calculates the results and displays it as a single average measurement.



- Start with the power off, but with batteries or adapter inserted into the machine.
- Power on the machine by pressing the **ON/OFF** button. The LCD will show 0 on the screen.
- Press the **"M" MODE** button to select the Pulsescan mode. PULSCAN will appear on the LCD screen.
- Press the **"M" MODE** button once to initiate the countdown process. You will see 0 seconds appear on the LCD screen.
- Press the **"S" SET** button to choose the countdown time. The countdown time can be set at 300, 180, 60 or 0 seconds.
- Press the **ON/OFF** button to confirm the countdown procedure. The LCD display will flash the set countdown time 3 times and then countdown will begin, the seconds will disappear off the LCD screen and the mode icon will flash until the countdown is complete.
- Once the countdown is complete the blood pressure machine will begin to take your blood pressure measurement.
- There will be a 30 second resting time in-between each measurement. The unit will countdown from 30 seconds on the LCD screen.
- When the measurement is completed, the cuff will exhaust the rest of the pressure and the single average measurement will show on the LCD screen.

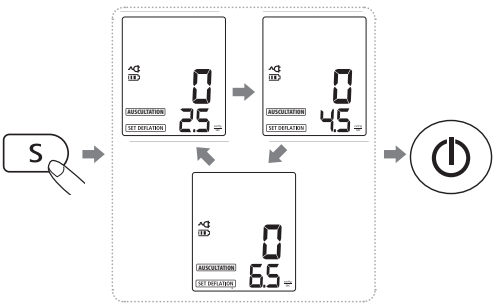
4.2C Auscultation/Manual Mode:



- Start with the power off, but with batteries or adapter inserted into the machine.
- Power on the machine by pressing the **ON/OFF** button. The LCD will show 0 on the screen.
- Press the **"M" MODE** button to select the Auscultation mode. AUSCULTATION and SET DEFLATION will appear on the LCD screen.
- The default setting for the deflation rate is 2.5 mmHg/second. To change the deflation rate see "Setting Deflation Rate".
- Press the **ON/OFF** button to begin the measurement.
- While the unit is deflating, press the **"S" SET** button to record the onset of Korotkoff sound as the systolic pressure and then press the **"S" SET** button again to record the disappearance of the Korotkoff sound as the diastolic pressure.
- When the measurement is completed, the cuff will exhaust the rest of the pressure and the measurement will show on the LCD screen.

4.3 Setting Deflation Rate

In the Auscultation mode, select the deflation rate of 2.5 mmHg/sec, 4.5 mmHg/sec, 6.5 mmHg/sec by pressing the "**S" SET** button.



4.4 Loose Cuff Detection

If the cuff was applied too loosely, it may cause unreliable measurement results or measurements can fail to start. The "Loose Cuff Detection" can help to determine if the cuff is wrapped snugly enough. The specified icon appears once a "loosen cuff" has been detected during the beginning of a measurement. Otherwise the specified icon appears if the cuff is wrapped correctly during the rest of the measurement.

4.5 Movement Detection

The “Movement Detection” helps remind the user to remain still and indicates any adverse body movement during measurement. The specified icon appears once a “body movement” has been detected during and after such a measurement.

Note: It’s highly recommended that you measure again if the  icon appears.

4.6 Memory Recall

This blood pressure monitor automatically stores 7 measurements in Standard Mode only.

- Start with the power off, but with batteries or adapter inserted into monitor.
- Press the **ON/OFF** button to turn the monitor ON. Select the mode you would like to review the memory from by pressing the **“M” MODE** button.
- Once the mode is selected you will need to turn the monitor off by pressing and holding the **ON/OFF** button until the LCD screen goes blank.
  NOTE: You can skip this step if you did not need to change the mode when monitor was originally turned on in step 2.
- Press the **ON/OFF** button again to turn the monitor on.
- Press the **“S” SET** button to enter into the Memory Recall. You will see **M** with a number on the screen.
    - In **Standard Mode** the number underneath the M indicates the stored number of measurements in the memory. For example: “M-7” is 7 stored measurements. You would press the **“S” SET** button to scroll through each reading. The readings are displayed newest to oldest, 7 being the newest reading.
    - In **PulseScan Mode** the M icon will display “M-A” this indicates you are reviewing the average measurement of the 3 consecutive measurements last taken. When you press the **“S” SET** button again, it will then display “M-3” the 3rd measurement taken, press the **“S” SET** button again and it will display “M-2” displaying the 2nd measurement taken, finally when you press the **“S” SET** button again the icon will change to “M-1” displaying the 1st measurement taken in the 3 consecutive readings.
      NOTE: Only 1 set of memory (Average plus the 3 consecutive readings) is saved in PulseScan Mode.
    - In **Auscultation Mode** there are no measurements stored in memory.

4.7 Clearing Values from Memory

When in Memory Recall, press and hold the “**S” SET** for approximately 5 seconds, the memory will be erased automatically.

4.8 How To Clean The Unit After Use

⚠ Caution:

- When cleaning this unit, please unplug the AC adapter from the electric outlet. You may suffer electric shock.

- After cleaning this unit, please dry it well and do not plug the AC adapter into the electric outlet with wet hands. You may suffer electric shock.

General advice:

- Do not clean this unit with gasoline, paint thinner, or high concentration alcohol.
- Do not disinfect this unit by autoclave or gas sterilization (EOG, formaldehyde, or high concentration ozone.)

1. Wipe the blood pressure monitor with a soft cloth squeezed well after moistened with water, diluted disinfectant alcohol, or diluted detergent.
2. Then wipe the monitor with a soft dry cloth.

5. Error Messages and Malfunctions

If any abnormality should arise during use, please check the following points.

Symptoms	Check Points	Correction
No display when the ON/ OFF button is pressed	Have the batteries run down?	Charge the battery pack or replace with a new one
	Has the connector of the battery pack been positioned incorrectly?	Re-insert the connector of the batteries in the correct positions.
EE mark shown on display or the blood pressure value is displayed excessively low (high)	Is the cuff placed correctly?	Wrap the cuff properly so that it is positioned correctly.
	Did the patient talk or move during measurement	Measure again. Keep arm steady during measurement.
	Did the patient vigorously shake the cuff during measurement?	

Note: If the unit still does not work, call the BIOS Medical Hotline. Under no circumstance should you disassemble and repair the unit by yourself.

Error Codes

Symptoms	Symptoms
EE / Measurement Error:	Make sure the L-plug is securely connected to the air socket and calmly measure again. Wrap the cuff correctly around your arm and keep arm steady during measurement.
E1 / Air Circuit Abnormality:	Make sure the L-Plug is securely connected to the air socket on the side of the unit and calmly measure again.

E2 / Pressure Exceeding 300 mmHg:	Switch the unit off and measure again quietly.
E3 / Data Error:	Remove the batteries, wait for 60 seconds, and reload.
Er / Exceeding Measurement Range:	Measure again quietly.

If the errors continue to occur, call the **BIOS Medical Hotline: 1-866-536-2289.**

6. Specifications*

Measurement Method :	Oscillometric
Measurement Range :	Pressure: 30-260mmHg; Pulse: 40-199 beats/ minute
Pressure Sensor :	Semi conductor
Accuracy :	Pressure: ±3mmHg; Pulse : ±5% of reading
Inflation :	Pump Driven
Deflation :	Automatic Pressure Release Valve
Memory capacity :	7 memories (standard mode)
Auto-shut-off :	5 minute after last key operation
Operation Environment :	10°C-40°C (50°F-104°F); 15%-85% RH; 700-1060 hPa
Storage and Transportation Environment :	-10°C-60°C (14°F-140°F); 10%-90% RH; 700-1060 hPa
DC Power Source :	DC 4.8V 1800mAh NIMH Battery
AC Power Source :	DC 7.5V, ≥ 1.5 A(Plug size: outer(-) is Ø3.8, inner(+) is Ø1.35)
Dimensions :	130(L) x 133(W) x 167.5(H) mm
Weight :	600 g (G.W.) (w/o Batteries)
Limited users :	Adult users
Arm circumference :	L: 34-46 cm (13.4”-18.1”); M: 24-36 cm (9.4”-14.2”); S: 16-26 cm (6.3”-10.2”)

	Type BF: Device and cuff are designed to provide special protection against electrical shocks.
IP Classification :	IP21: Protection against harmful ingress of water and particulate matter.
*Specifications are subject to change without notice.	

EMC Guidance and Manufacturer's Declaration

1. This device needs to be installed and put into service in accordance with the information provided in the user manual.
2. **WARNING**: 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 BD270, including cables specified by the manufacturer. Otherwise, degradation of the performance of this device could result.

If higher IMMUNITY TEST LEVELS than those specified in Table 9 are used, the minimum separation distance may be lowered. Lower minimum separation distances shall be calculated using the equation specified in 8.10.

Manufacturer's declaration-electromagnetic emissions		
The BD270 is intended for use in the electromagnetic environment (for home healthcare) specified below. The customer or the user of the BD270 should assure that it is used in such an environment.		
Emission test	Compliance	Electromagnetic environment-guidance (for home healthcare environment)
RF emissions CISPR 11	Group 1	The BD270 uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class B	The BD270 is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations /flicker emissions IEC 61000-3-3	Compliance	

Manufacturer's declaration-electromagnetic immunity			
The BD270 is intended for use in the electromagnetic environment (for home healthcare) specified below. The customer or the user of the BD270 should assure that it is used in such an environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment-guidance (for home healthcare environment)
Electrostatic discharge(ESD) IEC 61000-4-2	Contact:±8 kV Air±2 kV,±4 kV,±8 kV,±15 kV	Contact:±8 kV Air±2 kV,±4 kV,±8 kV,±15 kV	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%
Electrical fast transient/burst IEC 61000-4-4	+ 2kV for power supply lines + 1kV for input/output lines	+ 2kV for power supply lines Not applicable	Mains power quality should be that of a typical home healthcare environment.
Surge IEC 61000-4-5	+ 0.5kV, +1kV line(s) to line(s) + 0.5kV, +1kV,+ 2kV line(s) to earth	+ 0.5kV, +1kV line(s) to line(s) Not applicable	Mains power quality should be that of a typical home healthcare environment.
Voltage Dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	Voltage dips: 0 % UT; 0,5 cycle 0 % UT; 1 cycle 70 % UT; 25/30 cycles Voltage interruptions: 0 % UT; 250/300 cycle	Voltage dips: 0 % UT; 0,5 cycle 0 % UT; 1 cycle 70 % UT; 25/30 cycles Voltage interruptions: 0 % UT; 250/300 cycle	Mains power quality should be that of a typical home healthcare environment. If the user of the BD270 requires continued operation during power mains interruptions, it is recommended that the BD270 be powered from an uninterruptible power supply or a battery.
Power frequency(50, 60 Hz) magnetic field IEC 61000-4-8	30 A/m 50 Hz or 60 Hz	30 A/m 50 Hz	The BD270 power frequency magnetic fields should be at levels characteristic of a typical location in a typical home healthcare environment.
NOTE: UT is the a.c. mains voltage prior to application of the test level.			

Manufacturer's declaration-electromagnetic immunity			
The BD270 is intended for use in the electromagnetic environment specified below. The customer or the user of the BD270 should assure that is used in such and environment.			
Immunity test	IEC 60601 test	Compliance level	Electromagnetic environment-guidance (for home healthcare environment)
Conducted RF IEC 61000-4-6	3 Vrms: 0,15 MHz – 80 MHz 6 Vrms: in ISM and amateur radio bands between 0,15 MHz and 80 MHz 80 % AM at 1 kHz	3 Vrms: 0,15 MHz – 80 MHz 6 Vrms: in ISM and amateur radio bands between 0,15 MHz and 80 MHz 80 % AM at 1 kHz	Portable and mobile RF communications equipment should be used no closer to any part of the BD270 including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance: $d = 1,2 \sqrt{P}$, $d = 1,2 \sqrt{P}$ 80MHz to 800 MHz, $d = 2,3 \sqrt{P}$ 800MHz to 2,7 GHz Where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in metres (m). Interference may occur in the vicinity of equipment marked with the following symbol:
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 1: At 80 MHz and 800 MHz, the higher frequency range applies. **NOTE 2:** These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.			

Recommended separation distance between portable and mobile RF communications equipment and the BD270

The BD270 is intended for use in an electromagnetic environment (for home healthcare) in which radiated RF disturbances are controlled. The customer or the user of the BD270 can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the BD270 as recommended below, according to the maximum output power of the communications equipment.

Rated maximum output power of transmitter W	Separation distance according to frequency of transmitter m		
	150 kHz to 80 MHz $d = 1{,}2\sqrt{P}$	80 MHz to 800 MHz $d = 1{,}2\sqrt{P}$	800 MHz to 2,7 GHz $d = 2{,}3\sqrt{P}$
0,01	0,12	0,12	0,23
0,1	0,38	0,38	0,73
1	1,2	1,2	2,3
10	3,8	3,8	7,3
100	12	12	23

For transmitters rated at a maximum output power not listed above, the recommended separation distance d in 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 1: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

Manufacturer's declaration-electromagnetic immunity
Test specifications for ENCLOSURE PORT IMMUNITY to RF wireless communications equipment

The BD270 is intended for use in the electromagnetic environment (for home healthcare) specified below.
The customer or the user of the BD270 should assure that it is used in such an environment

Test frequency (MHz)	Band [a] (MHz)	Service [a]	Modulation [b]	Maximum power (W)	Distance (m)	Immunity test LEVEL (V/m)	Compliance LEVEL (V/m) (for home healthcare)
385	380 – 390	TETRA 400	Pulse modulation b) 18 Hz	1,8	0,3	27	27
450	430 – 470	GMRS 460, FRS 460	FM c) ±5 kHz deviation 1 kHz sine	2	0,3	28	28
710	704 – 787	LTE Band 13, 17	Pulse modulation b) 217 Hz	0,2	0,3	9	9
745							
780							
810	800 – 960	GSM 800/900, TETRA 800, iDEN 820, CDMA 850, LTE Band 5	Pulse modulation b) 18 Hz	2	0,3	28	28
870							
930							
1.720	1 700 – 1 990	GSM 1800; CDMA 1900; GSM 1900; DECT; LTE Band 1, 3, 4, 25; UMTS	Pulse modulation b) 217 Hz	2	0,3	28	28
1.845							
1.970							
2 450	2 400 – 2 570	Bluetooth, WLAN, 802.11 b/g/n, RFID 2450, LTE Band 7	Pulse modulation b) 217 Hz	2	0,3	28	28
5 240	5 100 – 5 800	WLAN 802.11 a/n	Pulse modulation b) 217 Hz	0,2	0,3	9	9
5 500							
5 785							

NOTE: If necessary to achieve the IMMUNITY TEST LEVEL, the distance between the transmitting antenna and the ME EQUIPMENT or ME SYSTEM may be reduced to 1 m. The 1 m test distance is permitted by IEC 61000-4-3

a) For some services, only the uplink frequencies are included.
b) The carrier shall be modulated using a 50 % duty cycle square wave signal.
c) As an alternative to FM modulation, 50 % pulse modulation at 18 Hz may be used because while it does not represent actual modulation, it would be worst case.

7. 5 Year Limited Warranty

This BIOS Diagnostics™ blood pressure monitor has a 5 year limited 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 or the rechargeable battery pack. The cuff and battery is warranted for one year. 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 representative, who will make arrangements to have the device tested 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 correction 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:

Thermor Ltd.
Attn: Returns Department
16975 Leslie Street
Newmarket, ON L3Y 9A1

www.biosmedical.com
Email: support@biosmedical.com

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

Please allow 10 days for return shipping.


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.

BIOS | Medical
MANUFACTURED BY/FABRIQUÉ PAR :
THERMOR LTD.
16975 LESLIE STREET
NEWMARKET, ON L3Y 9A1
MADE IN CHINA/FABRIQUÉ EN CHINE
WWW.BIOSMEDICAL.COM