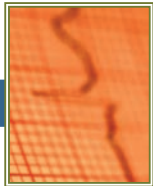


Automatic Blood Pressure Monitor



6021N, 6022N, 6023N

Instruction Manual



PLEASE NOTE:

THIS MEDICAL INSTRUMENT MUST BE USED ACCORDING TO INSTRUCTIONS TO ENSURE ACCURATE READINGS.

Questions?

Call ADC toll free
at 1-800-232-2670



Automatic Blood Pressure Monitor

Table of Contents

A Special Thank You	4
1. INTRODUCTION AND INTENDED USE	4
2. WARNINGS AND PRECAUTIONS	5
3. ABOUT BLOOD PRESSURE	6
3.1. What is Blood Pressure?	6
3.2. What is a Normal Blood Pressure?	7
3.3. What Influences Blood Pressure?	7
3.4. Does Blood Pressure Vary?	8
3.5. What is Hypertension?	8
3.6. Can Hypertension be Controlled?	9
3.7. Why Measure Blood Pressure at Home?	9
3.8. How is Blood Pressure Measured?	10
3.9. How Should I Record My Blood Pressure?	10
4. COMPONENTS OF YOUR BLOOD PRESSURE MONITOR	11
5. SETTING UP YOUR BLOOD PRESSURE MONITOR	12
5.1. Inserting the Batteries	12
5.2. Using the AC Power Adapter	13
5.3. Cuff Connection	13
5.4. Setting the Time and Date	13
5.5. Select the User	14
5.6. Selecting Measurement Mode (6022N, 6023N only)	15
5.7. Using MAM Advantage™ Averaging Mode (6022N, 6023N only)	15
6. MEASUREMENT PROCEDURE	16
6.1. Before Measurement	16
6.2. Common Sources of Error	16

6.3. Fitting the Rigid Cuff (6023N only)	17
6.4. Fitting the D-Bar Cuff (6021N, 6022N only)	18
6.5. Measurement Procedure	19
6.6. Reading Measurement Results	20
6.7 Using the Morning/Evening Hypertension Function (6022N, 6023N only)	20

7. SOFTWARE FUNCTIONS (6022N, 6023N MODELS ONLY)	21
---	-----------

7.1. PC Link Software Installation and Data Transmission	21
7.2 Installing and Using Microsoft® Healthvault™	22

8. IRREGULAR HEARTBEAT DETECTOR	23
--	-----------

8.1. Traffic Light Indicator (6023N only)	24
---	----

9. MEMORY FUNCTION	24
---------------------------	-----------

9.1. Recall and Storage of Measurements	24
9.2. Discontinuing a Measurement	25
9.3. Delete Memory	25

10. ERROR MESSAGES/TROUBLESHOOTING	26
---	-----------

11. CARE AND MAINTENANCE	28
---------------------------------	-----------

12. TECHNICAL SPECIFICATIONS	29
-------------------------------------	-----------

13. WARRANTY	30
---------------------	-----------

14. QUALITY STANDARDS	30
------------------------------	-----------

15. SYMBOL DEFINITIONS	30
-------------------------------	-----------

16. HOW TO CONTACT US	31
------------------------------	-----------

A SPECIAL THANK YOU

Congratulations on your purchase of an ADC® Advantage™ Automatic Blood Pressure Monitor.

In hospitals and physician's offices throughout the world, where accuracy and dependability are critical, ADC® professional diagnostic products are the instruments of choice.

Now you, too, can enjoy the benefits of ADC® engineering and quality in the home. This feature rich instrument was designed to simplify the measurement of blood pressure and pulse rate at home and deliver consistent, dependable results.

Read this booklet thoroughly before attempting to use your new ADC® Advantage™ Automatic Blood Pressure Monitor.

1. INTRODUCTION AND INTENDED USE

This manual is for Advantage™ (6021N), Advantage™ PLUS (6022N), and Advantage™ ULTRA (6023N) models. To find the model number of your device, look on the rating label located on the underside of the unit.

Your blood pressure monitor with ADC® Averaging Mode, Irregular Heartbeat Detection, and PC Link Blood Pressure Analyzer Software (6023N model only) is a fully automatic digital blood pressure measuring device for use by adults on the upper arm at home or in your doctor's/nurse's office. It enables very fast and reliable measurement of systolic and diastolic blood pressure as well as pulse through the oscillometric method. This device offers clinically proven accuracy and has been designed to be user friendly.

Before using, please read this instruction manual carefully and then keep it in a safe place. Please contact your doctor for further questions on the subject of blood pressure and its measurement.

Remember...

- Only a healthcare professional is qualified to interpret blood pressure measurements. This device is NOT intended to replace regular medical checkups.

- It is recommended that your physician review your procedure for using this device.
- Blood pressure readings obtained by this device should be verified before prescribing or making adjustments to any medications used to control hypertension. Under no circumstances should YOU alter the dosages of any drugs prescribed by your doctor.
- This monitor is intended for use by adults only. Consult with a physician before using this instrument on a child.
- In cases of irregular heartbeat (Arrhythmia), measurements made with this instrument should only be evaluated after consultation with your doctor.
- Familiarize yourself with the section titled "About Blood Pressure". It contains important information on the dynamics of blood pressure readings and will help you to obtain the best results.

2. WARNINGS AND PRECAUTIONS

Warning: The device contains sensitive electronic components. Avoid strong electrical or electromagnetic fields in the direct vicinity of the device (e.g., mobile telephones, microwave ovens). These can lead to temporary impairment of the measuring accuracy.

Warning: Use of this instrument on patients under dialysis therapy or on anticoagulant, antiplatelets, or steroids could cause internal bleeding.

Warning: Do not use cuffs, AC adapters or batteries other than those included with this product or replacement parts supplied by the manufacturer.

Warning: This system may fail to yield specified measurement accuracy if operated or stored in temperature or humidity conditions outside the limits stated in the specifications section of this manual.

Warning: This product may contain a chemical known to the state of California to cause cancer, birth defects, or other reproductive harm.

Caution: The standard material used is latex-free.

Attention: Self-measurement means control, not diagnosis or treatment. Unusual values must always be discussed with your doctor. Under no circumstances should you alter the dosages of any drugs prescribed by your doctor.

Attention: The pulse display is not suitable for checking the frequency of heart pacemakers!

Attention: In cases of irregular heartbeat, measurements made with this instrument should only be evaluated after consultation with your doctor.

NOTE: To obtain the greatest accuracy from your blood pressure instrument, it is recommended that the instrument be used within a temperature range of 50°F (10°C) to 104°F (40°C), with a 15-90% relative humidity.

3. ABOUT BLOOD PRESSURE

3.1. What is Blood Pressure?

Simply put, arterial blood pressure is the force of blood exerted against the walls of the arteries. There are two components to blood pressure — systolic and diastolic pressure. Systolic, the higher pressure, occurs during contraction of the heart. Diastolic, the lower pressure, occurs when the heart is at "rest."

Your level of blood pressure is determined in the circulatory center of the brain and adjusts to a variety of situations through feedback from the nervous system. To adjust blood pressure, the strength and frequency of the heart (Pulse), as well as the width of circulatory blood vessels is altered. Blood vessel width is affected by fine muscles in the blood vessel walls. Blood pressure is traditionally measured in millimeters of mercury (mmHg).

It is recorded as systolic/diastolic. For example a systolic of 120 and diastolic of 80 would be recorded 120/80.

Blood pressure is a dynamic vital sign — one that changes constantly throughout the day. A person's "resting" blood pressure is the pressure that exists first thing in the morning while a person is still at rest and before consumption of food or drink.

3.2. What is a Normal Blood Pressure?

A systolic pressure of less than 120mmHg and a diastolic pressure of under 80mmHg are recognized as normal by the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure, 2003.

NOTE: Blood pressure does increase with age, so you must check with your doctor to find out what is “normal” for you! Even with normal blood pressure values, a regular self-check with your blood pressure monitor is recommended. You can detect possible changes in your values early and react appropriately. If you are undergoing medical treatment to control your blood pressure, keep a record of values along with time of day and date. Show these values to your doctor. Never use the results of your measurements to independently alter the drug doses prescribed by your doctor.

3.3. What Influences Blood Pressure?

Blood pressure is influenced by many factors including age, weight, physical conditioning, past illness, time of day, altitude, activity, and climate, to name just a few. In general, blood pressure is lower in the morning and increases throughout the day. It is lower in warm weather, and higher in cold weather.

Physical activity can have a significant short term impact on blood pressure. Work, exercise, smoking, eating, drinking - even talking, laughing, or crying will all affect a person's blood pressure.

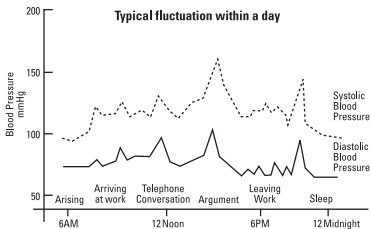
Your diet, including beverages containing caffeine or alcohol, may affect blood pressure. Emotional stress can have a dramatic impact on your blood pressure.

Even repeated blood pressure measurements taken without adequate rest between readings will alter your blood pressure as the vessels in your arm engorge with blood. Many of these influences are only temporary or short term, though chronic (long term) exposure to some factors may result in permanently elevated blood pressure levels.

3.4. Does Blood Pressure Vary?

Constantly. An individual's blood pressure varies greatly on a daily and seasonal basis. It changes throughout one's lifetime. It is not uncommon for systolic pressure to vary by 40mmHg or more throughout the course of a single day!

While generally not as volatile, diastolic pressure can still vary significantly. In



hypertensive individuals, variations are even more pronounced. Normally, blood pressure is at its lowest during sleep and rises in the morning and throughout the day. The chart (left) illustrates the fluctuations that could occur in a typical day.

3.5. What is Hypertension?

Hypertension (high blood pressure) is elevated systolic or diastolic levels. In 90 to 95 percent of the diagnosed cases, the specific causes are unknown, although the condition is often linked with family history, and lifestyle. This is referred to as essential hypertension. In the remaining cases, high blood pressure is a symptom of an underlying, often treatable condition, which if corrected, may normalize blood pressure. This less common type is known as secondary hypertension. Hypertension, if left untreated, may contribute to kidney disease, heart attack, stroke, or other debilitating illnesses. The following standards for assessment of high blood pressure in adults have been established by the Joint National Committee, 2003.

Range Classifications	Systolic Blood Pressure	Diastolic Blood Pressure	Precaution Measures
Normal	<120	<80	Monitor regularly
Prehypertension	120 - 139	80 - 89	Contact your physician
HYPERTENSION			
Stage 1 (Moderate)	140 - 159	90 - 99	Contact your physician Immediately
Stage 2 (Severe)	≥160	≥100	Contact your physician URGENTLY

(JNC-7 report: Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure / 2003)

Remember, only a physician is qualified to interpret the readings obtained from your blood pressure monitor. No attempt should ever be made at self-diagnosis or treatment.

3.6. Can Hypertension be Controlled?

Although essential hypertension cannot be cured, it can usually be controlled by altering lifestyle (including diet), adopting a program of exercise, stress management and, where necessary, with medication under a doctor's supervision.

To help reduce the risk of hypertension, or keep it under control, the American Heart Association (AHA) recommends the following:

- Don't smoke
- Reduce salt and fat intake
- Maintain proper weight
- Exercise regularly
- Have regular physical checkups

3.7. Why Measure Blood Pressure at Home?

Clinical studies have shown improved detection and treatment of hypertension when regular home blood pressure monitoring is done in consultation with a physician.

Blood pressure measured in a doctor's office or hospital setting may cause anxiety and lead to an elevated reading - a condition referred to as "white coat hypertension."

Home measurements generally reduce the "outside" influences on blood pressure readings, and can provide a more comprehensive and meaningful blood pressure history.

Note: While it is important to keep an accurate record of your blood pressure measurements, don't be overly concerned by the results of any one measurement. Individual results may be influenced by spiking of your pressure due to diet, anxiety, or mis-measurement resulting from excessive arm movement, or misapplication of the cuff. Many readings taken at the same time each day give a more comprehensive blood pressure history.

Always be sure to note the date and time when recording blood pressure and pulse measurements. For best results, and with time permitting, 3 successive measurements may be taken daily. Make sure to allow at least 5 minute intervals between measurements. Discard any reading that appears suspect and record the average of the remaining readings.

3.8. How is Blood Pressure Measured?

Healthcare professionals traditionally use a device known as a sphygmomanometer along with a stethoscope - essentially a professional version of the very same instrument you have purchased. The sphygmomanometer is a system consisting of an inflatable bladder contained within a cuff, inflation bulb with air control valve, and pressure measuring manometer (gauge). The gauge may be mechanical or mercurial. The cuff is wrapped around the limb and inflated to constrict blood flow to the artery. As pressure is released from the cuff through the deflation valve, blood flow returns to the artery producing pulse beats known as Korotkoff sounds, which are detected with the stethoscope. Systolic pressure is recorded at the onset of these sounds. Diastolic pressure is generally recorded when the sounds disappear (when blood flow to the artery returns to normal).

3.9. How should I record my blood pressure?

Record your blood pressure by setting up a simple chart in a spiral-bound notebook as shown below, or use the included record book.

Date	Time	Reading	Pulse
4/24	7:50AM	128/83	72
4/25	8:00AM	135/77	77
4/26	7:45AM	130/75	71
4/27	2:00PM	153/89	80

If you like you can add a column for comments about your condition at the time of measurement, or a listing of any factors that may have influenced your readings (such as "had a cold", or "just returned from vacation").

For best results, and with time permitting, 3 successive measurements

may be taken daily. Make sure to allow at least 5 minute intervals between measurements. Discard any reading that appears suspect and record the average of the remaining readings. If this method is used, be sure to note that the readings are averaged.

On the Advantage™ Ultra (6023N) model, PC Link software is available. Records can be automatically transferred to your Windows computer. Many smart phone and tablet apps allow you to record, cart, and share your BP measurements. ADC® recommends Microsoft® Healthvault™.

4. COMPONENTS OF YOUR BLOOD PRESSURE MONITOR

The illustration shows your blood pressure monitor, consisting of: Automatic Blood Pressure Monitor, Cuff, Instruction Book, Record Book, and Carry Case.

Each model has its own specific cuff.



Model	Item No	Description
6021N, 6022N	850-6022N	Wide Range Soft Cuff For arm circumference: 8.7–16.5" (22–42 cm)
6021NX	850-6022NX	Large Adult Soft Cuff For arm circumference: 12.5–20.4" (32–52 cm)
6021NSA	850-6021NSA	Small Adult Soft Cuff For arm circumference: 6.7–8.7" (17–22 cm)
6023N	850-6023N	Wide Range Rigid Cuff For arm circumference: 8.7–18.1" (22–46 cm)

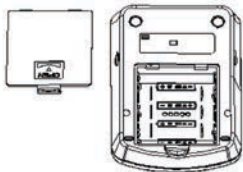
NOTE: Arm circumference should be measured with a measuring tape in the middle of the relaxed upper arm. Do not force cuff connection into the opening. Make sure the cuff connection is not pushed into the AC adapter port. If the cuff is too small, call 1-800-232-2670 for further information. You may prefer to use one of our wrist-type monitors.

NOTE: If you ever need to buy a replacement cuff, use only ADC® brand.

5. SETTING UP YOUR BLOOD PRESSURE MONITOR



5.1. Inserting the Batteries

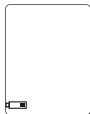
After you have unpacked your device, insert the batteries. The battery compartment is located on the underside of the device (see illustration).



- Remove cover as illustrated.
- Insert the batteries (4 x AA, 1.5V), observing the indicated polarity.

Attention!

- If a battery warning  appears in the display, the batteries are almost discharged and must be replaced.
- After battery warning  appears, the device will not work until batteries have been replaced.



- If the blood pressure monitor is not used for long periods, remove the batteries from the device.
- Use “AA” Long-Life or Alkaline 1.5V batteries. Do not use rechargeable batteries.
- Functional check: Press the «**MEMORY**» button down to test all the display elements. When functioning correctly many icons will appear.

5.2. Using the AC Power Adapter

It is possible to operate the Automatic Blood Pressure Monitor with an AC adapter.

1. Push the plug into the port on the right side of the device.
2. Plug the AC adapter into a 120V power socket. The device is ready for measurement.
3. Test that power is available by pressing the «**ON/OFF**» button.



NOTE:

- Use only the AC adapter provided with your device. ADC® is not responsible for the warranty servicing/repair of the monitor if any other adapter is used.
- No power is taken from the batteries while the AC adapter is connected to the device.
- Consult ADC® if you have any questions relating to the AC adapter.



5.3. Cuff Connection

- Insert the cuff tube into the opening provided on the left side of the device as shown in the picture.

5.4. Setting the Time and Date

This blood pressure monitor incorporates an integrated clock with date display. The device will also store the date and time of each measurement in its memory. After new batteries have been inserted, the device will request the date and time to be reset.

1. To set the date, begin with the year. The 4 characters (2014) on the screen will blink. You can change the year by pressing the «**MEMORY**» button. To confirm and set the year, press the «**TIME**» button.



2. The device will automatically advance to the month. To change the month, use the «**MEMORY**» button. To confirm and set the month, press the «**TIME**» button.




3. To set the day, hour, and minutes, use the same steps. Push the «**MEMORY**» button to change the display value. Press the «**TIME**» button to confirm and set the value.



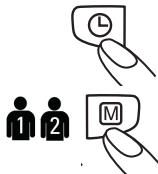
4. Once you have set the minutes and pressed the «**TIME**» button, the date and time are set and the time is displayed.

NOTE

- If you want to change date and time, press and hold the «**TIME**» button down for approx. 5 seconds until the user icon  flashes. Press the «**TIME**» button again, and then you can enter the new values as described above.
- A single press of the «**MEMORY**» button or «**TIME**» button advances one operation.
- Holding the button down speeds up the procedure.

5.5. Select the User

This blood pressure monitor is designed to store 99 measurements for each of two users. Before taking a measurement, be certain that the correct user has been selected.





- a) With the unit off, press and hold the «**TIME**» button until the user icon  starts blinking.
- b) Press the «**MEMORY**» button to toggle between users.
- c) Press the «**ON/OFF**» button to make your selection.




5.6. Selecting Measurement Mode (6022N, 6023N only)

This instrument enables you to select either standard (single measurement) or measurement averaging mode (automatic triple measurement).

- a) To select Standard mode, push the switch on the side  of the instrument towards position "1."
- b) To select Averaging mode, push the switch toward position "3." Note the MAM Advantage™ Averaging mode  icon will illuminate on the display.

If you select 1, then only one measurement will be taken. If you select 3, the unit will inflate and deflate three times resulting in one final average.

5.7. Using MAM Advantage™ Averaging Mode (6022N, 6023N only)

1. In MAM Advantage™ Averaging mode, three measurements are automatically taken in succession and the result then automatically analyzed and displayed. Because your blood pressure constantly fluctuates, a result determined in this way is more reliable than one produced by a single measurement.
2. After pressing the «ON/OFF» button, the MAM Advantage™ Averaging mode  icon appears in the display.
3. The bottom right hand section of the display shows a 1, 2, or 3 to indicate which of the 3 measurements is currently being taken.
4. There is a break of 15 seconds between the measurements (15 seconds are adequate according to "Blood Pressure Monitoring, 2001, 6:145-147" for oscillometric instruments). A countdown indicates the remaining time and a beep will sound 5 seconds before the 2nd and 3rd readings will begin.
5. The individual results from measurements 1, 2 and 3 are not initially displayed.

NOTE: If you want to see each of the individual readings making up a triplicate reading, turn the unit off, then press and hold the Memory button for 3 seconds immediately after a MAM Advantage™ Averaging Mode measurement. Note: You can only see the individual readings one time immediately following an Averaging Mode measurement. See section 5.6.

Do not remove the cuff between measurements.

6. MEASUREMENT PROCEDURE

6.1. Before Measurement:

- Avoid eating and smoking as well as all forms of exertion directly before measurement. These factors influence the measurement result. Find time to relax by sitting in an armchair in a quiet atmosphere for about ten minutes before taking a measurement.
- Remove any garment that fits closely to your upper arm.
- Always measure on the same arm (normally left).
- Always compare measurements taken at the same time of day, since blood pressure changes during the course of the day, as much as 20-40 mmHg.

6.2. Common Sources of Error:

NOTE: Comparable blood pressure measurements always require the same conditions! Conditions should always be quiet.

- All efforts by the user to support the arm can increase blood pressure. Make sure you are in a comfortable, relaxed position and do not flex any of the muscles in the measurement arm during the measurement. Use a cushion for support if necessary.
- If the arm artery lies considerably lower or higher than the heart, an erroneously high or low blood pressure will be measured! Each 15cm (6 inch) difference in height between your heart and the cuff results in a measurement error of 10 mmHg!
- Cuffs that are too narrow or too short result in false measurement values. Selecting the correct cuff is extremely important. Cuff size is dependent upon the circumference of the arm (measured in the center).

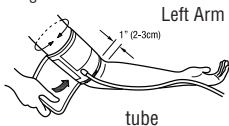
- The permissible range is printed on the cuff. If this is not suitable for your use, please call **1-800-232-2670**.

NOTE: Only use approved ADC® cuffs!

- A loose cuff or a sideways protruding air pocket 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 a 1 minute pause or after your arm has been held up in order to allow the accumulated blood to flow away. If you decide to take your Averaging Mode measurement again, be sure to wait at least one minute beforehand.

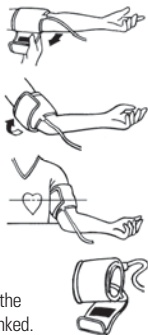
6.3. Fitting the Rigid Cuff (6023N only)

- The cuff is pre-formed for easier use. Remove tight or bulky clothing from your upper arm.
- Wrap the cuff around your upper left arm. The rubber tube should be on the inside of your arm extending downward to your hand. Make certain the cuff lies approximately 1/2–3/4" (1–2 cm) above the elbow.



Important! The red strip on the edge of the cuff (Artery Mark) must lie over the artery which runs down the inner side of the arm.

- To secure the cuff, wrap it around your arm and press the hook and loop closure together.
- There should be little free space between your arm and the cuff. You should be able to fit 2 fingers between your arm and the cuff. Cuffs that don't fit properly result in false measurement values. Measure your arm circumference if you are not sure of proper fit.
- Lay your arm on a table (palm upward) so the cuff is at the same height as your heart. Make sure the tube is not kinked.
- Remain seated quietly for at least two minutes before you begin the measurement.



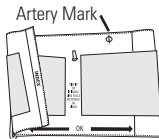
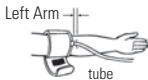
6.4 Fitting the D-Bar Cuff (6021N, 6022N models)

- Pass the end of the cuff through the flat metal ring so that a loop is formed. The hook and loop closure must be facing outward.
- Place the cuff over the left upper arm so that the tube is closer to your lower arm.
- Lay the cuff on the arm as illustrated. Make certain that the lower edge of the cuff lies approximately 3/4" to 1" (2 to 3cm) above the elbow and that the tube is closer to the inner side of the arm.

Important! The small white Φ (Artery Mark) on the cuff must lie exactly over the artery which runs down the inner side of the arm.

- Tighten the cuff by pulling the end and close the cuff by affixing the hook and loop closure.
- There should be little free space between the arm and the cuff. You should be able to fit 2 fingers between your arm and the cuff. Clothing must not restrict the arm. Any piece of clothing which does, must be removed. Cuffs that don't fit properly result in false measurement values. Measure your arm circumference if you are not sure of proper fit. Other size cuffs are available (Page 12).
- Lay your arm on a table (palm upward) so the cuff is at the same height as your heart. Make sure the tube is not kinked.
- Remain seated quietly for at least two minutes before you begin the measurement.



Comment: If it is not possible to fit the cuff to your left arm, it can also be placed on your 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).



6.5. Measurement Procedure

After the cuff has been appropriately positioned and connected to the monitor, the measurement can begin:



1. Press the «**ON/OFF**» button. The built-in pump begins to inflate the cuff. In the display, the increasing cuff pressure is continually displayed.
2. After a suitable inflation pressure has been reached, the pump stops and the pressure gradually falls, with cuff pressures being displayed. If that inflation pressure is not sufficient, the monitor automatically re-starts.
3. When the instrument detects a pulse, the heart symbol  in the display starts to flash and a beep is heard for every heartbeat.
4. When the measurement has concluded, a long beep tone sounds. The systolic, and diastolic blood pressures and pulse rate now appear in the display.
5. The appearance of this symbol  signifies that an irregular heartbeat was detected. This indicator is only a caution. It is important that you be relaxed, remain still and do not talk during measurements.

NOTE: We recommend contacting your physician if you see this indicator frequently. See Section 8 (page 23) for more information.




6. The measurement readings remain on the display until you switch off the instrument. If no button is pressed for a period of 1 minute the instrument switches itself off in order to preserve the batteries.
7. When the unit is set to the MAM setting, 3 separate measurements will take place in succession after which your result is calculated and displayed as a single, averaged measurement. There is a 15 second resting time in-between each measurement. A countdown indicates the remaining time and a beep will sound 5 seconds before the 2nd and 3rd readings will begin.

NOTE: If one of the measurements causes an error message, it will be repeated one more time. If any additional error occurs, the measurement will be discontinued and an error code will be displayed.

Expanding the averaged measurement to see the three individual readings: This function allows you to view the three individual measurements used to calculate the ADC® Averaging Mode Technology™ measurement. After taking an averaging mode measurement turn unit off, hold the Memory button for 3 seconds until you hear a short beep. (Do not hold the button longer than 7 seconds or you will delete all the readings in the memory!) Let go of the button and watch the screen. It will automatically scroll through the three measurements used in the measurement.

6.6. Reading Measurement Results:

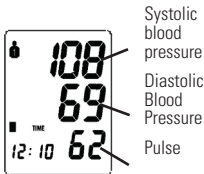
When the measurement has been concluded, a long beep tone sounds. The measured systolic and diastolic blood pressure values, as well as the pulse are now displayed.

The appearance of this symbol  signifies that an irregular heartbeat was detected.

This indicator is only a caution.

NOTE: We recommend contacting your physician if you see this indicator frequently. See Section 8 (page 23) for more information.



To prolong the batteries' life the device switches off automatically if no button is pressed for 1 minute. Otherwise you can switch it off by pressing the «**ON/OFF**» button.



6.7. Using the Morning/Evening Hypertension Function (6022N, 6023N models)

Morning Hypertension usually occurs as a surge in blood pressure upon waking up; this BP monitor will average readings taken between 4:00am and 11:59am.

Evening Hypertension, sometimes called nocturnal hypertension, is characterized by high blood pressure that persists from nighttime until early morning; this BP monitor will average readings taken between 6:00pm and 11:59pm.

1. When the blood pressure instrument is on, press the «**MEMORY**» button to display the average reading for the current user.
2. Press the «**MEMORY**» button twice to show the average of all readings taken between 4:00AM and 11:59AM. The LCD will display the sun icon .
3. Press the «**MEMORY**» button a third time to show the average of all readings taken between 6:00PM and 11:59PM. The LCD will display the moon icon .
4. After 30 seconds, the LCD will display the last taken value for that user.
5. Pressing the «**MEMORY**» button continuously enables you to view each value individually.

7. SOFTWARE FUNCTIONS (6022N, 6023N ONLY)

7.1. ADC® Advanced PC Link Software Installation and Data Transmission

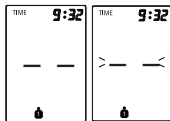
This unit can be used in connection with your personal computer (PC) running the ADC® Advanced PC Link Software. Your PC will allow a capacity of monitoring 80 patients, each with 1000 records of data (**Note:** Overuse will lower system efficiency). The memory data can be transferred to the PC by connecting the monitor via the included USB cable with your PC.

Note: The software does not work with Mac computers.

Hardware	Minimum	Recommended
Microprocessor (CPU speed)	550 MHz	1 GHz or higher
Memory devices (RAM)	256 MB	512 MB
Hard disk	500 MB	800 MB
Communications Port	USB 1.0	USB 1.0 and above
Display	256 colors	65536 colors
Resolution	800 x 600	1024 x 760
LPT	available	available
Energy sources (Power supply)	AC power if use PC AC/DC if NB	

Operating System:
Microsoft Windows XP, Vista

- a) Insert CD into CD ROM drive of your PC. The installation will start automatically. If not, click on SETUP.EXE.
- b) Connect the monitor via USB cable with the PC. Three horizontal bars will appear on the display and last for 3 seconds.
- c) The bars will then flash to indicate that the connection between computer and device is successfully made. As long as the cable is plugged, the bars will keep flashing and the buttons are disabled. During the connection, the device is completely controlled by the computer. Refer to the 'Help' file in the software for detailed instructions.



7.2 Installing and Using Microsoft® HealthVault™ on your ADC® Advantage™ Blood Pressure Monitor

The Advantage™ Ultra digital blood pressure monitors are compatible with the Microsoft® HealthVault™ software application. HealthVault™ allows you to easily store, use, and share your health information online and on your mobile devices.

To use HealthVault™ with your unit, follow the steps below:

- a) Create a user account at **www.healthvault.com**.
- b) Once logged in, click on “**Apps & Devices.**”
- c) Download the “**HealthVault™ Connection Center**” app and follow the prompts on screen to guide you through installation.
- d) Once installed, select “Select a Task -> Add Device” from within the HealthVault application.
- e) Plug in your ADC® BP monitor to your computer using the supplied USB cable. HealthVault™ will automatically install the device drivers and associate your device to the HealthVault™ software.

At this point, you can start taking readings with your device. Once you have collected a reading, you can now upload the data using the “**HealthVault™ Connection Center**” app.

- a) Click "**Go online to HealthVault™**" and sign into your account.
- b) Click the box of the user you would like to associate with this device and click "**Allow Access.**"
- c) Then, click "**Upload Now.**" Your readings will then upload from your device to the HealthVault™ service.
- d) You can then click "**View Data in HealthVault™**" to see your readings.
- e) Once you have approved a device, you will not need to perform these actions again. You can just connect your device and start with step H.


For more information on how to use HealthVault™, click "Help" at the top right-hand corner of the page. There, you will find a detailed help document as well as an FAQ section to help with any issues you may have.

NOTE:


- You cannot run the PC Link software and HealthVault™ at the same time. Be sure to completely remove the PC Link software before installing HealthVault™.
- HealthVault™ has a mobile app available in both the Apple® App Store and Microsoft® Windows® Phone marketplace.

NOTE: The Morning/Evening Hypertension function is only available on the unit. No Morning/Evening averages will be transmitted to a computer. Only the individual readings in memory will be transmitted.

8. IRREGULAR HEARTBEAT DETECTOR

This function indicates an allorhythmic heartbeat. If the IHD symbol appears on the display that means that certain abnormalities in heartbeat frequency were detected during the measurement. In this case, the result may deviate from your normal blood pressure – repeat the measurement. In most cases, this is no cause for concern. However, if the symbol  appears on a regular basis (e.g. several times a week with measurements taken daily) we advise you to tell your doctor. Please show your doctor the following explanation:

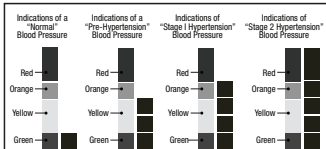
Information for the doctor on frequent appearance of the Irregular Heartbeat Detector

This instrument is an oscillometric blood pressure monitor that also analyses pulse frequency during measurement. The instrument is clinically tested. The symbol  is displayed after the measurement, if pulse irregularities occur during measurement. If the symbol appears more frequently (e.g. several times per week on measurements performed daily) we recommend the patient to seek medical advice. The instrument does not replace a cardiac examination, but serves to detect pulse irregularities at an early stage.

8.1. Traffic Light Indicator (6023N only)

The bars on the left hand edge of the display show the range within which the indicated blood pressure values lie. 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 from the WHO (World Health Organization). Refer to the chart to the right for details of the classification.

	SYS	DIA
Red →	≥180	≥110
Red →	160-179	100-109
Orange →	140-159	90-99
Yellow →	130-139	85-89
Yellow →	120-129	80-84
Green →	<120	<80



Note: ESH/ESC guidelines may vary from those indicated. Consult your physician for information relating to guidelines in your region.

9. MEMORY FUNCTION

9.1 Recall and Storage of Measurements

At the end of a measurement, this monitor automatically stores each result with date and time. This unit stores 99 memories for each of 2 users.

Viewing the Stored Values


With the unit off, press the «**MEMORY**» button. The display first shows "3A", then shows the average of all measurements stored in the unit.

NOTE: Measurements for each user are averaged and stored separately. Be certain that you are viewing the measurements for the correct user (with no time and date shown).

Pressing the «**MEMORY**» button again displays the previous value. To view a particular stored memory, press and hold the «**MEMORY**» button to scroll to that stored reading.



MR30: Value of the last measurement – MR29:
Value of the measurement before MR 30

If an irregular heartbeat is detected, the symbol  is displayed including the time and the result of the measurement.

Further information

Measurements should not occur soon after each other; otherwise, the results will be skewed. Wait for several minutes in a relaxed position, sitting or lying, before you repeat a measurement.

9.2. Discontinuing a Measurement

If it is necessary to interrupt a blood pressure measurement for any reason (e.g. the patient feels unwell), the «**ON/OFF**» button can be pressed at any time. The device immediately lowers the cuff pressure automatically.



9.3. Delete Memory

Before you delete all memory readings stored, make sure you won't need to refer to them at a later date. Keeping a written record is prudent and may provide additional information for your doctor's visit.

To delete stored memory readings, hold the «**MEMORY**» button down until the LCD shows a «**CL**». Release the button. Press the «**MEMORY**» button while «**CL**» is flashing to complete the operation. It is impossible to erase the values individually.



10. ERROR MESSAGES/TROUBLESHOOTING

If an error occurs during a measurement, the measurement is discontinued and a corresponding error code is displayed (Example: Err 2).



Error No.	Possible Cause(s)/Solutions
ERR 1	The systolic pressure was determined, but then the pressure in the cuff went down to less than 20 mmHg (diastolic blood pressure can't be measured). The tube may have loosened after the systolic pressure has been determined. Further possible reason: pulse could not be detected.
ERR 2	Unnatural pressure impulses influence the measurement result. Reason: the arm was moved during the measurement.
ERR 3	If inflation of the cuff takes too long, the cuff is not correctly seated or the hose connection's not tight.
ERR 5	The difference between systolic and diastolic is excessive. Measure again carefully following proper procedures. Consult your doctor if you still get unusual results of measurements.

Error No.	Possible Cause(s)/Solutions
HI	The pressure in the cuff is too high (over 300mmHg) or the pulse is too high (over 200 beats per minute). Relax for 5 minutes and repeat the measurement.
LO	The pulse is too low (less than 40 beats per minute). Relax for 5 minutes and repeat the measurement.

Other possible errors and their solutions

If problems occur when using this device, the following points should be checked.







Malfunction	Remedy
The display remains blank when the device is switched on though the batteries are in place.	<ol style="list-style-type: none"> 1. Check battery installation/ polarity. 2. Remove the batteries and if the display is unusual, then exchange them for new ones.
The pressure does not rise although the pump is running.	Check the connection of the cuff tube and connect properly.
The device frequently fails to measure, or the values measured are too low or high.	<ol style="list-style-type: none"> 1. Fit the cuff correctly on the arm. 2. Before starting measurement make sure that clothing is not exerting pressure on the arm. Take articles of clothing off if necessary. Measure blood pressure again in complete peace and quiet.
Every measurement results in different values, although the device functions normally and normal values are displayed.	Refer to Section 3. About Blood Pressure.
Blood pressure values differ from those measured at the doctor's.	Refer to Section 3.7. Why Measure Blood Pressure at Home?

NOTE: Blood pressure is subject to fluctuations even in healthy people. Please remember that **comparable blood pressure measurements always require the same time and the same conditions!** These are normally quiet conditions. If you follow the procedure described earlier and still get fluctuations of blood pressure of greater than 15 mmHg and/or you repeatedly hear irregular pulse tones, consult your doctor.

Attention!

Should any technical malfunctions arise in the blood pressure monitor, please contact the dealer where you bought the device or ADC®. **Never attempt to repair the instrument yourself!** Any unauthorized opening of the instrument invalidates all warranty claims.

11. CARE AND MAINTENANCE

Do not expose the device to either extreme temperatures, humidity, dust or direct sunlight.	
Handle the cuff carefully and avoid all types of stress through twisting or buckling in order not to damage the sensitive air-tight bubble.	
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. Do not submerge the cuff in water!	
Handle the tubing carefully. Keep the tube away from sharp edges.	
Do not drop the monitor or treat it roughly in any way.	
Never open the monitor! This invalidates the manufacturer's warranty.	

12. TECHNICAL SPECIFICATIONS

Weight:	1.07 lbs. (487 g) (6021N, 6022N with batteries, 850-6022N soft cuff) 1.14 lbs. (515 g) (6023N with batteries, 850-6023N rigid cuff)
Size:	5.35" x 3.78" x 2.28" 136mm x 96mm x 58mm (including cuff)
Storage temperature:	-20 - +55 °C / -4 - +131 °F
Humidity:	15 to 90% relative maximum humidity
Operation temperature:	50°F–104°F (10°C–40°C)
Display:	LCD (Liquid Crystal Display)
Measuring method:	Oscillometric
Pressure sensor:	Capacitive
Measuring range:	Rated range of the determination - Blood Pressure SYS: 60-255mmHg DIA: 40-200mmHg 40 - 200 beats per minute - pulse
Cuff pressure display range:	0-299 mmHg
Memory:	Automatically stores the last 99 measurements for 2 users (198 total).
Measuring resolution:	1 mmHg
Accuracy:	Pressure within ± 3 mmHg or 2% of the reading ≥ 200 mmHg Pulse ± 5 % of the reading
Power Source:	4 "AA" batteries or 1.5V AC adapter
Includes:	Automatic Blood Pressure Monitor and Cuff, 4 AA batteries, Instruction Book, and Record Book. Other cuffs are also available as a special accessory:

Item No	Size	Range
850-6021NSA	Sm. Adult	6.7–8.7" (17–22 cm)
850-6022N	Adult	8.7–16.5" (22–42 cm)
850-6022NX	Lg. Adult	12.5–20.4" (32–52 cm)
850-6023N	Adult	8.7–18.1" (22–46 cm)

13. WARRANTY

This blood pressure monitor is warranted for 5 years from date of purchase. This warranty includes the instrument and the cuff. The warranty does not apply to damage caused by improper handling, accidents, improper use, or alterations made to the instrument by third parties. The warranty is only valid after the product is registered online at www.adctoday.com.

14. QUALITY STANDARDS

Device standard:

This device is manufactured to meet the European and United States standards for non-invasive blood pressure monitors:

EN1060-1 / 1995 • EN1060-3 / 1997 • EN1060-4 / 2004









Electromagnetic compatibility:

Device fulfills the stipulations of the International standard IEC60601-1-2

Clinical testing:

BHS A/A Rated. Clinical performance tests were carried out in the U.K. "Association Protocol and British HTP Protocol."

15. SYMBOL DEFINITIONS

Symbol	Definition	Symbol	Definition
	Important Warning/Caution		Authorized European Representative's Information
	This product does not contain natural rubber latex		Manufacturer's Information
	Circumference Size		Temperature Limit
	Conforms to EU Standards		Humidity Limitation

16. HOW TO CONTACT US

To register your product and obtain further detailed user information about our products and services visit us at:

www.adctoday.com

and follow the links.

For questions, comments, or suggestions
call us toll free at:

1-800-232-2670



American Diagnostic Corporation

55 Commerce Drive, Hauppauge, New York 11788

Telephone: 631-273-9600 • Fax: 631-273-9659

Email: info@adctoday.com



CE marking applies to models 6021N, 6021NSA, 6021NX, and 6022N only.



ONBO Electronic (Shenzhen) Co., Ltd.
No. 497, Ta Laneg Nan Road, Ta Laneg Street
Baoan District, Shenzhen, China



Medpack Swiss GmbH, Tramstrasse
16, CH-9442, Berneck, Switzerland



Read instructions carefully before
using this device



Type BF applied part

Dist. by: ADC®
Hauppauge, NY 11788
Inspected in the USA
Made in China

tel: 631-273-9600
toll free: 1-800-232-2670
fax: 631-273-9659

www.adctoday.com

email: info@adctoday.com

