

# AND

## Digital Blood Pressure Monitor

### Model UA-767 *Plus* BT-C

### *Instruction Manual*



1WMPD4001966A



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# Dear Customers

Congratulations on purchasing a state-of-the-art A&D blood pressure monitor, one of the most advanced monitors available today. Designed for ease of use and accuracy, this monitor will facilitate your daily blood pressure regimen.

**We recommend that you read through this manual carefully before using the device for the first time.**

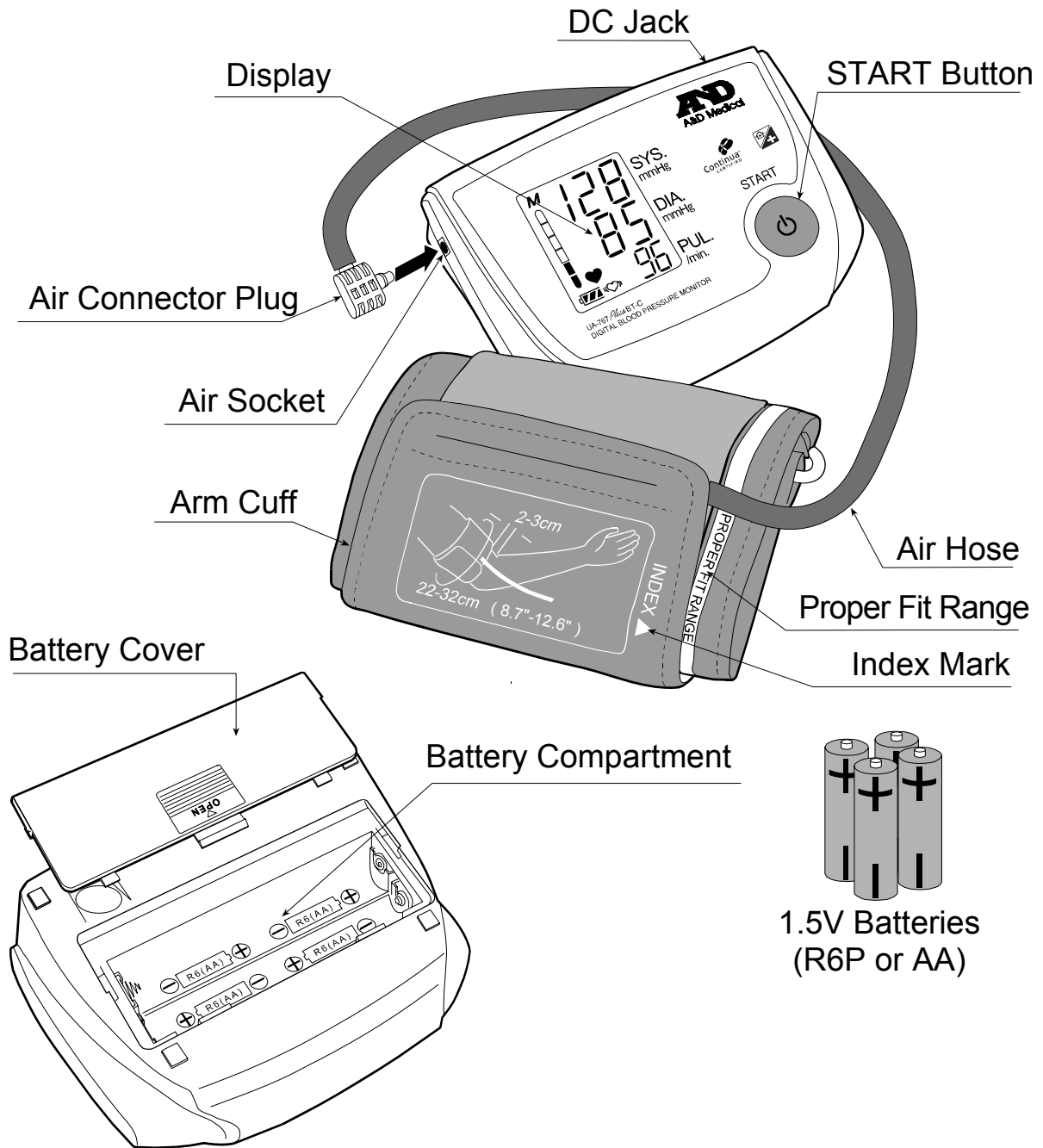
## Preliminary Remarks

- ❑ This device conforms to the European Directive 93/42 EEC for Medical Products. This is made evident by the **CE**<sub>0366</sub> mark of conformity. (0366: The reference number to the involved notified body)
- ❑ The device complies with the statutory EMC (Electromagnetic Compatibility) directive 89/336/EEC. The WML-40AH is approved in accordance to R&TTE directive transmitter module marked by **CE**<sub>0678</sub> , manufactured by MITSUMI incorporated to OEM product.
- ❑ The device complies with part 15 of the FCC rules and contains the FCC ID POOWML-C40.
- ❑ Compliance with Industry Canada.  
IC: 4250A-WMLC40.
- ❑ The device is a Continua certified, Bluetooth wireless technology enabled medical device.
- ❑ The device is designed for use on adults only, not newborns or infants.
- ❑ Environment for use  
The device is for use indoors.

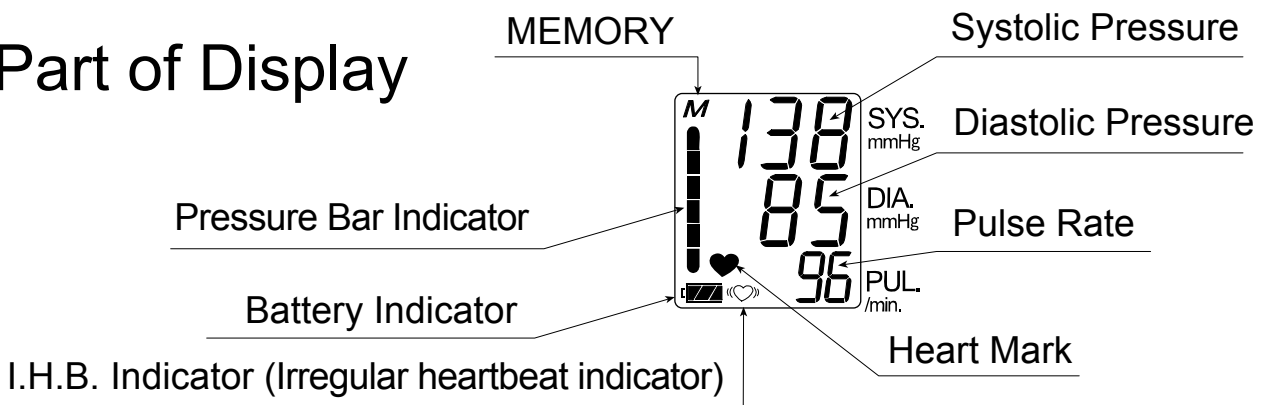
## Precautions

- ❑ Precision components are used in the construction of this device. Extremes in temperature, humidity, direct sunlight, shock or dust should be avoided.
- ❑ Clean the device with a soft, dry cloth. Never use thinner, alcohol, benzine, or wet cloth.
- ❑ Avoid tightly folding the cuff or storing the hose tightly twisted for long periods, as such treatment may shorten the life of the components.
- ❑ The device and cuff are not water resistant. Prevent rain, sweat and water from soiling the device and cuff.
- ❑ Measurements may be distorted if the device is used close to televisions, microwave ovens, cellular telephones, X-ray or other devices with strong electrical fields.
- ❑ Used equipment, parts and batteries are not treated as ordinary household waste, and must be disposed of according to the applicable local regulations.


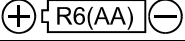












# Parts Identification



## Part of Display



# Symbols

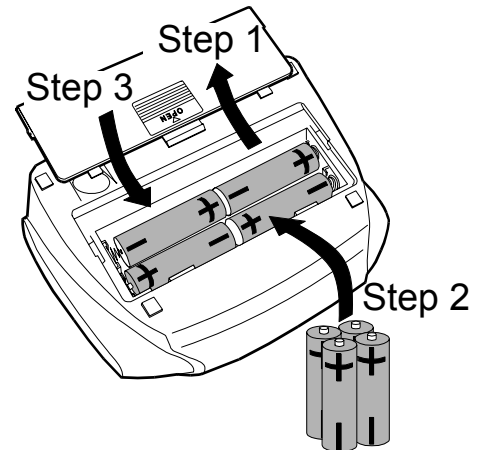
Symbols	Function / Meaning	Recommended Action
	Standby and power on.	_____
	Battery installation guide	_____
	Direct current	_____
SN	Serial number	_____
2009 	Date of manufacture	_____
	Type BF: Device, cuff and tubing are designed to provide special protection against electrical shocks.	_____
	The indicator that appears while measurement is in progress. It blinks when the pulse is detected.	Measurement is in progress. Remain as still as possible.
	Irregular Heartbeat indicator. (I.H.B.) The indicator that appears when an irregular heartbeat or any excessive body movement is detected during the measurement.	_____
<b>M</b>	Previous measurements stored in MEMORY.	_____
 Full Battery	The battery power indicator during the measurement.	_____
 Low Battery	The indicator blinks when battery power is low.	Replace all batteries with new ones, when the indicator blinks.
<b>Err</b>	Unstable blood pressure due to movement during the measurement.	Try the measurement again. Remain very still during the measurement.  Fasten the cuff correctly, and try the measurement again.
	The systolic and diastolic values are within 10 mmHg of each other.	
	The pressure value did not increase during inflation.	
<b>Err</b> <b>Err</b> <b>Err</b> <b>Err</b>	The cuff is not fastened correctly.	
<b>Err</b> PUL. DISPLAY ERROR	The pulse is not detected correctly.	
SYS	Systolic blood pressure in mmHg	_____
DIA	Diastolic blood pressure in mmHg.	_____
PUL./min	Pulse per minute	_____
	EC directive medical device label	_____
	R&TTE directive transmitter module label	_____
	WEEE label	_____
	Manufacturer	_____
	EU-representative	_____

# Using The Monitor



## Installing / Changing The Batteries

1. Slide the battery cover up to open it.
2. Remove the used batteries and insert new batteries into the battery compartment as shown, taking care that the polarities (+) and (-) are correct.
3. Slide the battery cover down to close.

Use only R6P, AA batteries.

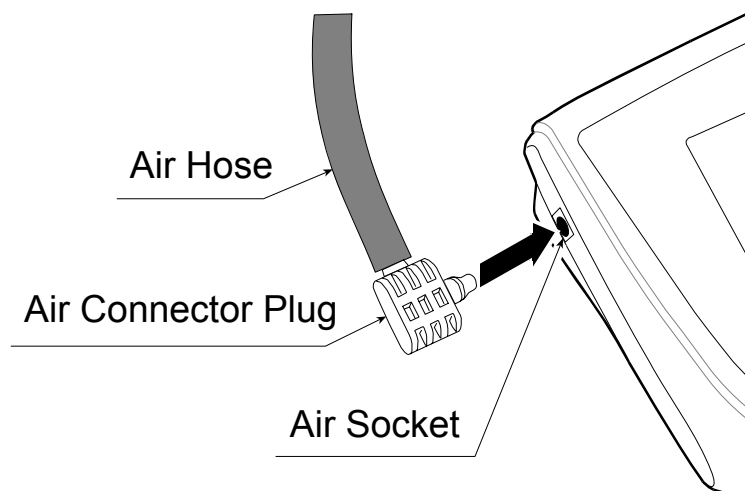


## CAUTION

- Insert the batteries as shown in the battery compartment. If not, the device will not work.
- When  (LOW BATTERY mark) blinks in the display, replace all batteries with new ones. Do not mix old and new batteries. It may shorten the battery life, or cause the device to malfunction.
-  (LOW BATTERY mark) does not appear when the batteries are drained.
- Battery life varies with the ambient temperature and may be shorter at low temperatures.
- Remove the batteries if the device is not to be used for a long time. The batteries may leak and cause a malfunction.
- Use the specified batteries only. The batteries provided with the device are for testing monitor performance and may have a limited life.

## Connecting The Air Hose

Insert the air connector plug into the air socket firmly.



# Using The Monitor

## Pairing The PBT-C Series Device With A Continua-Compliant Manager

Model UA-767 *Plus* BT-C is a PBT-C series device. PBT-C series devices are designed to be connected only with Continua Managers.

To pair the device with a Manager, please follow these steps:

1. Remove the four batteries from the device.
2. Press the **START** button several times to discharge the device completely.
3. Insert the four batteries into the device.
4. Refer to the Manager's instruction manual to start a Bluetooth discovery and inquiry process.  
The device will stay discoverable for 60 seconds.  
If the Manager fails to pair with the device, repeat steps 1 through 3.
5. Once the Manager has discovered the device, enter the PIN "123456" as a password to finish the pairing process.  
When the Manager supports SSP (Secure Simple Pairing), no password is required for the pairing process.



Continua™  
CERTIFIED

A device that has been certified by Continua displays this logo.



Bluetooth®

A Bluetooth device has the logo mark of Bluetooth printed on it.



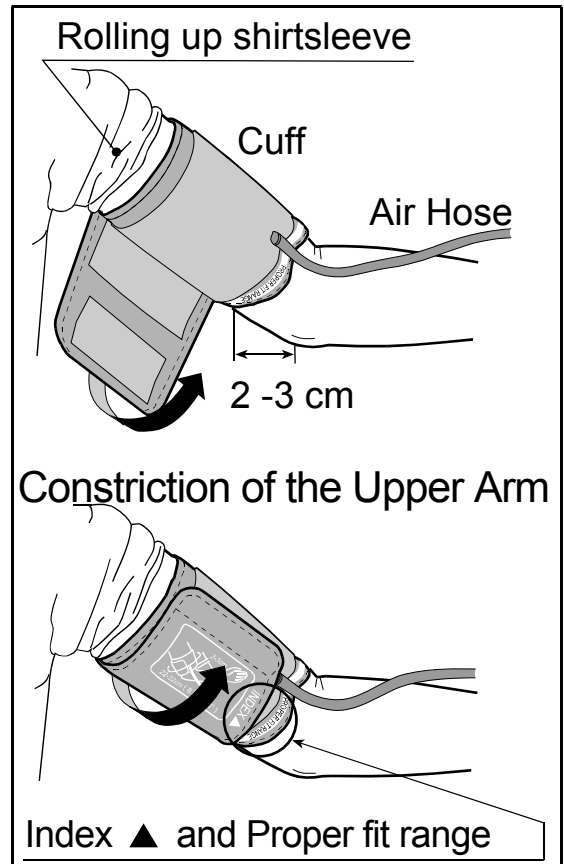
The RoHS (Restriction of Hazardous Substances) Directive



# Using The Monitor

## Attaching The Arm Cuff

1. Wrap the cuff around the upper arm, about 2 - 3 cm above the elbow, as shown. Place the cuff directly against the skin, as clothing may cause a faint pulse, and result in a measurement error.
2. Constriction of the upper arm, caused by rolling up a shirtsleeve, may prevent accurate readings.
3. Confirm that the index ▲ points within the proper fit range.



## How To Take Proper Measurements

For the most accurate blood pressure measurement:

- Sit comfortably at a table. Rest your arm on the table.
- Relax for about five to ten minutes before measurement.
- Place the center of the cuff at the same height as your heart.
- Remain still and keep quiet during measurement.
- Do not measure right after physical exercise or a bath. Rest for twenty or thirty minutes before taking the measurement.
- Try to measure your blood pressure at the same time every day.

## Measurement

During measurement, it is normal for the cuff to feel very tight. (Do not be alarmed)

## After Measurement

After measurement, press the **START** button to turn off the power. Remove the cuff and record your data.

Note: The device has an automatic power shut-off function, which turns the power off approximately one minute after measurement. Allow at least ten minutes between measurements on the same person.

# Measurements

Model UA-767*Plus* BT-C is designed to detect the pulse and to inflate the cuff to a systolic pressure level automatically.

If your systolic pressure is expected to exceed 230 mmHg or you use the optional small cuff, read "Measurement with the desired systolic pressure" on the next page.

## Normal Measurement

1. Place the cuff on the arm (preferably the left arm). Sit quietly during measurement.

2. Press the **START** button.  
The last data of systolic and diastolic pressure and pulse rate are displayed briefly. Then the display changes, as indicated in the figure at the right, as the measurement begins. The cuff starts to inflate. It is normal for the cuff to feel very tight. A pressure bar indicator is displayed, as in the figure at the right, during inflation.

Note: If you wish to stop inflation at any time, press the **START** button again.

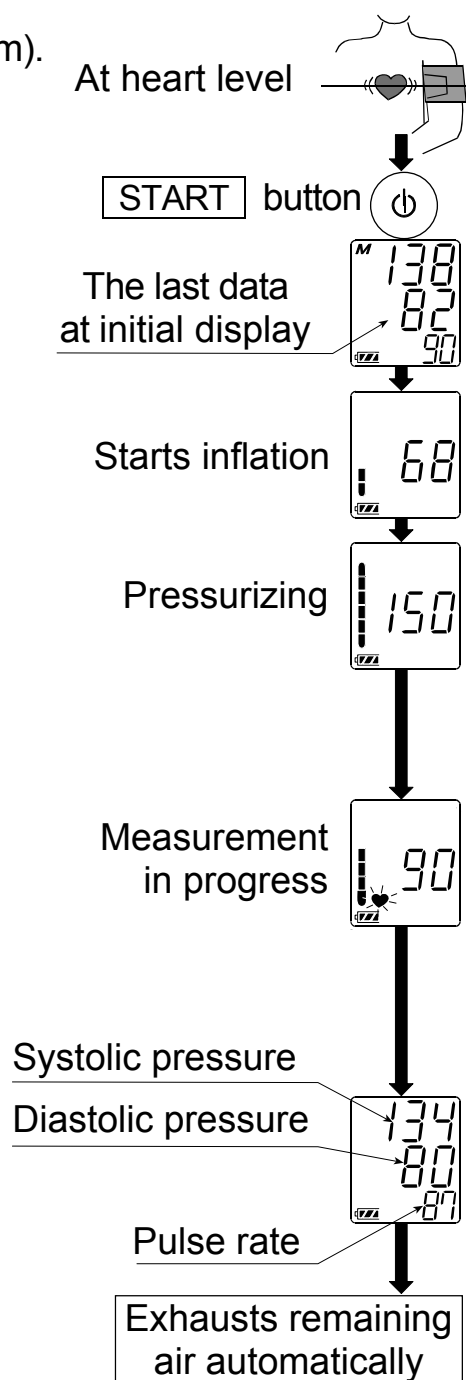
3. When inflation is complete, deflation starts automatically and the ♥ (heart mark) blinks, indicating that the measurement is in progress. Once the pulse is detected, the mark blinks with each pulse beat.

Note: If an appropriate pressure is not obtained, the device starts to inflate again automatically.

4. When the measurement is complete, the systolic and diastolic pressure readings and pulse rate are displayed. The cuff exhausts the remaining air and deflates completely.

5. Press the **START** button again to turn off the power.

Note: Model UA-767*Plus* BT-C is provided with an automatic power shut-off function. Allow at least ten minutes between measurements on the same person.

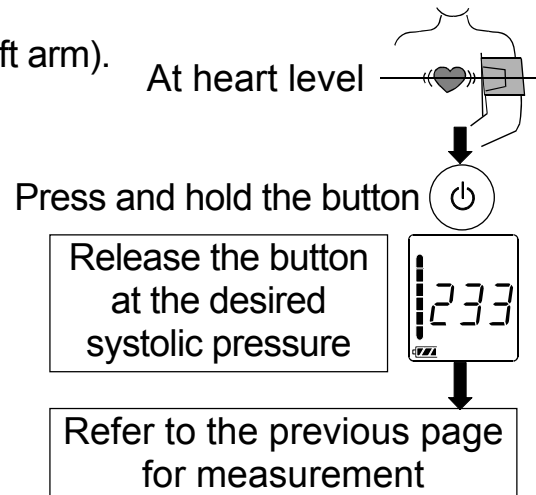


# Measurements

## Measurement With The Desired Systolic Pressure

If your systolic pressure is expected to exceed 230 mmHg or you use the optional small cuff, use this procedure.

1. Place the cuff on the arm (preferably the left arm).
2. Press and hold the **START** button until a number about 30 to 40 mmHg higher than your expected systolic pressure appears.
3. Release the **START** button to start measurement, when the desired number is reached. Then continue to measure your blood pressure as described on the previous page.



## Notes For Proper Measurement

- Sit down in a comfortable position. Place the arm to be used for the measurement on a table or other support so that the center of the cuff will be at the same height as your heart.
- Relax for about five or ten minutes before taking a measurement. If you are excited or depressed by emotional stress, the measurement will reflect this stress as a higher (or lower) than normal blood pressure reading and the pulse reading will usually be faster than normal.
- An individual's blood pressure varies constantly, depending on what you are doing and what you have eaten. What you drink can have a very strong and rapid effect on your blood pressure.
- This device bases its measurements on the heartbeat. If you have a very weak or irregular heartbeat, the device may have difficulty determining your blood pressure.
- Should the device detect a condition that is abnormal, it will stop the measurement and display an error symbol. See page 4 for the description of symbols.
- This blood pressure monitor is intended for use by adults only. Consult with your physician before using this device on a child. A child should not use this device unattended.

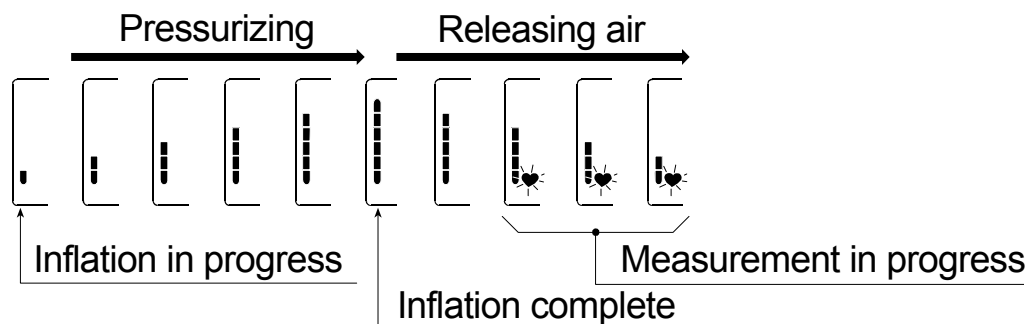
# What Is An Irregular Heartbeat

Model UA-767 *Plus* BT-C blood pressure monitor provides a blood pressure and pulse rate measurement even when an irregular heartbeat occurs. An irregular heartbeat is defined as a heartbeat that varies by 25% from the average of all heartbeats during the blood pressure measurement. It is important that you be relaxed, remain still and do not talk during measurements.

Note: We recommend contacting your physician if you see this ((♥)) indicator frequently.

# Pressure Bar Indicator

The indicator monitors the progress of pressure during measurement.



# Transmitting Data To A Continua Manager

Measurement results will be automatically transmitted to the paired Manager at each measurement. In the case of unsuccessful transmission, the device stores the last 25 measurements in memory. The device will send all of the data at the next successful connection and clear memory.

# About Blood Pressure

## What Is Blood Pressure?

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

## What Is Hypertension And How Is It Controlled?

Hypertension, an abnormally high arterial blood pressure, if left unattended, can cause many health problems including stroke and heart attack. Hypertension can be controlled by altering lifestyle, avoiding stress, and with medication under a doctor's supervision.

To prevent hypertension or keep it under control:

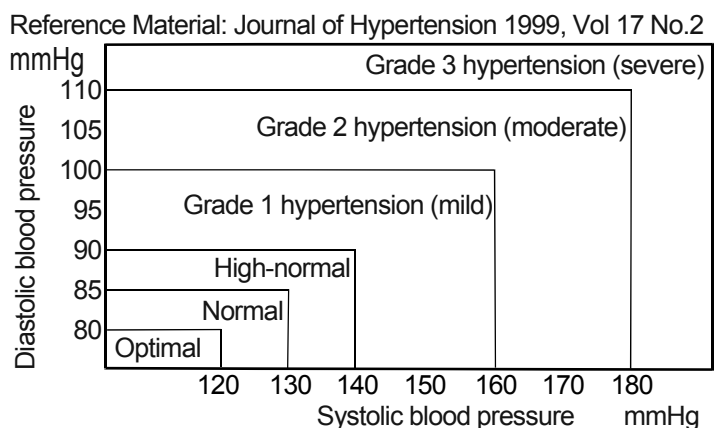
- Do not smoke
- Exercise regularly
- Reduce salt and fat intake
- Have regular physical checkups
- Maintain proper weight

## Why Measure Blood Pressure At Home?

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

## WHO Blood Pressure Classification

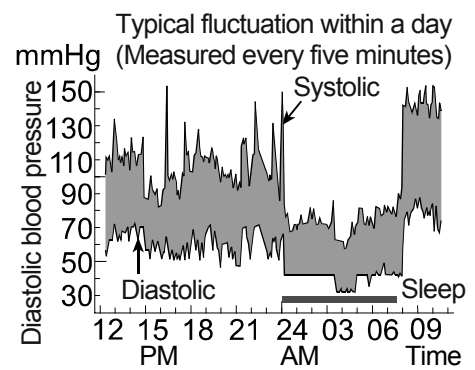
Standards to assess high blood pressure, without regard to age, have been established by the World Health Organization (WHO), as shown in the chart.




## Blood Pressure Variations

An individual's blood pressure varies greatly on a daily and seasonal basis. It may vary by 30 to 50 mmHg due to various conditions during the day. In hypertensive individuals' variations are even more pronounced. Normally, the blood pressure rises while at work or play and falls to its lowest levels during sleep. So, do not be overly concerned by the results of one measurement. Take measurements at the same time every day using the procedure

described in this manual to get to know your normal blood pressure. Regular readings give a more comprehensive blood pressure history. Be sure to note date and time when recording your blood pressure. Consult your doctor to interpret your blood pressure data.



## Troubleshooting

Problem	Possible Reason	Recommended Action
Nothing appears in the display, even when the power is turned on.	Batteries are drained.	Replace all batteries with new ones.
	Battery terminals are not in the correct position.	Reinstall the batteries with negative and positive terminals matching those indicated on the battery compartment.
The cuff does not inflate.	Battery power is low.  (LOW BATTERY mark) blinks. [ If the batteries are drained completely, the mark does not appear.]	Replace all batteries with new ones.
The device does not measure. Readings are too high or too low.	The cuff is not fastened properly.	Fasten the cuff correctly.
	You moved your arm or body during the measurement.	Make sure you remain very still and quiet during the measurement.
	The cuff position is not correct.	Sit comfortably and still. Raise your hand so that the cuff is at the same level as your heart.
	_____	If you have a very weak or irregular heart beat, the device may have difficulty in determining your blood pressure.
Other	The value is different from that measured at a clinic or doctor's office.	See "Why measure blood pressure at home".
	_____	Remove the batteries. Place them back properly and try the measurement again.


Note: If the actions described above do not solve the problem, contact the dealer. Do not attempt to open or repair this product, as any attempt to do so will make your warranty invalid.

# Maintenance

Do not open the device. It uses delicate electrical components and an intricate air unit that could be damaged. If you cannot fix the problem using the troubleshooting instructions, request service from your dealer or from the A&D service group. The A&D service group will provide technical information, spare parts and units to authorized dealers.

The device was designed and manufactured for a long service life. However it is generally recommended to have the monitor inspected every 2 years to ensure proper functioning and accuracy. This maintenance recommendation is for European customers only, to comply with regulatory requirements. Routine inspection and maintenance is not needed for non-European customers. Please contact either your authorized dealer or A&D for maintenance.

# Technical Data

Type	UA-767PBT-C
Measurement method	Oscillometric measurement
Measurement range	Pressure: 20 - 280 mmHg Pulse: 40 - 200 beats / minute
Measurement accuracy	Pressure: $\pm 3$ mmHg or 2%, whichever is greater Pulse: $\pm 5\%$
Power supply	4 x 1.5V batteries (R6P or AA)
Upper arm circumference	22 - 32 cm (8.7" - 12.6")
Classification	Type BF 
Clinical test	According to ANSI / AAMI SP-10 1987
EMC	IEC 60601-1-2: 2001
Wireless communication	WML-40AH (MITSUMI Electronics Co. Ltd.) Bluetooth Ver.2.1 Class 1 HDP Continua certified
Operating condition	+10°C to +40°C / 30%RH to 85 %RH
Storage condition	-10°C to +60°C / 30%RH to 85 %RH
Dimensions	Approx. 147 [W] x 64 [H] x 110 [D] mm
Weight	Approx. 300 g, excepting batteries

 0366

 0678

Note: Specifications are subject to change for improvement without prior notice.

Medical Electrical Equipment needs special precautions regarding EMC and needs to be installed and put into service according to the EMC information provided in the following. Portable and mobile RF communication equipment (e.g. cell phones) can affect Medical Electrical Equipment.

The use of accessories and cables other than those specified (other than A&D original parts) may result in increased emissions or decreased immunity of the unit.


<b>Guidance and manufacturer's declaration – electromagnetic emissions</b>		
The A&D unit is intended for use in the electromagnetic environment specified below. The customer or the user of the A&D unit should assure that it is used in such an environment.		
<b>Emissions test</b>	<b>Compliance</b>	<b>Electromagnetic environment – guidance</b>
RF emissions CISPR 11	Group 1	The A&D unit 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.  The A&D unit 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.
RF emissions CISPR 11	Class B	
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations/flicker emissions IEC 61000-3-3	Complies	

<b>Recommended separation distances between portable and mobile RF communications equipment and the A&amp;D unit</b>			
The A&D unit is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the A&D unit can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the A&D unit as recommended below, according to the maximum output power of the communications equipment.			
<b>Rated maximum output power of transmitter</b>  W	<b>Separation distance according to frequency of transmitter</b> <b>m</b>		
	<b>150 kHz to 80 MHz</b> $d = 1.2\sqrt{P}$	<b>80 MHz to 800 MHz</b> $d = 1.2\sqrt{P}$	<b>800 MHz to 2.5 GHz</b> $d = 2.3\sqrt{P}$
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 metres (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.			



**Guidance and manufacturer's declaration – electromagnetic immunity**

The A&D unit is intended for use in the electromagnetic environment specified below. The customer or the user of the A&D unit should assure that it is used in such an environment.

<b>Immunity test</b>	<b>IEC 60601 test level</b>	<b>Compliance level</b>	<b>Electromagnetic environment – guidance</b>
			Portable and mobile RF communications equipment should be used no closer to any part of the A&D unit, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.  <b>Recommended separation distance:</b>
Conducted RF IEC 61000-4-6	3 V <sub>rms</sub> 150 kHz to 80 MHz	3 V <sub>rms</sub>	$d = 1.2 \sqrt{P}$
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2,5 GHz	3 V/m	$d = 1.2 \sqrt{P}$ 80 MHz to 800 MHz $d = 2.3 \sqrt{P}$ 800 MHz to 2,5 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).  Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, <sup>a</sup> should be less than the compliance level in each frequency range. <sup>b</sup>  Interference may occur in the vicinity of equipment marked with the following symbol: 

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.

<sup>a</sup> Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the A&D unit is used exceeds the applicable RF compliance level above, the A&D unit should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the A&D unit.

<sup>b</sup> Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

### Guidance and manufacturer's declaration – electromagnetic immunity

The A&D unit is intended for use in the electromagnetic environment specified below. The customer or the user of the A&D unit should assure that it is used in such an environment.

<b>Immunity test</b>	<b>IEC 60601 test level</b>	<b>Compliance level</b>	<b>Electromagnetic environment – guidance</b>
Electrostatic discharge (ESD) IEC 61000-4-2	± 6 kV contact  ± 8 kV air	± 6 kV contact  ± 8 kV air	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	± 2 kV for power supply lines  ± 1 kV for input/output lines	n.a.	
Surge IEC 61000-4-5	± 1 kV differential mode  ±2 kV common mode	± 1 kV differential mode  ±2 kV common mode	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	< 5% $U_T$ (> 95% dip in $U_T$ ) for 0.5 cycle  40% $U_T$ (60% dip in $U_T$ ) for 5 cycles  70% $U_T$ (30% dip in $U_T$ ) for 25 cycles  < 5% $U_T$ (> 95% dip in $U_T$ ) for 5 s	< 5% $U_T$ (> 95% dip in $U_T$ ) for 0.5 cycle  40% $U_T$ (60% dip in $U_T$ ) for 5 cycles  70% $U_T$ (30% dip in $U_T$ ) for 25 cycles  < 5% $U_T$ (> 95% dip in $U_T$ ) for 5 s	Mains power quality should be that of a typical commercial or hospital environment. If the user of the A&D unit requires continued operation during power mains interruptions, it is recommended that the A&D unit be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	

NOTE :  $U_T$  is the AC mains voltage prior to application of the test level.





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