

# UM-211

## Digital Blood Pressure Monitor

Instruction Manual  
Manuel d'instructions  
Manual de instrucciones  
Manuale di Istruzioni  
使用手冊

Original  
Traduction  
Traducción  
Traduzione  
翻譯

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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. This device is designed for ease of use and accuracy.

**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>0123</sub> mark of conformity. (0123: The reference number to the involved notified body)
- ❑ Intended user: The device is designed to be used by medical workers.
- ❑ The device is designed for use on adults and children of age 3 years and older.
- ❑ Environment for use: The device is designed to be used in the medical facilities.
- ❑ This device is designed to measure blood pressure and pulse rate of people for diagnosis.
- ❑ Operating principle: This device is an oscillometric sphygmomanometer. When the cuff pressure is pressurized above systolic blood pressure and then is gradually depressurized, the pulsation phenomenon synchronized with the heart beat appears in the cuff pressure. This pulsation starts small at the beginning, becomes large as the pressure decreases, eventually shows the maximum amplitude, then decreases again, and ultimately creates a mountain-shaped pattern. This oscillometric-type sphygmomanometer analyzes the signal information of this pulsation with a microcomputer and determines systolic blood pressure and diastolic blood pressure values. Also this device is designed to monitor and display cuff pressure during cuff inflation and deflation while the user determines the patient's blood pressure level by listening to Korotkoff sounds with a stethoscope.

## Precautions

### Installation or storage location for the device

- ❑ Do not use the device where flammable gases such as anesthetic gases are present. It may cause an explosion.
- ❑ Do not use the device in highly concentrated oxygen environments, such as a high-pressure oxygen chamber or an oxygen tent.
- ❑ Extremes in room temperature, humidity, direct sunlight, shock or dust should be avoided.

- ☐ Use or keep the device in a stable location where there is no slope, no vibration and no mechanical shock (including when shipping).
- ☐ Use or keep the device in a location where the chemicals, medicines or gases are not present.
- ☐ The device and cuff are not water resistant.
- ☐ Measurement may be distorted if the device is used close to televisions, microwave ovens, cellular telephones, X-ray or other devices with strong electrical fields.
- ☐ A strong shock to the device may result in mechanical error or possible injury due to debris.
- ☐ Avoid tightly folding the cuff or storing the hose tightly twisted for long periods, as such treatment may shorten the life of the components.

### **Confirmation before use**

- ☐ Confirm that the device is safe and secure for accurate operation.
- ☐ Operate the device using the provided specified AC adapter.
- ☐ Only the specified options and consumables are allowed for use with this device.
- ☐ When reusing the device, confirm that the device is clean.
- ☐ Do not apply the cuff to an arm if another electrical medical device is already attached.
- ☐ Do not apply the cuff on an arm receiving an intravenous drip or blood transfusion. It may cause injury or accidents.
- ☐ This device is intended for use by doctors and clinical workers only in a medical environment. The monitor was not designed for patient's own use so care must be taken to ensure accurate results and avoid possible accidents.
- ☐ Do not use the device in an ambulance or ambulance helicopter.  
Doing so will prevent the device from providing accurate measurements.
- ☐ Do not use the device where plugging and unplugging of the AC adapter may be difficult.
- ☐ Clinical testing has not been conducted on newborn infants and pregnant women. Do not use on newborn infants or pregnant women. For the auscultation measurement, the device can be used for pregnant women.
- ☐ Do not use on patients with blood flow disorders.
- ☐ Do not use on patients that are using heart-lung support equipment.
- ☐ Confirm that there is no harm to the patient when the cuff is applied to the patient's arm and if the patient has had a mastectomy or lymph node clearance, avoid the arm adjacent to the breast affected.
- ☐ Do not modify the device. Doing so may cause accidents or damage to the device.

### **Precautions during use of the device**

- ☐ When error display appears on the device or there are some doubts in the measurement values, confirm the patient's vital signs by using the palpation or auscultation method. Check that the air hose has not been bent or blocked.

- ❑ Should an error appear on the device, or if the patient feels discomfort, stop the device and take the proper corrective action to regain a safe environment.
- ❑ Do not wrap the cuff on the arm with a wound. That may not only result in reopening the wound but could also cause an infection.
- ❑ Ensure that the position of the applied cuff is at the same level as the heart. (Otherwise, the blood pressure value results in an error.)
- ❑ Do not start to measure the blood pressure without wrapping the cuff around the arm. That may result in the cuff bursting or other damage.
- ❑ Regularly confirm patient status when the measurement is performed frequently or for a long time. Otherwise, it may cause damage due to peripheral arterial disease.
- ❑ Use the device so that the air hose is not bent or blocked. Using the cuff with the air hose kinked or bent may result in peripheral circulatory failure due to hemostasis in the arm (caused by air remaining in the cuff).
- ❑ Do not apply excessive force to the AC adapter cable, such as lifting the device or pulling the AC adapter out by holding the AC adapter cable.
- ❑ Do not pull out or do not connect the specified AC adapter with a wet hand. That may result in an electrical shock or getting a burn.
- ❑ While measuring, do not connect or disconnect the AC adapter or battery or perform maintenance on them.
- ❑ Do not simultaneously touch the DC jack and the patient. That may result in electrical shock.
- ❑ To measure blood pressure, the arm must be squeezed by the cuff hard enough to cause some numbness and possibly a temporary red mark to the arm.
- ❑ Follow local instructions specified in the hospital when the cuff is used on several or infectious patients. Otherwise cross infection may result.
- ❑ If the patient has a very weak or irregular heart beat, the device may have difficulty in determining the blood pressure.
- ❑ Should the battery short-circuit, it may become hot and potentially cause burns.

### **Note**

- ❑ Do not modify the device. It may cause accidents or damage to the device.
- ❑ The patient should be relaxed and avoid moving or talking during measurement. Otherwise that may result in a measurement error.
- ❑ To ensure accurate measuring, we recommend measuring the blood pressure after being in a relaxed state for at least five minutes.

### **Care for after use**

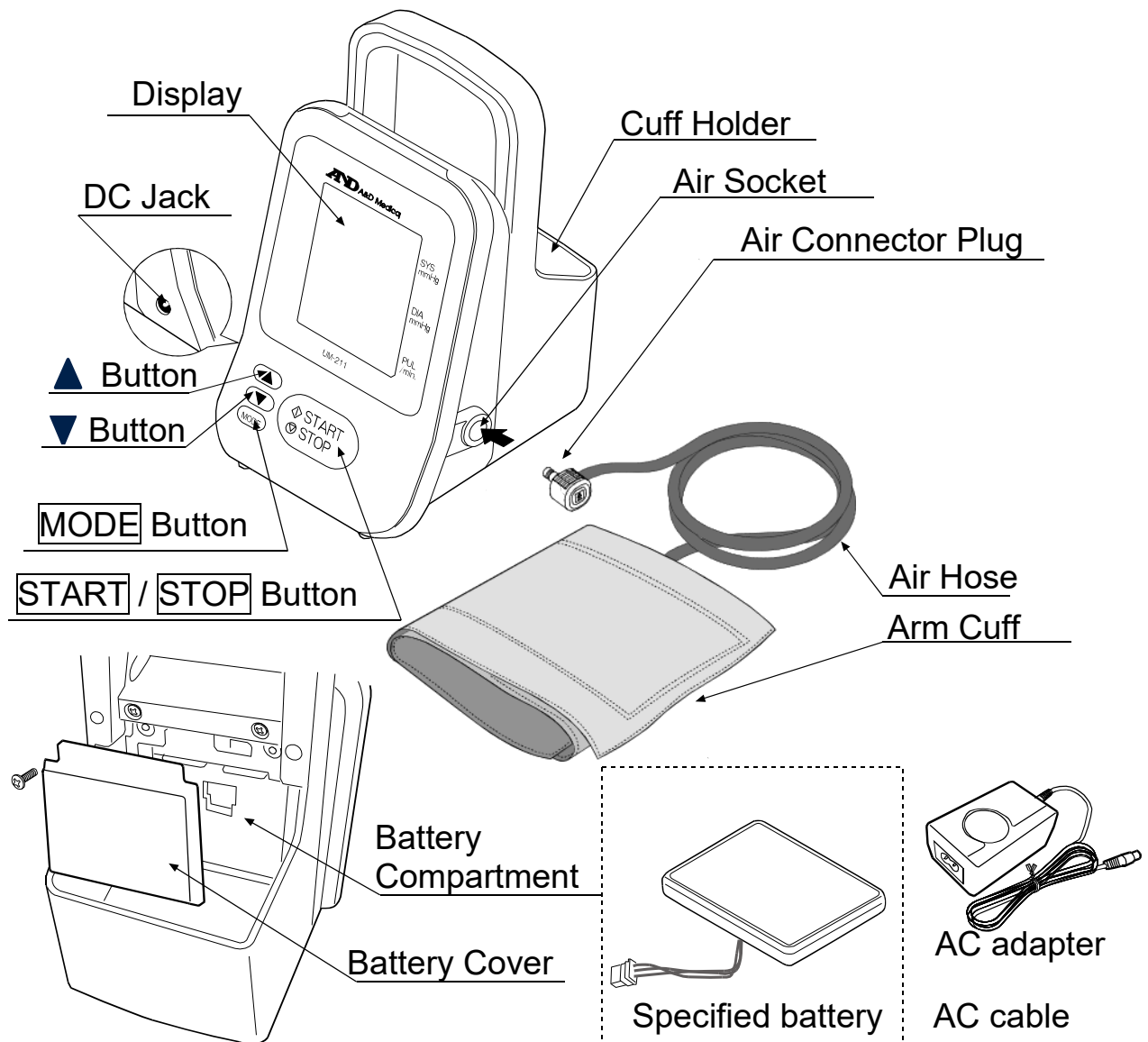
- ❑ When the cuff is infected by blood or body fluid, it should be safely disposed of according to local instructions or protocol to avoid any potential spread of infectious disease.
- ❑ Clean the device and cuff with a dry, soft cloth or a cloth dampened with water and a neutral detergent. Never use benzene, thinner or other harsh chemical to clean the device. For full details please read page 28.

- ❑ When carrying out maintenance on the device, turn the power off and remove the power cable from the outlet to prevent a risk of electrical shock.
- ❑ Do not spray, do not pour or do not spill a liquid on the main body, accessories, connectors, buttons or outlet ports.
- ❑ Do not perform autoclave or gas sterilization (EOG, formaldehyde gas or high concentration ozone etc.) on the device as this could result in degradation.
- ❑ The user authority (the hospital, clinic, etc.) is responsible for the safe use and maintenance of this electronic medical device. Care should be taken to follow the specified daily maintenance and inspection procedures for safe use.
- ❑ Store the cuff, air hose, and rubber bulb so that they are not bent or blocked. Doing so may cause an accident or damage to the device.

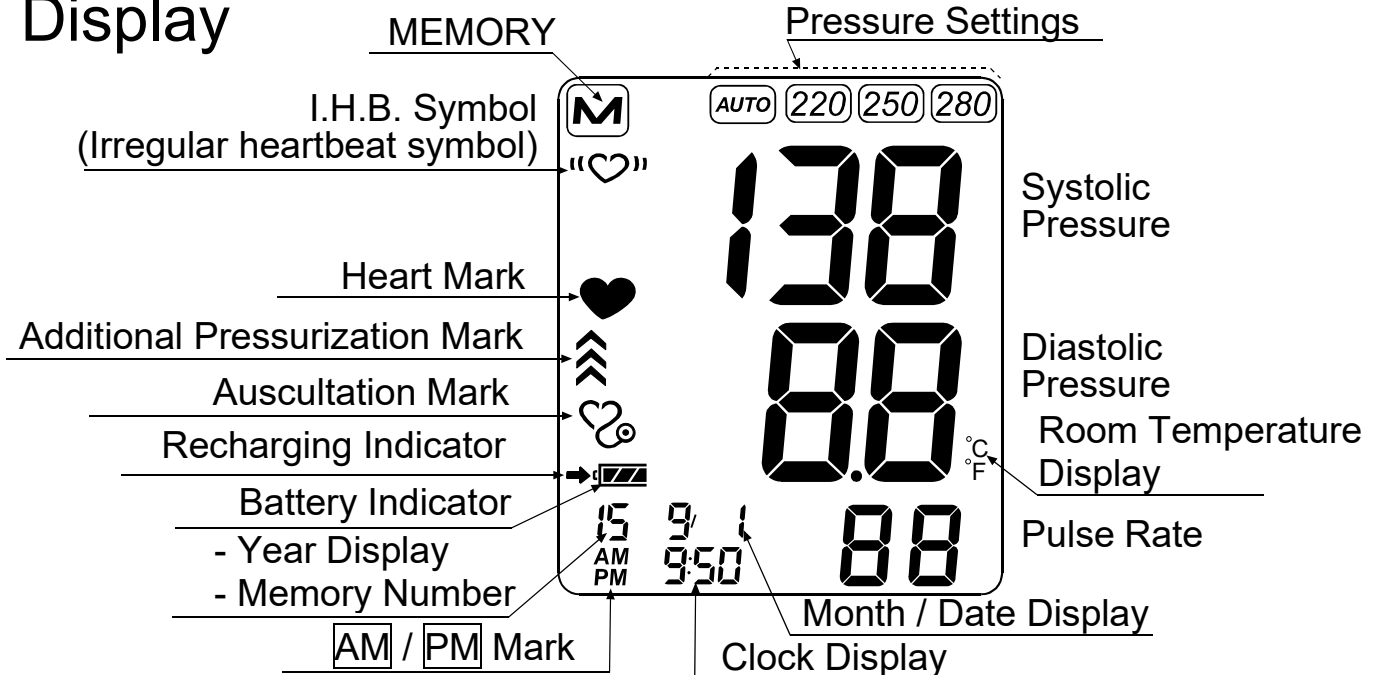
### **Specified battery pack**

- ❑ Only the specified battery pack is allowed to be used with this device.
- ❑ Used equipment, parts and battery are not treated as ordinary household waste, and must be disposed of according to the applicable local regulations.
- ❑ Be sure to remove the specified AC adapter from the device when the specified battery pack is being re-installed in the device. Otherwise that may result in an electrical shock.
- ❑ Remove the specified battery pack from the device, and keep it elsewhere if you are not going to use the device for a month or more. Recharge the battery once every six months. Otherwise the battery may degrade.
- ❑ Be sure to use the device after the battery was recharged. Otherwise that may avoid from proper use for the device using the battery in emergency.
- ❑ If liquid leaked from the specified batteries gets into the eyes, avoid rubbing the eye and fully rinse the liquid off using water, then immediately seek medical attention.
- ❑ The specified battery pack should be used only on this device. Do not heat the battery pack, or do not break it up. That may cause a heat generation, catching fire, short circuit or explosion.
- ❑ Do not apply a pressure or mechanical shock to the specified battery pack. That may result in an expansion or explosion.
- ❑ Replace the specified battery pack with new one when the measurement time with this device is extremely short even after fully recharging.

# Parts Identification














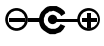






## Display
















# Symbols

Symbols that are printed on the device case and the AC adapter

Symbols	Function / Meaning	Recommended Action
 	<p>The blood pressure measurement is started when the <b>[START/STOP]</b> button is pressed at the standby mode.</p> <p>The blood pressure measurement is stopped when the <b>[START/STOP]</b> button is pressed during measuring the blood pressure.</p> <p>The device proceeds to standby mode when the <b>[START/STOP]</b> button is pressed for at least three seconds.</p>	_____
SYS	Systolic blood pressure in mmHg	_____
DIA	Diastolic blood pressure in mmHg	_____
PUL	Pulse per minute	_____
	Direct current	_____
SN	Serial number	_____
2014 	Date of manufacture	_____
	Type BF applied part	_____
	EC directive medical device label	_____
	WEEE label	_____
	Manufacturer	_____
	EU-representative	_____
	Refer to instruction manual/booklet	_____
	Class II device	_____
	Polarity of DC jack	_____
	UL Recognized Component Marks for Canada and the United States	_____
	Do Not Dissassemble	_____
	Indoor Dry Location Use Only	_____
	Consult the instruction manual	_____
	PSE Recognized Component	_____
	Warnig-Hot surface	_____

Symbols that appear on the display

Symbols	Function / Meaning	Recommended Action
	Appears while measurement is in progress. It blinks when the pulse is detected.	Measurement is in progress. Remain as still as possible.
	Irregular Heartbeat symbol (I.H.B.) Appears when an irregular heartbeat is detected. It may light when a very slight vibration like shivering or shaking is detected.	_____
	Previous measurements stored in memory.	_____
	Illuminates in order from bottom when the ▲ button is pressed to add the pressurization during constant speed exhaustion at the auscultation mode	_____
	Illuminates when the auscultation mode is ON.	_____
	FULL BATTERY The battery power indicator during measurement.	_____
	LOW BATTERY The battery power is low when it blinks.	Recharge the device using the AC adapter.
	Illuminates when the AC adapter is connected to the device. Blinks while the battery is being recharged.	_____
	Unstable blood pressure due to movement during measurement.	Take another measurement. Remain still during measurement.
	The systolic and diastolic values are within 10 mmHg of each other.	Apply the cuff correctly, and take another measurement.
	The pressure value did not increase during the inflation.	
	The cuff is not applied correctly.	Apply the cuff correctly, and take another measurement.
	PUL DISPLAY ERROR The pulse is not detected correctly.	

ErrE	Blood pressure monitor internal error	Remove the batteries and press the <b>START/STOP</b> button, and then install the batteries again. If the error still appears, contact the dealer.
ErrF		
ErrG		
AM	Means morning when the clock function is set to 12H display.	_____
PM	Means afternoon when the clock function is set to 12H display.	_____
<b>AUTO</b> <b>220</b> <b>250</b> <b>280</b>	Pressure settings Indicates the pressure value previously set by the user.	_____
Room Temperature (°C, °F)	Means Celsius or Fahrenheit of room temperature.	

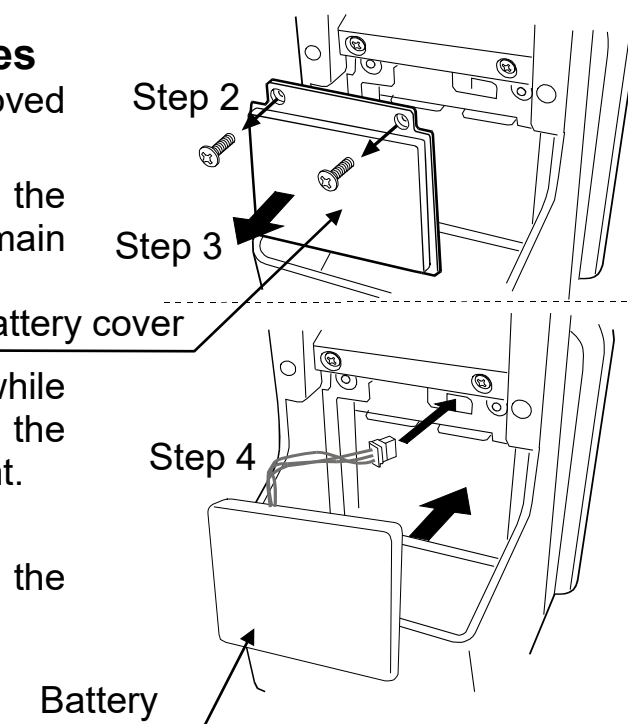
# Mode list

Mode No.	Mode name	Function
F01	Pressurization value setting	A pressurization value at the blood pressure measuring can be changed.
F02	Auscultation setting	A setting about whether the auscultation measurement is carried out at the blood pressure measuring is possible.
F03	Auscultation exhaust speed changing	An exhaust speed for when the auscultation measurement is performed can be switched between “Hi” or “Lo”.
F10	Clock setting	A current date and time can be set.
F11	Clock display setting	A clock display can be switched between 12H or 24H.
F12	Auto power OFF time setting	A time for timeout for when no operation is made can be switched between “5” or “10” minutes.
F14	Room temperature unit changing	A unit for displayed room temperature can be switched between °C or °F.




# Using the Monitor

## Installing / Changing the Batteries

1. Confirm that the AC adapter is removed from outlet.
2. Remove the screws that secure the battery cover on the rear side of the main body.
3. Remove the battery cover.
4. Connect the battery's connector while pushing the hook at the left side to the connector in the battery compartment.
5. Close the battery cover.
6. Secure the battery cover by using the screws.

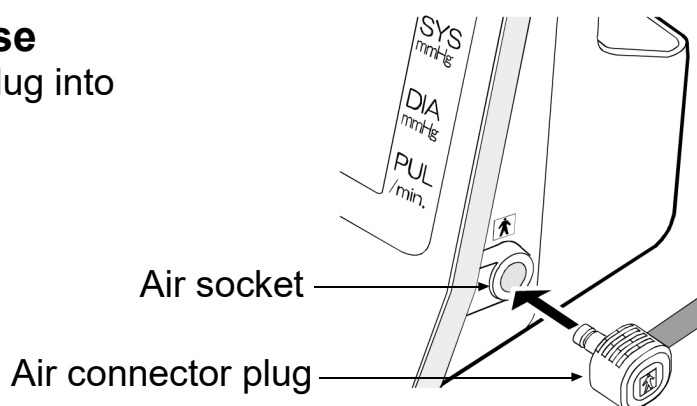


## CAUTION

- ☐ When  (LOW BATTERY mark) blinks on the display, recharge the battery. Replace the battery two seconds or more after the device turns off. If  appears even after the battery is replaced, make a blood pressure measurement. The device may then recognize the new battery.
- ☐  does not appear when the battery is drained.
- ☐ The battery life varies with the ambient room temperature and may be shorter at low room temperatures.
- ☐ Use the specified battery only.
- ☐ Remove the battery if the device is not to be used for a long time. The battery may leak and cause a malfunction.
- ☐ Exchange the battery with new one when an operation time using the battery with this device is extremely short even after recharging.
- ☐ We recommend exchanging the battery once every two years.
- ☐ Be sure the time was reset when the battery was replaced.

## Connecting the Air Hose

Insert the air connector plug into the air socket firmly.

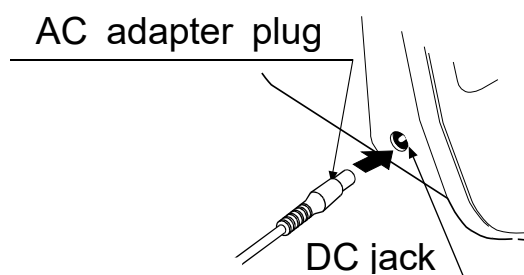


## Connecting the AC Adapter

Insert the AC adapter plug into the DC jack.

Next, connect the AC adapter to an electrical outlet.

- Use the specified AC adapter.  
(Refer to page 30.)



Note: The device is operated using the battery when the power is not supplied to the main body from the AC adapter.

## Recharging the Battery

- By connecting the AC adapter to the device, the recharging is started.
- The recharging completes about four hours after the AC adapter is connected to the device.
- The recharging mark (➡) blinks during recharging.
- The recharging mark continues to illuminate when completing recharging.

Note: A certain amount of time is required for the device temperature display to reach room temperature after recharging.

# Operation

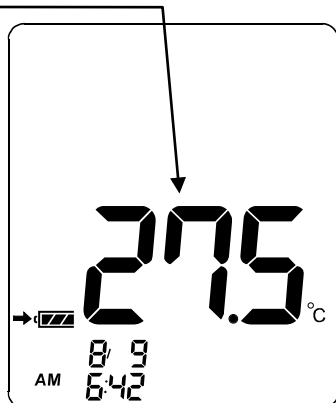
## Standby mode

- The device goes into standby mode when the power is turned on, and a current room temperature is displayed at the display for diastolic pressure.
- The device proceeds to standby mode when the **START/STOP** button is pressed and held, or no operation is made for a regular time at all status other than blood pressure mode and auscultation mode.
- Press the ▲ or ▼ button to read out the memory.
- Press the **MODE** button to proceed to the pressurization value setting mode.
- Press and hold the **MODE** button to proceed to the clock setting mode.
- Press the **START/STOP** button to start the measurement.

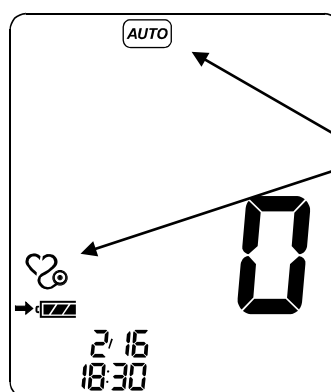
## Measurement standby mode

- The device proceeds to measurement standby mode when the auscultation mode is set to OFF at the auscultation setting mode, or the **MODE** button is pressed at the auscultation exhaust speed changing mode, or the measurement is stopped.
- Also, the device proceeds to measurement standby mode when the measurement is completed. In this case, the device remains measurement results displayed.
- Press the ▲ or ▼ button to read out the memory.
- Press the **MODE** button to proceed to the pressurization value setting mode.
- The device proceeds to the standby mode automatically after a regular time.
- Press the **START/STOP** button to start the measurement.

A current temperature is displayed.



Standby mode



Measurement standby mode

The display defers depending on a setting.

Model UM-211 is designed to detect the pulse and to inflate the cuff to a systolic pressure level automatically.

If re-inflation occurs repeatedly, use the following methods.

## Measurement with the SET Pressure

During the blood pressure measurement, re-inflation may occur.

A fixed pressure value can be set to avoid re-inflation.

1. Press the **MODE** button to go to the pressurization value setting mode. The current setting blinks.

2. Press the ▲ or ▼ button to select a pressure value about 30 mmHg or more above your expected systolic pressure from the following.

**AUTO** : Automatic pressurization (default value)

**220** : Pressure value of 220 mmHg (fixed)

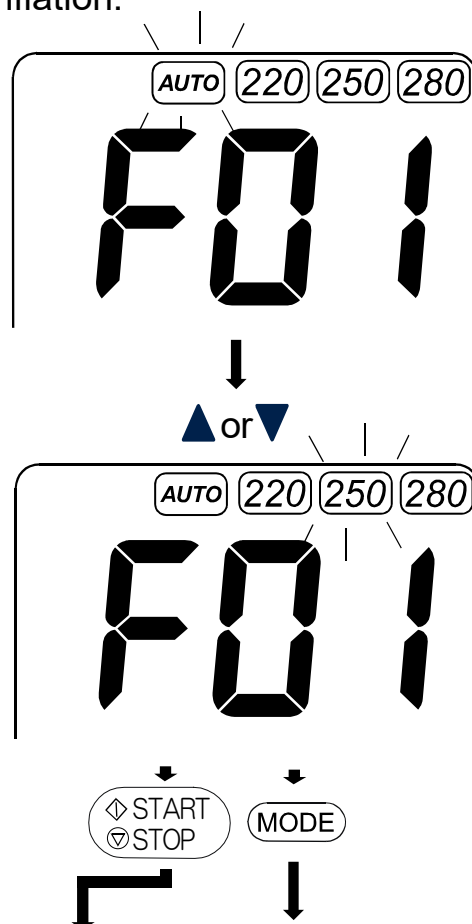
**250** : Pressure value of 250 mmHg (fixed)

**280** : Pressure value of 280 mmHg (fixed)

3. Press the **MODE** button to go to the auscultation setting mode.

Press the **START/STOP** button to start the measurement. The device will proceed to standby mode automatically when no operation is made for a regular time.

The next measurement will be performed with the new pressure value.



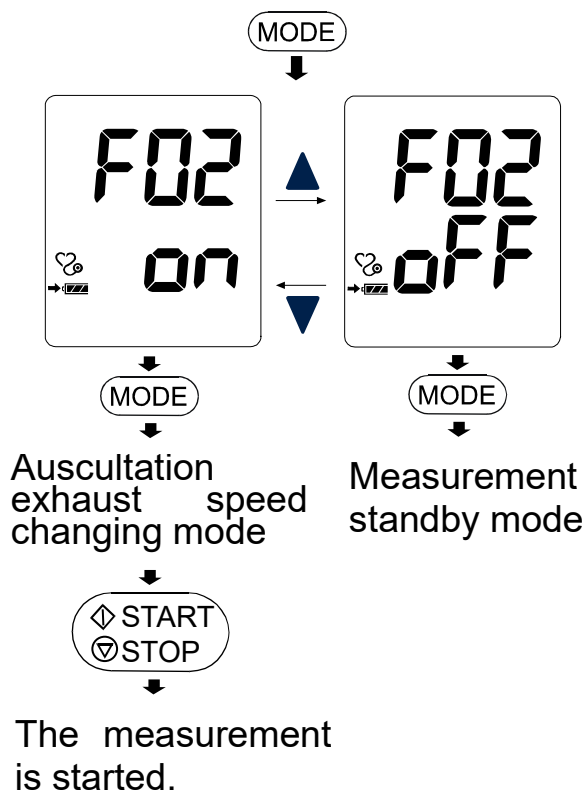
The measurement  
is started.

Auscultation  
setting mode



## Auscultation setting

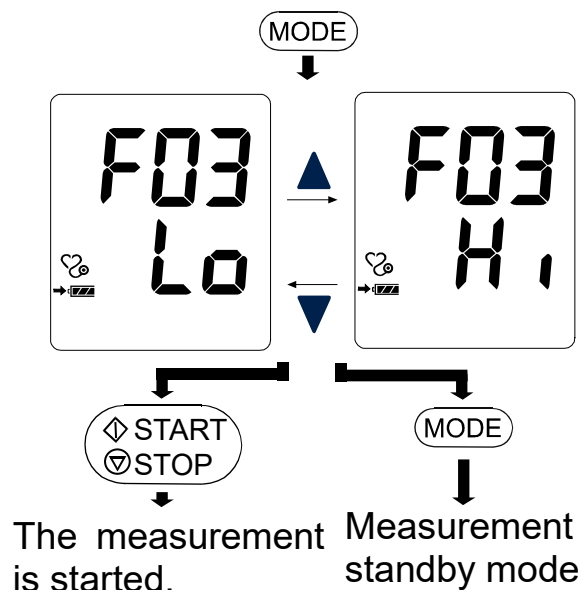
1. Press the **MODE** button at the pressurization setting mode to go into auscultation setting mode. The “F02” is displayed at the display for systolic pressure, and the current status is displayed at the display for diastolic pressure
2. Press to ▲ or ▼ button to switch between ON or OFF. The device illuminates the auscultation mark when the auscultation mode is set to ON.
3. Press the **MODE** button when the auscultation mode is set to ON to proceed to auscultation exhaust speed changing mode.  
Press the **MODE** button when the auscultation mode is set to OFF to proceed to measurement standby mode.  
Press the **START/STOP** button to start the measurement. Also, the device proceeds to standby mode automatically after a regular time.



## Auscultation exhaust speed changing

Note: Select “Lo” when measuring normally. Should the patient pulse appear to be 100 or higher, measuring at the “Hi” is possible.

1. Press the **MODE** button at the auscultation setting mode when the auscultation setting is set to ON to go into auscultation exhaust speed changing mode. The “F03” is displayed at the display for systolic pressure, and the current status is displayed at the display for diastolic pressure
2. Press to ▲ or ▼ button to switch between Hi or Lo.
3. Press the **MODE** button to proceed to measurement standby mode.  
Press the **START/STOP** to start the measurement. Also, the device proceeds to standby mode automatically after a regular time.



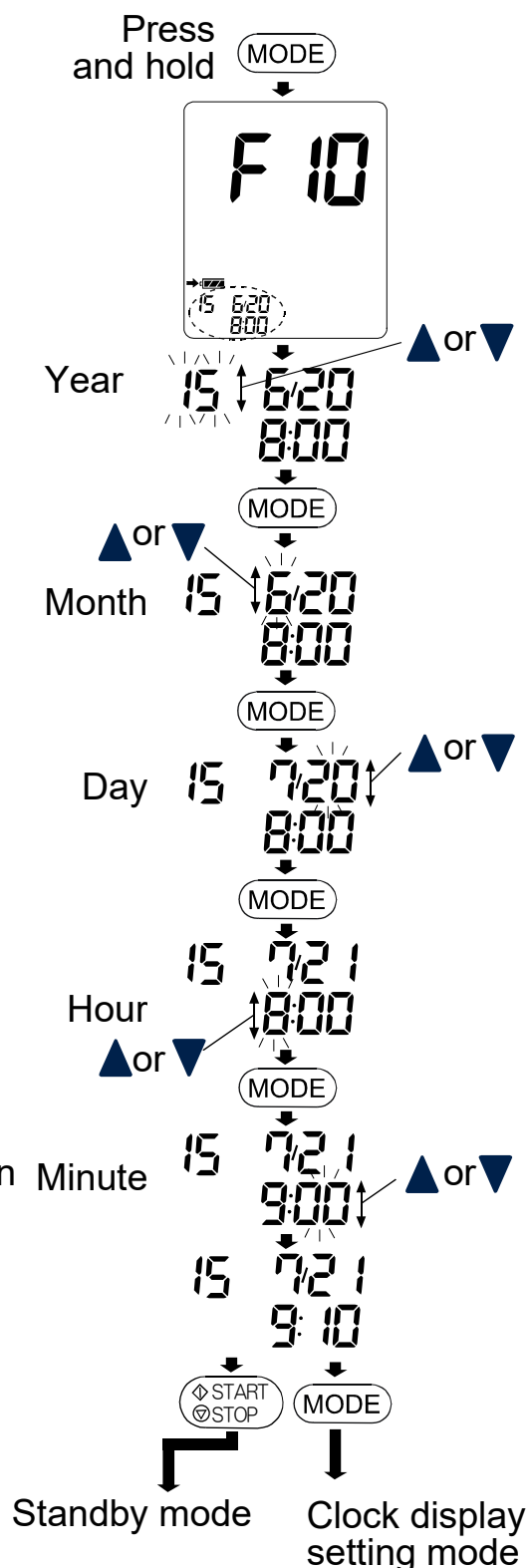
## Adjusting the Built-in Clock

Adjust the clock prior to use.

1. Press and hold the **MODE** button at the standby mode to go into clock setting mode. The "F10" is displayed at the display for systolic pressure, and the far right two digits of A.D. blink.
2. Select the year using the ▲ or ▼ button. Press the **MODE** button to set the current year and move to month/day selection. The date can be set anywhere between the years 14 and 59.
3. Select the month using the ▲ or ▼ button. Press the **MODE** button to set the current month and move to day selection.
4. Select the day using the ▲ or ▼ button. Press the **MODE** button to set the current day and move to hour/minute selection.
5. Select the hour using the ▲ or ▼ button. Press the **MODE** button to set the current hour and move to minute selection.
6. Select the minute using the ▲ or ▼ button. Press the **MODE** button while the minute is being adjusted to proceed to clock display. Press the **START/STOP** button while the time is being set to proceed to standby mode.

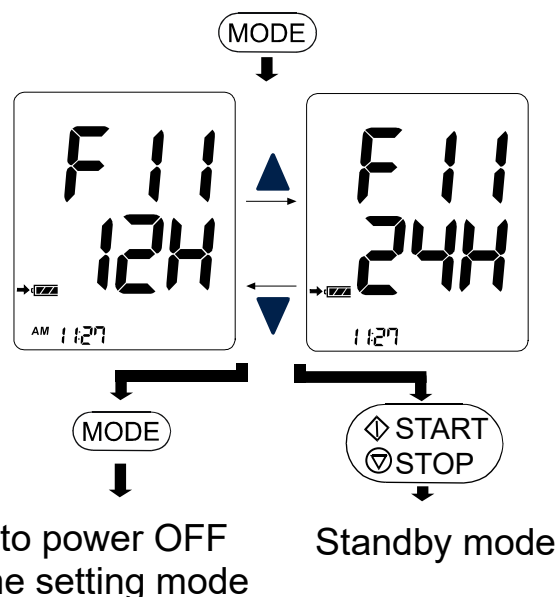
Note: The device proceeds to standby mode when no operation is made for a regular time.

- Holding down the ▲ or ▼ button will change the value continuously.



## Clock display setting

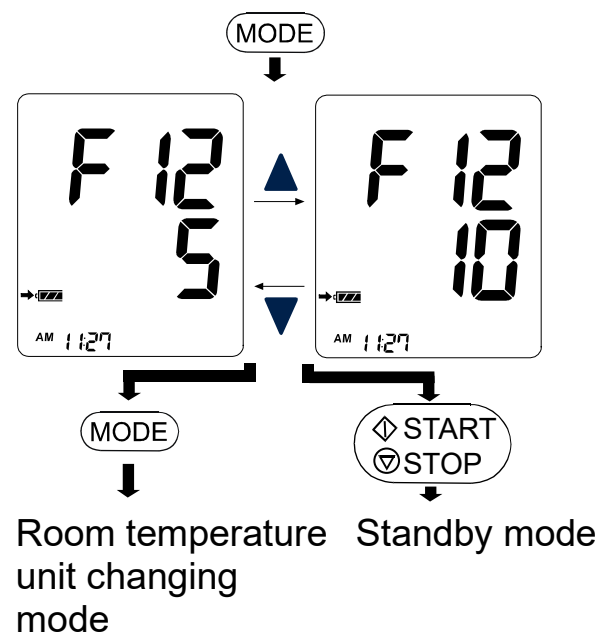
1. Press the **MODE** button when the minute at the clock setting is being set to go into clock display setting mode. The “F11” is displayed at the display for systolic pressure, and the “12H” or “24H” is displayed at the display for diastolic pressure.
2. Press to ▲ or ▼ button to switch between 12H or 24H. Press the **MODE** button to proceed to auto power OFF time setting mode. Press the **START/STOP** button to proceed to standby mode.



## Auto power OFF time setting

Set a time for timeout for when no operation is made. Either of five or ten minutes can be selected.

1. Press the **MODE** button at the clock display setting mode to go into auto power OFF time setting mode. The “F12” is displayed at the display for systolic pressure, and the “5” or “10” is displayed at the display for diastolic pressure.
2. Press to ▲ or ▼ button to switch between five or ten minutes.
3. Press the **MODE** button to proceed to room temperature unit changing mode. Press the **START/STOP** button to proceed to standby mode.



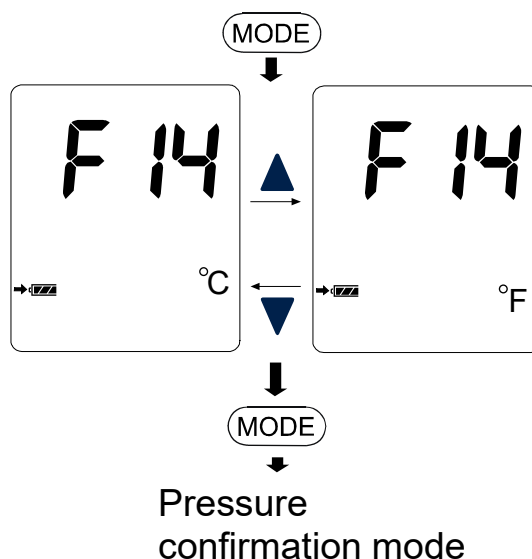
## Room temperature unit changing

A unit for displayed room temperature can be switched between °C or °F.

1. Press the **MODE** button at the auto power OFF time setting mode to go into room temperature unit changing mode.

The “F14” is displayed at the display for systolic pressure.

2. Press to ▲ or ▼ button to switch between °C or °F at the right end on the display to switch a unit for room temperature.
3. Press the **MODE** button to proceed to Pressure confirmation mode. Press the **START/STOP** button to complete the setting. The device proceeds to standby mode.

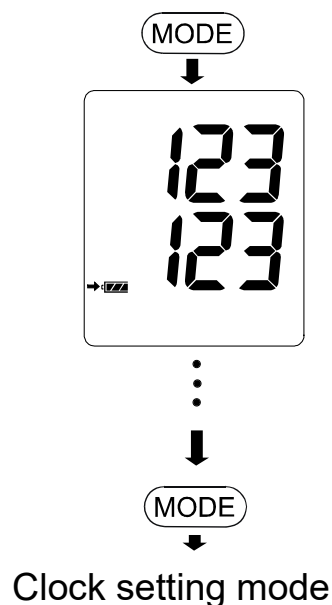


## Pressure confirmation mode

1. Press the **MODE** button at the temperature unit changing mode to go into pressure confirmation mode.

The current pressure value is displayed at the display for systolic pressure and diastolic pressure.

2. When the pressure reaches 320mmHg or higher, the value indicated on the display flashes 320mmHg. After that, the display returns to previous one when the pressure display is less than 320mmHg.
3. Press the **MODE** button to proceed to clock setting mode. Press the **START/STOP** button to complete the confirmation. The device proceeds to standby mode.



# Recalling the Memory Data

Note: This device stores the last 99 measurements in memory.

## Recalling the Memory Data

1. Press the ▲ or ▼ button to display a most recent memory data.  
If no data, the memory number, time, SYS, DIA and PUL is displayed in bar display. Press the **START/STOP** button to carried out the measurement.

2. Each time the ▼ button (or the ▲ button to display the data in the reverse order) is pressed, the memory data is displayed as follows.

Most recent data (No.n, in the example, No.35)

The measurement data is displayed.

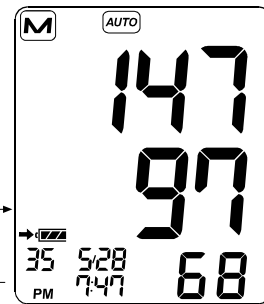


Last data (No.1)

The measurement data is displayed.

3. After the last data is displayed, press the ▼ button to display the most recent data.
4. Press the **START/STOP** button to carried out the measurement. The device will proceed to standby mode automatically when no operation is made for a regular time.

Press ▲ or ▼

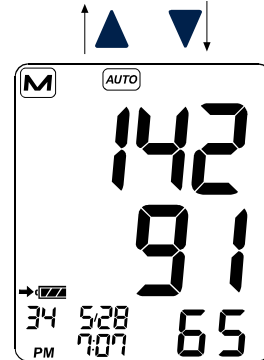


Systolic

Diastolic

Pulse

Most recent data

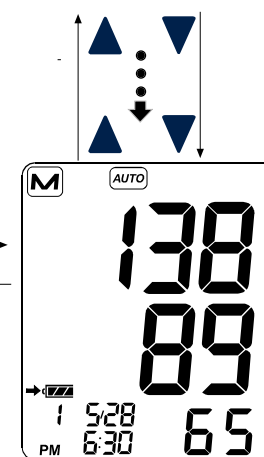


Systolic

Diastolic

Pulse

A data at one time previously



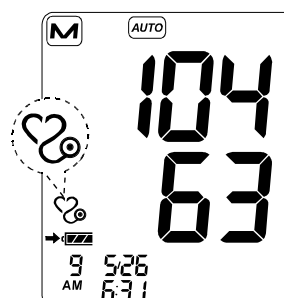
Systolic

Diastolic

Pulse

Last data (Oldest)

When the auscultation measurement is carried out and was completed, the device displays the auscultation mark and measurement results without displaying a pulse rate as shown in the figure at the right.

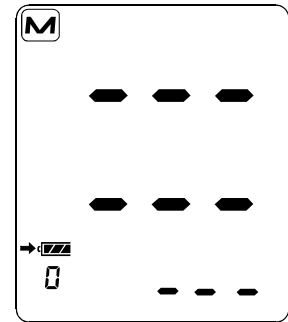


## Deleting all Data Stored in Memory

Press and hold the **MODE** button for at least three seconds to illuminate the **M** and battery mark only.

Again press and hold the **MODE** button for at least three seconds to delete the saved data all.

The device shows a display as shown in the figure at the right when the ▲ or ▼ button is pressed when there is no memory data in the device.



# Measurements

## Selecting the Correct Cuff Size

Using the correct cuff size is important for an accurate reading. If the cuff is not the proper size, the reading may yield an incorrect blood pressure value.

- ❑ The arm size is printed on each cuff.
- ❑ The arm cuff is a consumable. If it becomes worn, purchase a new one.

Arm Size	Cuff Size	Symbols	Catalog Number
41cm to 50cm	LL cuff	LL	UM-LLRS4K1KEC
31cm to 45cm	LA cuff	LARGE ADULT	UM-LARS4K1KEC
22cm to 32cm	A cuff	ADULT	UM-AURS4K1KEC
16cm to 24cm	SA cuff	SMALL ADULT	UM-SARS4K1KEC
12cm to 17cm	SS cuff	SS	UM-SSRS4K1KEC

Arm size: The circumference of the biceps.

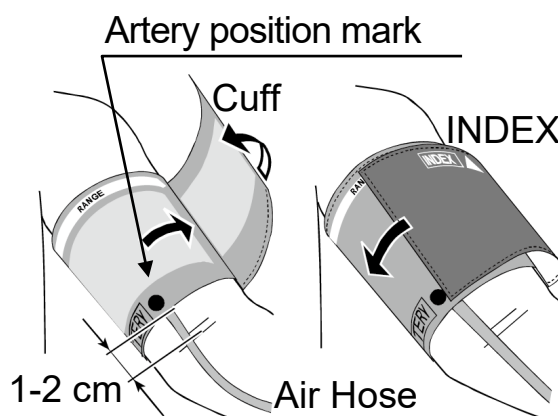
## Applying the Arm Cuff

1. Face the palm of the left arm upward, and wrap the cuff around the upper arm, about 1-2 cm above the inside of the elbow.

A range where the INDEX mark can be overlapped on the RANGE mark shows a proper fit range for the cuff.







2. Place the cuff on the upper arm so that the ● mark is overlapped on the artery.
3. Wrap while keeping the looseness with the cuff around the upper arm so that it allows the one or two fingers to insert between the cuff and arm.

Do not roll up shirtsleeve tightly.



Printing contents with the cuff

Symbols	Descriptions
REF	Means a code for when ordering the cuff to the manufacture.
▲ INDEX	Index symbol Means the symbol for showing that the cuff is wrapped in a proper fit range if this symbol is within the RANGE line.
ARTERY ●	ARTERY symbol Place this symbol on the artery at the upper arm or thigh.
CE	Means the symbol for showing the conformability mark.
LOT	Means the symbol for showing a lot number for when manufacturing. The lot number is printed by the carved seal around this mark.
RANGE	RANGE symbol The index symbol with the cuff should be in a range of this symbol.
LATEX	Latex free

	Refer to instruction manual/booklet
	Cuff Wrap position
	Means the symbol for suggestions on operation.
	Means the symbol for the patient side.
	Symbol for the cuff size.
	Medical Device

## Normal Measurement

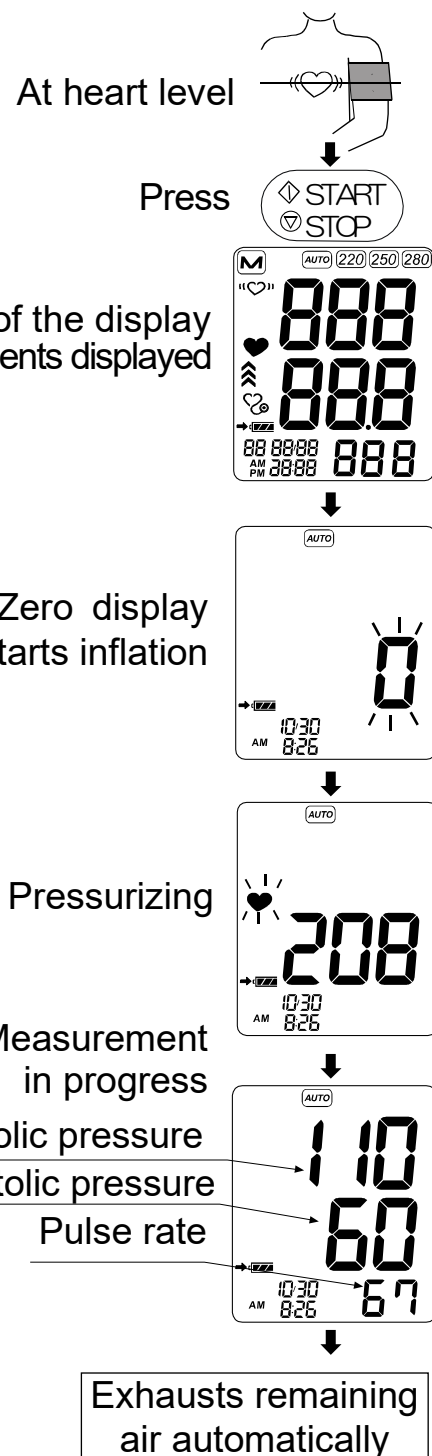
1. Place the cuff on the arm.  
Sit quietly during measurement.
2. Press the **START/STOP** button.  
All of the display segments are displayed.  
Zero (0) is displayed blinking briefly.  
The display changes, as indicated in the figure at the right, as the measurement begins. The cuff starts to inflate. It is normal for the cuff to feel very tight.

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

3. When inflation is complete, deflation starts automatically and ♥ (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. To avoid re-inflation, see "Measurement with the SET Pressure" on the next page.

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/STOP** button to carry out the measurement again.  
The device will proceed to standby mode automatically when no operation is made for a regular time.





## Auscultation measurement

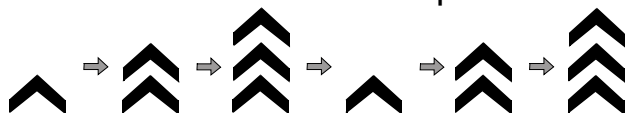
The auscultation measurement is performed when the auscultation setting mode is set to ON. Also, Press the **START/STOP** button while pressing the **MODE** button to perform the auscultation measurement.

The auscultation measurement is returned to OFF automatically when the device goes into standby mode.

1. Press the **START/STOP** button to start pressurization. When conditions for the pressurization to be completed will be arranged, the device starts the constant speed exhaustion after completing pressurization.
2. The device exhausts at constant speed. Press the **MODE** button to confirm the systolic pressure value. Press the **MODE** button again to confirm the diastolic pressure value, and the device exhausts at quick speed.
3. Press the **▲** button during exhausting at constant speed to perform the additional pressurization while the **▲** button is being pressed. The additional pressurization mark illuminates in order from bottom during the additional pressurization. When additional pressurization is applied up to the systolic pressure value or more, the systolic pressure value is cleared.

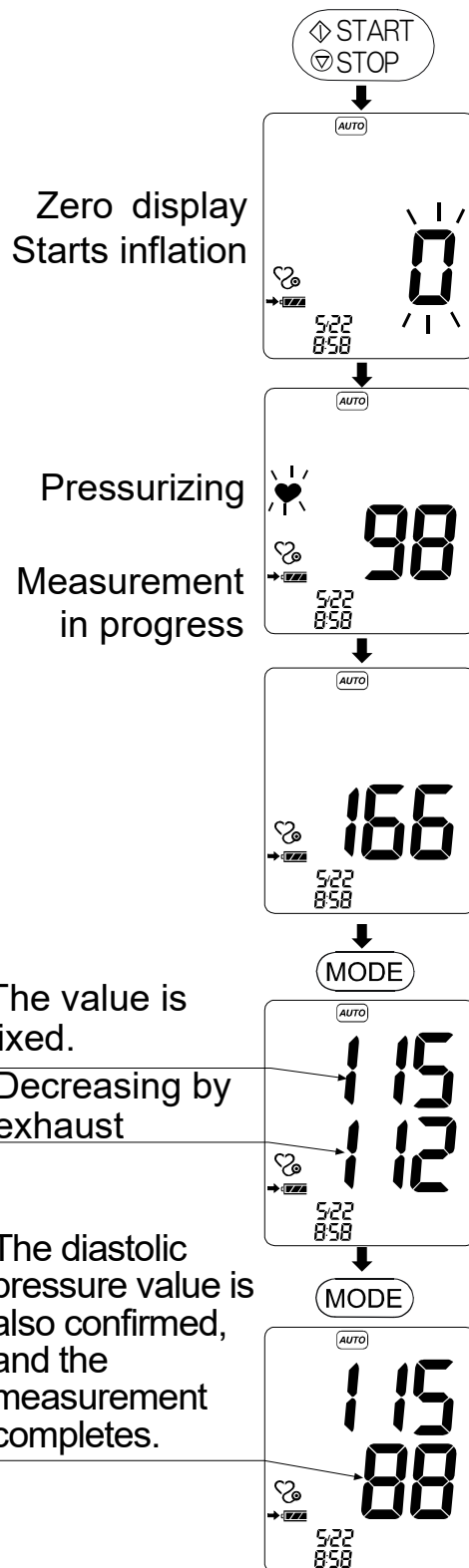
Note: When the device is pressured at 300mmHg or more, the device performs forced exhaust automatically.

A mark for the additional pressurization



4. Press the **START/STOP** button after measuring to carry out the auscultation measurement again.

Note: Allow at least three minutes between measurements on the same person.



## After Measurement

After measurement, the device proceeds to the standby mode when the **START/STOP** button is pressed and held (Three seconds). The device will proceed to the standby mode automatically when no operation is made for a regular time.

Remove the cuff and record the data.

## Notes for Accurate Measurement

- ❑ Let a patient sit down in a comfortable position. Confirm that the patient does not cross their legs, that their feet touch the floor (if possible), and that their back and the arm being measured are supported. Let a patient place the arm on a table with the palm facing upward and the cuff at the same level as patient's heart.
- ❑ Let a patient relax for about five to ten minutes before taking a measurement. If a patient is 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 a patient is doing and what a patient has eaten. What a patient drinks can have a very strong and rapid effect on patient's blood pressure.
- ❑ This device bases its measurements on the heartbeat. If a patient has a very weak or irregular heartbeat, the device may have difficulty determining patient's blood pressure.
- ❑ Should the device detect a condition that is abnormal, it will stop the measurement and display an error symbol. Refer to page 7 for the description of symbols.
- ❑ The blood pressure measurement may be affected by cuff position, patient's posture (standing, sitting or supine), exercise or physiological conditions.
- ❑ The automatic blood pressure monitor's performance may be affected by extreme temperature, humidity, impact, or altitude.

## For the auscultation measurement

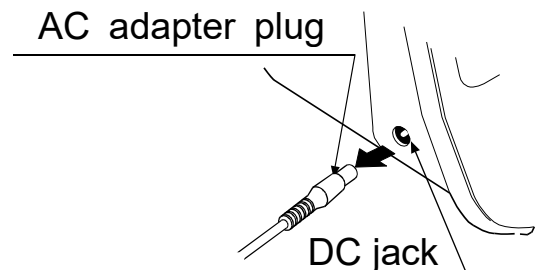
- ❑ K5 is recommended for the auscultation measurement in adults.
- ❑ K4 is recommended for the auscultation measurement in children aged 3 to 12 years.

- ❑ K5 is recommended for the auscultation measurement in pregnant women, however, K4 should be used if the sounds can be heard even with the cuff deflated.
- ❑ During the auscultation measurement, the operator should be in a position where the pressure value is clearly visible

Note: K5 is the point at which the Korotkoff sounds can no longer be heard.  
K4 is the point at which the Korotkoff sounds changed in the tones heard through a stethoscope from a clear tapping sound to a muffled sound.

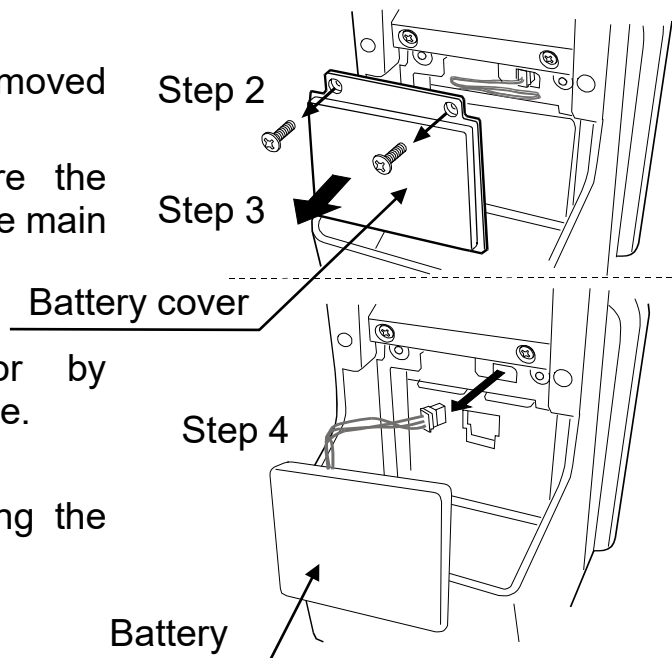
### Unplug the AC adapter

Unplug the AC adapter from the outlet.  
Unplug the AC adapter plug from the DC jack.



### Removing the battery

1. Confirm that the AC adapter is removed from outlet.
2. Remove the screws that secure the battery cover on the rear side of the main body.
3. Remove the battery cover.
4. Unplug the battery connector by depressing the hook on the left side.
5. Close the battery cover.
6. Secure the battery cover by using the screws.




Note: Should both the AC adapter and battery be disconnected from the device, the clock is initialized.

# What is an Irregular Heartbeat

The UM-211 blood pressure monitor provides a blood pressure and pulse rate measurement even when an irregular heartbeat occurs. A heartbeat that fluctuates by a certain amount more than the average of all heartbeats during blood pressure measurement is called An irregular heartbeat.

## Troubleshooting

Problem	Possible Reason	Recommended Action
Nothing appears on the display, even when the power is turned on.	Battery is drained.	Recharge the battery.
	Useful life for the battery was over.	Replace the old battery with new one.
The cuff does not inflate.	Battery voltage is too low.  (LOW BATTERY mark) blinks. If the battery is drained completely, the mark does not appear.	Recharge the battery.
The device does not measure. Readings are too high or too low.	The cuff is not applied properly.	Apply the cuff correctly.
	Patient moved patient's arm or body during measurement.	Make sure patient remain still and quiet during measurement.
	The cuff position is not correct.	Sit comfortably and still. Place patient's arm on a table with patient's palm facing upward and the cuff at the same level as patient's heart.
	_____	If patient have a very weak or irregular heart beat, the device may have difficulty in determining patient's blood pressure.
The battery runs out soon even after recharging the battery.	The battery has exhausted.	Replace the old battery with new one.
Other	_____	Remove the batteries. Place them back properly and take another measurement.

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

## Maintenance

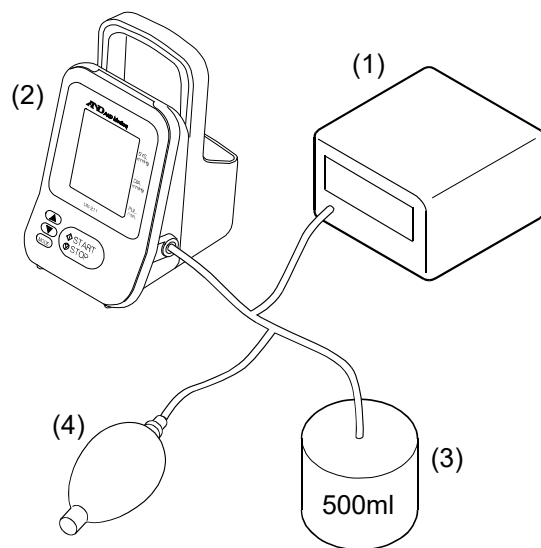
Do not attempt to open the device as the delicate electrical components and intricate air unit inside could be damaged. If you cannot solve the problem using our troubleshooting guide, request assistance from your authorized dealer or from any A&D service group.

The device was designed and manufactured for a long service life. However it is generally recommended to have the device inspected every 2 years, to ensure proper functioning and accuracy. Please contact either your authorized dealer or A & D for maintenance.

### Pressure confirmation

- Example of connection

- (1) Calibrated pressure gauge
- (2) UM-211
- (3) Tank : 500ml
- (4) Pressure generating device



1. Press and hold the **MODE** button at standby mode. The device goes into the built-in clock adjusting mode, and F10 is displayed at the display.
2. Press the **MODE** button several times to proceed to pressure confirmation mode.  
\* Refer to the page 18 in this manual for its setting.
3. Add the pressure using the pressure generating device once the display at the UM-211 became 

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, and confirm the pressure at the pressure gauge and UM-211.

## Cleaning

- ❑ Remove the AC adapter from the device when cleaning the device.
- ❑ When the main body or cuff is dirty, gauze or cloth dipped in warm water and neutral detergent, wring well, and wipe off dirt completely.
- ❑ Do not use the moisten cloth etc. to wipe the DC jack and air socket. The DC jack and air socket must remain dry.
- ❑ To prevent a risk due to infection, disinfect the main body and cuff regularly. When disinfecting them, wipe them gently by using the gauze or dampened cloth with local antiseptic solution then wipe the moisture off the surface by using a dry soft cloth.
- ❑ Use the following disinfectants to clean the main body and cuff cover.

Disinfectants	Main body	Cuff cover
Ethanol (76.9-81.4%)	✓	✓
Isopropanol (70%)	✓	✓
Chlorhexidine Gluconate Solution (0.5%)	✓	✓
Benzalkonium Chloride Solution (0.1%)	✓	✓
Sodium Hypochlorite (0.05%)	✓	unavailable

- Wipe lightly after squeezing the gauze soaked in the antiseptic solution.
  - After that, wipe off the antiseptic solution with gauze that has been soaked in water or lukewarm water and squeezed well.  
And wipe off the moisture with a soft, dry cloth.
  - After that, dry it thoroughly before use.
  - For the dilution rate, follow the instructions on the product's precautionary statement and use it as an aqueous solution.
- ❑ Clean the device about once every month, basing on a policy or instruction specified in the hospital or clinic.

## CAUTION

- ❑ The blood pressure monitor is not waterproof device. Do not splash water on it and avoid exposure to moisture.
- ❑ Do not use a organic solvent such as thinner or benzine.
- ❑ The blood pressure monitor can not be sterilized by autoclave, EOG or formaline gas etc.

## Regular inspection


- ❑ The blood pressure monitor is a precision device. Therefore, inspect it regularly. Request an inspection from the dealer where you have purchased the device when the device is in need of an inspection.
- ❑ The cuff is consumable. Regularly exchange the cuff with new one.

## Disposal

This equipment and battery are not treated as ordinary household waste and must be disposed of according to the applicable local regulations.

Item	Parts	Material
Package	Box	Cardboard
	Cushion	Cardboard
	Bag	PE
Main unit and accessories	Enclosure	ABS, SR
	Internal parts	General electronic components
Battery pack	Outer case	ABS
	Cell battery	Nickel-hydrogen battery
	Internal parts	General electronic components

# Technical Data


Type	UM-211
Measurement method	Oscillometric measurement
Measurement range	Pressure: 0 - 299 mmHg Systolic pressure: 60 - 279 mmHg Diastolic pressure: 40 - 200 mmHg Pulse: 40 - 200 beats / minute
Measurement accuracy	Pressure: $\pm 3$ mmHg Pulse: $\pm 5\%$
Temperature unit	$^{\circ}\text{C}$ or $^{\circ}\text{F}$
Temperature accuracy	$\pm 2.5^{\circ}\text{C}$ ( $+5^{\circ}\text{C}$ to $+40^{\circ}\text{C}$ )
Power supply	Built-in 3.6V battery (UM-211-20) or AC adapter (TB-268)
Number of measurements	Approx. 300 measurements, when built-in battery is used, with pressure value of 180 mmHg at room temperature of $23^{\circ}\text{C}$
Classification	Internally powered ME equipment (Supplied by batteries) / Class II (Supplied by adapter) Continuous operation mode
Clinical test	According to ISO81060-2 2013
EMD	IEC 60601-1-2: 2020
Memory	Last 99 measurements
Operating condition	$+5^{\circ}\text{C}$ to $+40^{\circ}\text{C}$ / 10%RH to 85%RH (Not condensed) 800 hPa to 1060 hPa
Transport / Storage conditions	$-20^{\circ}\text{C}$ to $+60^{\circ}\text{C}$ / 10%RH to 95%RH (Not condensed) 700 hPa to 1060 hPa
Dimensions	Approx. 120 [W] x 200 [H] x 140 [D] mm
Weight	Approx. 550 g, excluding the battery
Applied part	Cuff Type BF 
Useful life	Device: 5 years Cuff: 1 year or 30000 times AC adapter: 5 years

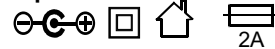


Rechargeable Nickel-Metal Hydride Battery  
 Battery (UM-211-20) 3.6V Typ.2000mAh  
 Min.1750mAh

AC adapter (TB-268) The AC adapter is required to be inspected or replaced periodically.

Input: 100-240V, 50-60 Hz, 0.3 A

Output: 6V  2000mA



Accessories sold separately  
 Cuff

Arm Size	Cuff Size	Catalog Number
41cm to 50cm	LL cuff	UM-LLRS4K1KEC
31cm to 45cm	LA cuff	UM-LARS4K1KEC
22cm to 32cm	A cuff	UM-AURS4K1KEC
16cm to 24cm	SA cuff	UM-SARS4K1KEC
12cm to 17cm	SS cuff	UM-SSRS4K1KEC

AC adapter

Catalog Number
TB-268

Note: Specifications are subject to change without prior notice.

AC cable

Catalog Number	Plug
KO1886	Type A
KO1887	Type C
KO1888	Type BF

Rechargeable battery

Catalog Number
UM-211-20

## EMD Technical Data Battery-operated or AC Adapter-operated Blood Pressure Monitor

Medical Electrical Equipment needs special precautions regarding EMD and needs to be installed and put into service according to the EMD 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 may result in increased emissions or decreased immunity of the unit.

Table 1 —EMISSION Limits—

Phenomenon		Compliance
Conducted and radiated RF EMISSION	CISPR 11	Group 1, Class B
Harmonic distortion	IEC 61000-3-2	Class A
Voltage fluctuations and flicker	IEC 61000-3-3	Compliance

Table 2 —IMMUNITY TEST LEVELS : Enclosure Port—

Phenomenon		IMMUNITY TEST LEVELS
Electrostatic discharge	IEC 61000-4-2	±8 kV contact ±2 kV, ±4 kV, ±8 kV, ±15 kV air
Radiated RF EM fields	IEC 61000-4-3	10 V/m 80 MHz - 2.7 GHz 80 % AM at 1 kHz
Proximity fields from RF wireless communications equipment	IEC 61000-4-3	See table 4
Rated power frequency magnetic fields	IEC 61000-4-8	30 A/m 50 Hz or 60 Hz
Proximity magnetic fields	IEC 61000-4-39	See table 5

Table 3 —IMMUNITY TEST LEVELS : Input a.c. power Port—

Phenomenon		IMMUNITY TEST LEVELS
Electrical fast transients / bursts	IEC 61000-4-4	±2 kV 100 kHz repetition frequency
Surges Line-to-line	IEC 61000-4-5	±0.5 kV, ±1 kV
Conducted disturbances induced by RF fields	IEC 61000-4-6	3 V 0.15 MHz - 80 MHz 6 V in ISM and amateur radio bands between 0.15 MHz and 80 MHz 80 % AM at 1 kHz
Voltage dips	IEC 61000-4-11	0 % $U_T$ ; 0.5 cycle At 0°, 45°, 90°, 135°, 180°, 225°, 270°, and 315° 0 % $U_T$ ; 1 cycle And 70 % $U_T$ ; 25/30 cycle Single phase: at 0°
Voltage interruption	IEC 61000-4-11	0% $U_T$ ; 250/300 cycle
NOTE $U_T$ is the AC mains voltage prior to application of the test level.		

Table 4 —Test specifications for ENCLOSURE PORT IMMUNITY to RF wireless communications equipment—

Test frequency (MHz)	Band (MHz)	Service	Modulation	IMMUNITY TEST LEVEL (V/m)
385	380 - 390	TETRA 400	Pulse modulation 18 Hz	27
450	430 - 470	GMRS 460 FRS 460	FM ±5 kHz deviation 1 kHz sine	28
710	704 - 787	LTE Band 13,17	Pulse modulation 217 Hz	9
745				
780				
810	800 ~ 960	GSM 800/900 TETRA 800 iDEN 820 CDMA 850 LTE Band 5	Pulse modulation 18 Hz	28
870				
930				
1720	1700 - 1990	GSM 1800 CDMA 1900 GSM 1900 DECT LTE Band 1,3,4,25 UMTS	Pulse modulation 217 Hz	28
1845				
1970				
2450	2400 - 2570	Bluetooth WLAN 802.11 b/g/n RFID 2450 LTE Band 7	Pulse modulation 217 Hz	28
5240	5100 - 5800	WLAN 802.11 a/n	Pulse modulation 217 Hz	9
5500				
5785				

Table 5 —Test specifications for ENCLOSURE PORT IMMUNITY to proximity magnetic fields—

Test frequency	Modulation	IMMUNITY TEST LEVEL(A/m)
30 kHz	CW	8
134.2 kHz	Pulse modulation 2.1 kHz	65
13.56 MHz	Pulse modulation 50 kHz	7.5

# MEMO

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