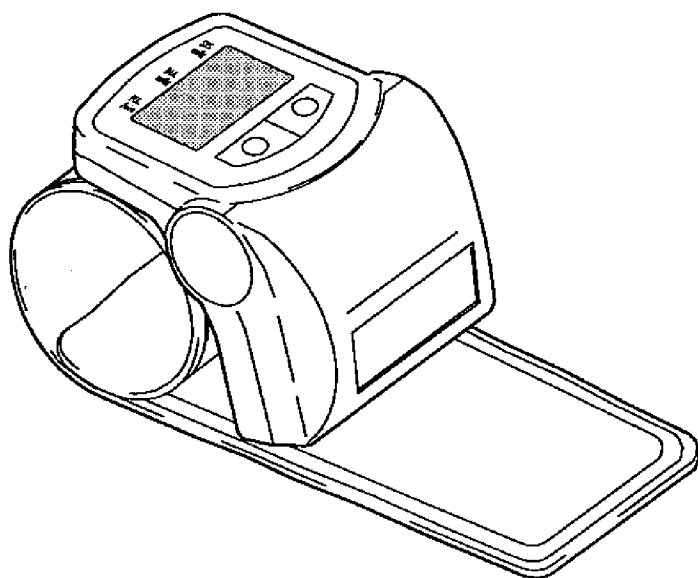


# AND

## Wrist Digital Blood Pressure Monitor

### Model UB-322

*Instruction Manual*





## ENGLISH

### Dear Customers

Congratulations. You have purchased an A&D blood pressure monitor, one of the most technologically advanced, yet easy to use products available in the marketplace today.

We strongly recommend you read this instruction manual carefully prior to using it the first time.

### General Information

This device conforms to the European Directive 93/42/EEC for Medical Products. This is evidenced by the CE mark of conformity accompanied by the reference number of a designated authority.

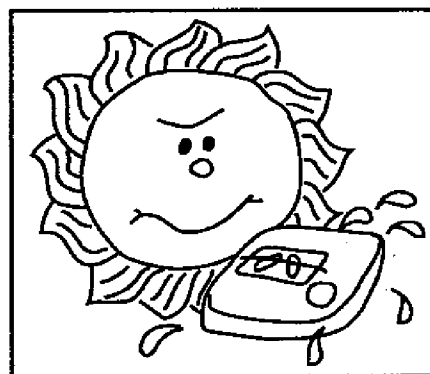
This device is designed for monitoring your blood pressure and pulse rate at home. Therefore, intended use of this device is limited to monitoring blood pressure and pulse for the general public, except newborns and infants.

#### Note

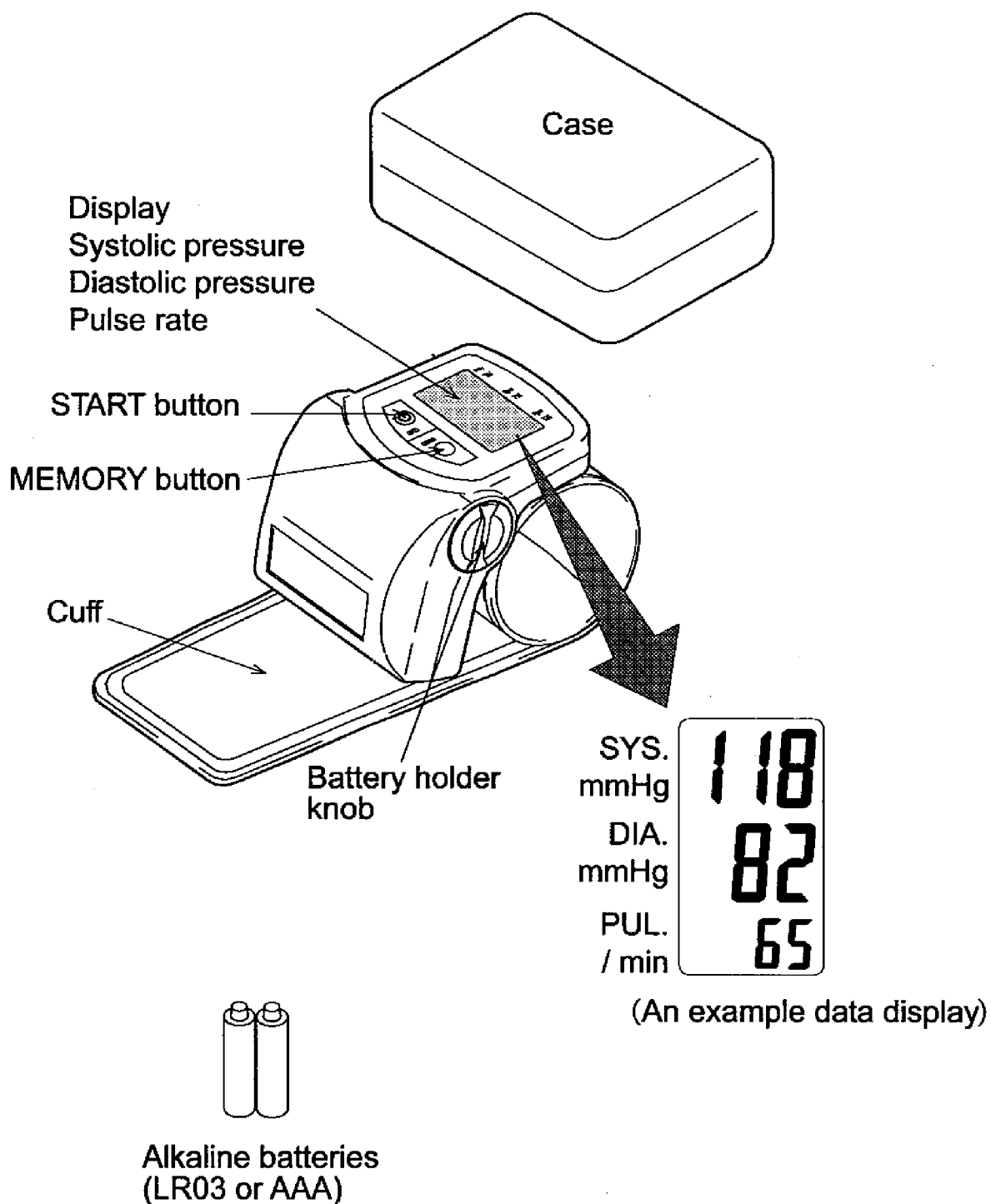
1. This device is designed for personal use and not for public use.
2. This device is not designed for measuring newborns or infants. Using this device on newborns and infants could cause injury to the child. **DO NOT USE** on newborns or infants.

## Precautions

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



# Parts Identification



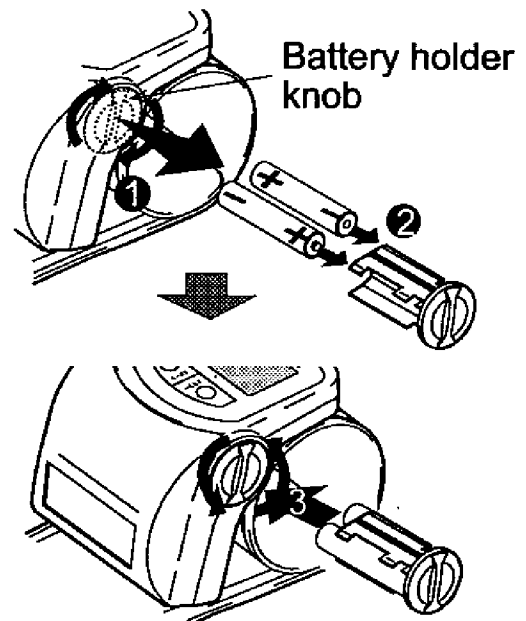
# Symbols

| Symbols                | Function / Meaning   | Treatment  |
|------------------------|--|--|
|                        | Turns the device on and off.   | _____  |
|                        | Guide to install battery   | _____  |
|                        | Direct current   | _____  |
| <b>SN</b>              | Serial number  | _____  |
|                        | Date of manufacture  | _____  |
|                        | Type BF: Device, cuff and tubing are designed to provide special protection against electrical shocks. | _____  |
|                        | Appears when measurement is in progress and flashes when the pulse is detected.                        | Measurement is in progress -<br>- remain still.  |
|                        | Previous measurement stored in MEMORY  | _____  |
|                        | Appears when the battery voltage is too low for the device to work properly.                           | Replace all batteries with new ones.   |
| <b>Err<sub>1</sub></b> | Appears if the pressure value is unstable due to movement during the measurement.                      | Try the measurement again.<br>Remain very still during the measurement.  |
| <b>Err<sub>2</sub></b> | Appears if the pressure value is unstable due to movement during the measurement.                      |  |
|                        | Appears when inflation is not sufficient.  | If your systolic reading may exceed 150 mmHg, read "For those whose systolic pressure is over 150 mmHg" on page 7. |
| <b>Err<sub>3</sub></b> | Appears when the cuff is not fastened correctly.   | Fasten the cuff correctly, and try the measurement again.  |
| <b>Err</b>             | Appears when the pulse is not detected correctly.  | Fasten the cuff correctly, and try the measurement again.  |
| <b>SYS.</b>            | Systolic blood pressure in mmHg  | _____  |
| <b>DIA.</b>            | Diastolic blood pressure in mmHg   | _____  |
| <b>PUL./min</b>        | Pulse beats per minute   | _____  |
|                        | The medical device label by the EC directive   | _____  |
|                        | Registered with the Australian Communication Authority by the Trademarks office.                       | _____  |



# Using the Monitor

## 1. Installing the batteries

1. Turn the knob on the battery holder clockwise to pull out the holder.
2. Place two batteries (LR03 or AAA) in the holder, with positive (+) and negative (-) terminals matching those indicated in the holder.
3. Insert the battery holder, and turn the knob counterclockwise until it is locked.



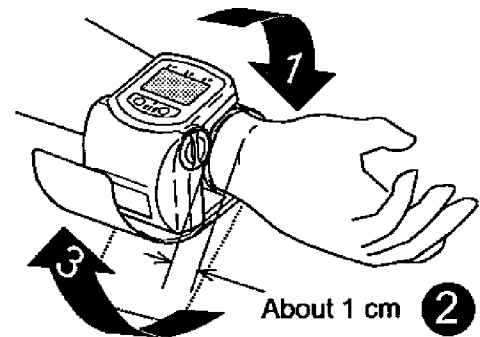
### CAUTION

- Insert the batteries as shown in the battery holder. If not, the device will not work.
- When  (LOW BATTERY mark) appears in the display, replace all batteries with new ones at the same time. 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 period of 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 shorter life.

# Using the Monitor

## 2. Fastening the cuff

1. Wrap the cuff around your wrist, about 1 cm above your hand, as shown in the figure at the right.
2. Fasten the cuff tightly using the Velcro strip



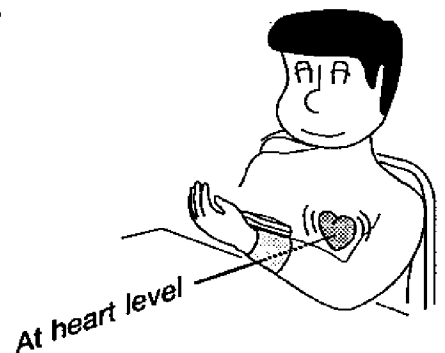
### Note

*For proper measurements, fasten the cuff tightly and measure on a bare wrist.*

## 3. 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.
- Raise your hand so that the cuff is at the same level as your heart.
- Remain still and keep quiet during measurement.
- Do not measure right after physical exercise or a bath.



Rest twenty or thirty minutes before taking the measurement.

- Try to measure your blood pressure at the same time every day.

## 4. Measurement

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

## 5. 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 off the power automatically one minute after measurement.*

*Allow at least ten minutes between measurements on the same person.*

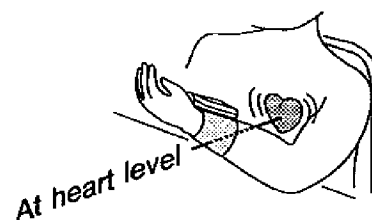
# Measurements

## Note

The UB-322, once used, will provide an inflation appropriate to the user, based on the previous measurement.

If your systolic pressure is expected to exceed 150 mmHg, read "For those whose systolic pressure is over 150 mmHg" on page 7.

1. Sit comfortably with the cuff at the same level as your heart and relax.



2. Press the START button.

All display symbols appear briefly, then the display changes as indicated in the figure at the right when measurement begins.

The cuff starts to inflate. It is normal for the cuff to feel very tight.

## 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) appears to indicate that measurement is in progress.

Once the pulse is detected, the mark flashes 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.

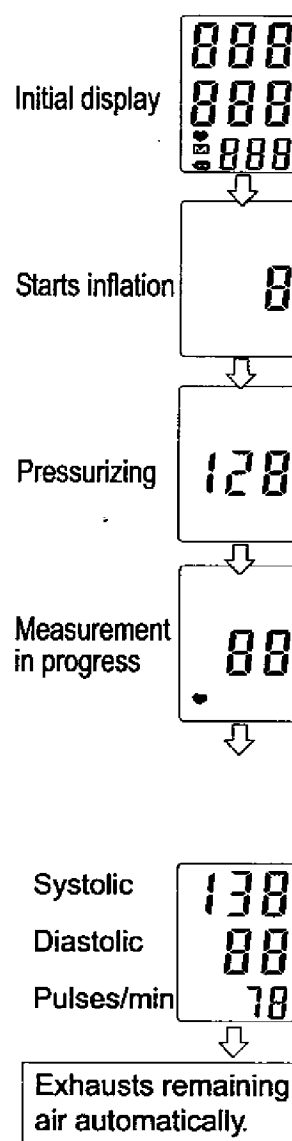
5. Press the START button again to turn off the power.

Remove the cuff.

## Note

The device has an automatic power shut-off function.

Allow at least ten minutes between measurements on the same person.

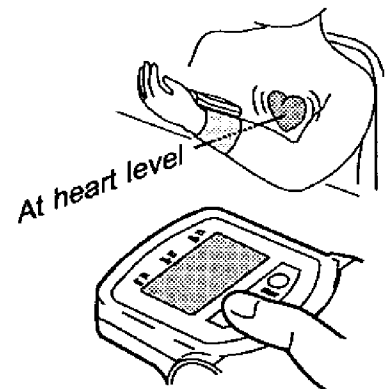




# Measurements

## For those whose systolic pressure is over 150 mmHg

1. Fasten the cuff around your wrist.  
Raise your arm so that the cuff is at the same level as your heart.
2. Press and hold the START button until a number about 30 to 40 mmHg higher than your expected systolic pressure appears.
3. When the desired number is reached, release the START button. Measurement will begin.



Press and hold until the desired value appears.

### Note

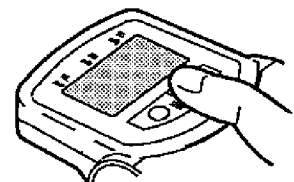
*The operation above is required only when you measure your blood pressure for the first time. Next time, the UB-322 will provide an appropriate inflation. So, measure your blood pressure as described on page 6.*

# Recalling Memory Data

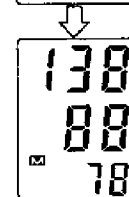
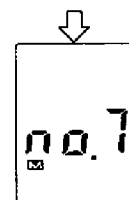
### Note

*This device stores the last seven measurements in memory automatically. The data is retained as long as the batteries are in the device. When you remove the batteries or the batteries are drained, the data will be erased.*

1. With nothing appearing on the display, press the MEMORY button.
2. The newest data appears. First, the Memory Number, then its data, two times.
3. When the MEMORY button is pressed while data is displayed, the previous data appears. Each time the MEMORY button is pressed, the memorized data appears one after the other in the order of decreasing memory number. After last data appears, the display goes blank.



With nothing displayed, press MEMORY button.



Each time MEMORY button is pressed, the previous data appears.

# About Blood Pressure

## 1. 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 taking food or drink.

## 2. What is hypertension and how is it controlled?

Hypertension is abnormally high blood pressure. If left unattended, it 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 help prevent hypertension or keep it under control:

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

## 3. Why measure blood pressure at home?

Blood pressure measured at a clinic or doctor's office may cause apprehension or fear 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.

## 4. Blood pressure measured on your wrist may differ from that measured on your upper arm.

Blood pressure measured on your wrist and on your upper arm may be different. This results from the difference in widths of the blood vessels in your wrist and arm. The average difference in values for a healthy adult is about  $\pm 10$  mmHg.

The arteries in the upper arm lead to the wrist. Blood pressure variations in the arteries are reflected in the blood pressure in the wrist. So, measuring blood pressure on your wrist is a good way to check your blood pressure.

### *Note*

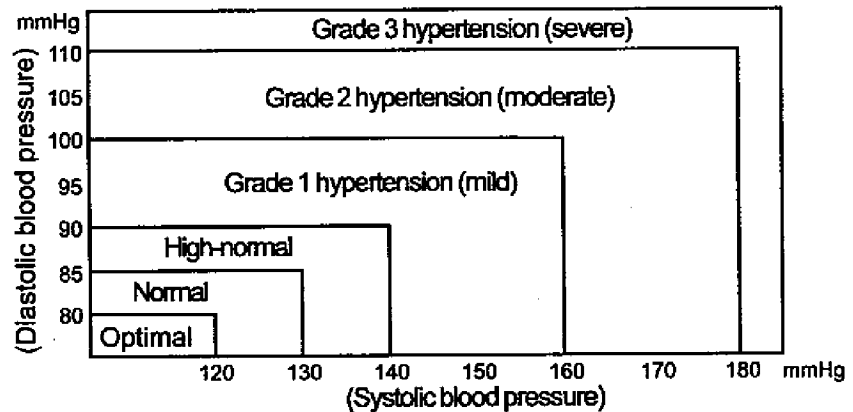
*With those who suffer from hypertension, arteriosclerosis, diabetes, kidney failure, and other disorders of the circulatory system, the difference may be greater.*

# About Blood Pressure

## 5. WHO blood pressure classification

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

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



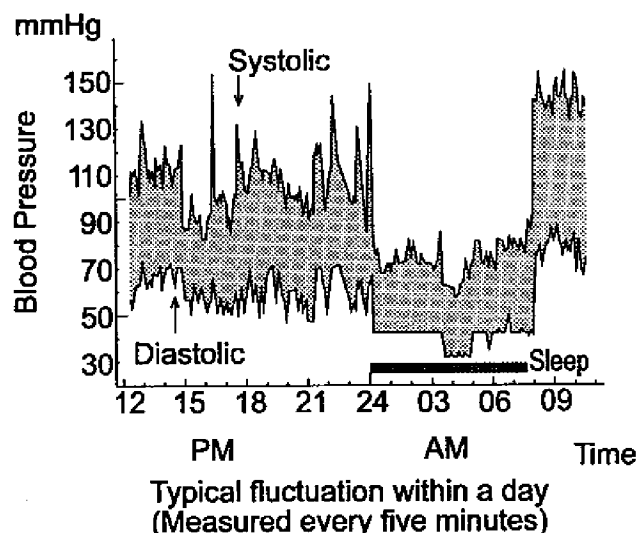
## 6. Blood pressure variations

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, and know your normal blood pressure. Multiple readings give a more comprehensive blood pressure history.

Be sure to note the date and time when recording your blood pressure. Consult your doctor to interpret your blood pressure data.



# Troubleshooting

| Problem   | Probable cause   | Corrective 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.   | Place the batteries with negative and positive terminals matching those indicated in the holder.                    |
| The cuff will not inflate.  | Battery voltage is too low. (  , LOW BATTERY mark appears). If the batteries are drained, the mark does not appear. | Replace all batteries with new ones.  |
| The device will 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.  | Adjust the cuff position. 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 "3. Why measure blood pressure at home" on page 8.  |
|   |  | Remove the batteries. Place them back in correctly, and try the measurement again.                                  |

## Note


If the actions described above do not solve the problem, contact the dealer. Do not attempt to repair the device yourself.

# Maintenance

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

The technical testing procedures, which should be done at least every three years, can be performed either by the manufacturer or by an authorized repair service in accordance with the regulations governing manufacturing of medical products.

## Technical Data

|                      |   |
|----------------------|---|
| Type                 | UB-322  |
| Measurement method   | Oscillometric measurement   |
| Measurement range    | Pressure : 20 - 280 mmHg<br>Pulse : 40 - 200 beats / minute                                 |
| Measurement accuracy | Pressure : $\pm 3$ mmHg or 2%, whichever is greater<br>Pulse : $\pm 5\%$                    |
| Power supply         | 2 x 1.5V alkaline batteries (LR03 or AAA)   |
| Wrist circumference  | 13.5 – 19.5 cm  |
| Classification       | Type BF  |
| Clinical test        | According to ANSI / AAMI SP-10 1987   |
| 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. 89 [W] x 67 [H] x 69 [D] mm, excluding cuff   |
| Weight               | Approx. 140 g, excluding batteries  |



### *Note*

*Specifications are subject to change without prior notice.*

# Memo





**A&D Co.,LTD.**

1-243 Asahi,Kitamoto-shi,Saitama 364-8585 JAPAN  
Telephone:[81](485)93-1111 Fax:[81](485)93-1119

**A&D INSTRUMENTS LTD.**

<Authorized Representative Established In the European Community>  
Unit 24/26 Blacklands Way,Abingdon Business Park,Abingdon,  
Oxon OX14 1DY United Kingdom  
Telephone:[44](1235)550420 Fax:[44](1235)550485

**A&D MERCURY PTY. LTD.**

32 Dew Street,Thebarton,South Australia 5031 AUSTRALIA  
Telephone:[61](8)8352-3033 Fax:[61](8)8352-7409