

NISSEI BLOOD PRESSURE MONITOR DS-A10

Instruction Manual NISSEI



Operating Principles
The cuff applies pressure to the artery in your arm which pulses with your heart rate. The pressure in the cuff moves with the pulse. This pulse changes according to the amount of pressure the cuff applies to your arm. The oscillometric method can find the systolic and diastolic values as the level of pressure applied from the cuff changes gradually.

PRECAUTIONS AND CONTRAINDICATIONS

Read this instruction manual carefully before use and use this product correctly. The instructions below are to help you use the product correctly and to prevent you from being harmed or injured.

Prohibition	The subjects or use which exceeds the responsibility of the manufacturer such as the use beyond the design limit or the unjustified use. (Ones with possible death or serious injury, in case the product is incorrectly used, are indicated.)
Caution	General cautions for use of the product. (The subjects which may result in personal injury or property damage in case the product is incorrectly handled are indicated.)

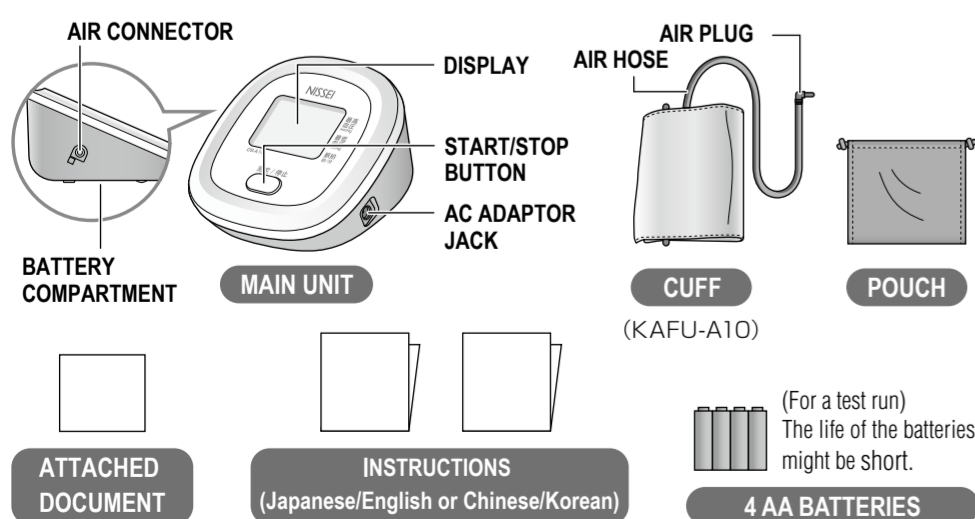
*Property damage means consequential damage for house, household belongings, livestock or pet.

Prohibition	
●	Use the product carefully based on the consultation with your doctor in case there is severe hemogenous disorder on the arm. It may cause a feeling of unwellness.
●	Do not use the product for infants or persons who cannot express their will. It may cause an accident or an injury.
●	Do not bring the product in the test room when having a MRI scan. It may cause the attraction by magnetic force or the thermal burn.
●	Do not use the product near flammable gas, such as anesthetic gas, or in locations or atmospheres with high oxygen concentration such as hyperbaric oxygen chambers/therapy devices or oxygen tents. It may cause malfunction, breakage, deterioration or induction of explosion.
●	Do not make any diagnoses or treat yourself based on your own measurement results. Make measurement based on the consultation with your doctor and receive professional treatment and prescription.
●	Do not use the product, if you have an injury on/around your arm. It may cause the aggravation of the injury.
●	Do not use the product during intravenous drip injections or blood transfusions. It may cause an accident or an injury.
●	Do not use the product with exceeding its service life. The service life of the product is either 5 years or 30,000 times.
●	Do not use the product in the medical institution or public area where the product is subject to be used by unspecified persons. It may cause an accident or a trouble.

Caution																
●	Do not use the product near the devices with strong electromagnetic radiation (e.g. microwave oven, induction cooker). It may cause malfunctions or damage the product.															
●	Devices emitting radio waves (e.g. mobile phones, PHS) should be used at least 30cm away from the product. It may cause malfunctions or damage the product.															
●	Be cautious about using the product in conjunction with the medical electrical equipment listed below. Use the product in conjunction with such equipment based on the consultation with your doctor. It may cause malfunctions. <ul style="list-style-type: none"> • Pace makers, implantable defibrillators, or other wearable medical electrical equipment that is easily affected by electromagnetic force • Wearable medical electrical equipment such as an electrocardiographic monitor • Medical equipment used on the same limb with blood pressure measuring cuff • HF surgical equipment such as electro-surgical knife 															
●	Do not use the product for a purpose other than measuring your blood pressure. Do not attach the cuff on any body parts other than upper arm. It may cause malfunctions or an accident.															
●	Do not use the product for measuring the blood pressure of a patient being transported in an emergency. It may cause malfunctions or damage the product.															
●	Do not perform measurements more frequently than necessary.															
●	The product contains small parts and batteries which could be swallowed by children or pets. They should therefore be kept out of the reach of children and pets at all times.															
●	To avoid any possibility of accidental strangulation by AIR HOSE or the cable, keep the product away from children and do not drape AIR HOSE or the cable around your neck. It may cause strangulation by AIR HOSE or the cable.															
●	Do not use the product in the places described below. It may cause malfunctions or damage the product. <ul style="list-style-type: none"> • Places exposed to direct sunlight • Places affected by differences in temperature or warm places with a high degree of humidity • Dusty places 															
●	Do not make an impact on or drop the product. It may cause malfunctions or damage the product.															
●	Measure the circumference of your upper arm and make sure that it is within the suggested range. Using the product for an arm outside the suggested range may cause measurement error.															
●	Use the designated accessories. Use of non-designated accessories will cause errors.															
●	Persons who have any of the following conditions or symptoms or have received any of the following treatments or surgeries in the past must consult with a doctor before use. <table border="0"> <tr> <td>• Pregnancy including preclampsia</td> <td>• Diabetes</td> <td>• Liver disease</td> </tr> <tr> <td>• Arteriosclerosis</td> <td>• Hypertension</td> <td>• Arrhythmia</td> </tr> <tr> <td>• Endotracheal intubation</td> <td>• Endovascular treatment</td> <td>• Arteriovenous (A-V) shunt</td> </tr> <tr> <td></td> <td></td> <td>• Mastectomy</td> </tr> <tr> <td></td> <td></td> <td>• Lymph node clearance</td> </tr> </table>	• Pregnancy including preclampsia	• Diabetes	• Liver disease	• Arteriosclerosis	• Hypertension	• Arrhythmia	• Endotracheal intubation	• Endovascular treatment	• Arteriovenous (A-V) shunt			• Mastectomy			• Lymph node clearance
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●	Be cautious that blood pressure is affected by the factors below. <table border="0"> <tr> <td>• Time and season</td> <td>• Physical activity</td> <td>• Taking medicine for high blood pressure</td> </tr> <tr> <td>• Eating and drinking (including Alcohol)</td> <td>• Smoking</td> <td>• Mental nervousness</td> </tr> <tr> <td>• The urge to urinate</td> <td>• Conversation</td> <td>• Other environment (during medical examination etc.)</td> </tr> <tr> <td>• Measurement posture (including the cuff level against the heart)</td> <td></td> <td>• Bathing</td> </tr> </table>	• Time and season	• Physical activity	• Taking medicine for high blood pressure	• Eating and drinking (including Alcohol)	• Smoking	• Mental nervousness	• The urge to urinate	• Conversation	• Other environment (during medical examination etc.)	• Measurement posture (including the cuff level against the heart)		• Bathing			
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●	Make sure that AIR HOSE is not bent or kinked before measurement. It may cause impairment of blood circulation as the pressure on upper arm is not released.															
●	Attach the cuff on upper arm properly, and keep the cuff at the height of your heart during measurement. Incorrect attachment or failure to keep the appropriate height cause inaccurate measurement result.															
●	Press the START/STOP BUTTON if the product applies an excessive level of pressure to your arm. Pressing the START/STOP BUTTON releases the air from the cuff immediately, and the product stops measuring.															
●	The cuff may leave bruises on your arm. If you feel any pain, press the START/STOP BUTTON to stop the operation of the product. Pressing the START/STOP BUTTON releases the air from the cuff immediately, and the product stops measuring.															
●	Do not unplug the AC adaptor by pulling the cable. It may damage the cable and cause a fire or electric shock.															
●	Do not plug/unplug the AC adaptor with wet hands, or touch it with tweezers, or other electronically conductive devices.															
●	Do not touch another person while touching the batteries, battery terminals of the device or the output plug of the AC adaptor, such as when replacing the batteries or plugging/unplugging the AC adaptor.															
●	Pull the plug out from the power outlet if anything unusual is detected during use. Plugging the AC adaptor in a power outlet located behind furniture may be inconvenient if it needs to be pulled out in an emergency.															
●	Do not use new batteries in conjunction with old batteries or different types of batteries at the same time. It may generate heat and damage the product.															
●	Take the batteries out when not using the product for a long period of time. Battery fluid may leak from the batteries and damage the product.															
●	Do not place heavy items on the product or tie up the air hose. It may damage the product.															
●	Do not disassemble, repair or modify the product. It may cause malfunctions or damage the product.															
●	Check if the product is dirty or wet before use.															
●	If the product stops functioning properly, stop using it. Please contact us for repair or assistance.															
●	Follow the local regulations of your area when disposing the product or batteries.															

PART NAMES AND PRODUCT COMPONENTS

Make sure that the following items are in the package. If you do not have all the necessary items in the package, please contact the shop from which you brought the product or call our customer service (☎ 0120-211-164).



SPARE PART

For retaining the product performance, use the designated accessories. When purchasing the spare part, please contact your dealer or our customer service by referring to the information of model code for your product.

Item name	Item code	Qty.	Note
Cuff	KAFU-A10	1 pc.	Arm circumference: approx. 22 to 32 cm
AC Adaptor	ADP-W5-11	1 pc.	

INSERTING BATTERIES

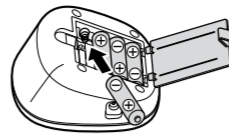
1 Open the battery compartment

Remove the cover of the battery compartment on the underside of the unit.



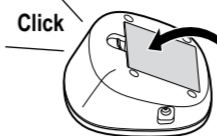
2 Insert batteries

Insert four AA type batteries into the compartment, observing proper polarity (refer to the marking in battery compartment). Inserting the battery with (+) first may damage the spring.

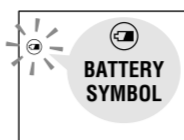


3 Close the battery compartment

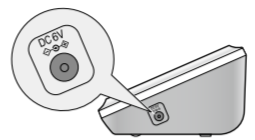
Close the battery compartment by pressing the battery cover back into the unit until it clicks.



The battery symbol [] flashes when the batteries are low. The main unit cannot be used if the battery symbol is lit (not flashing). Replace all the batteries with new AA batteries when the battery symbol is displayed.



The product can also be used with the optional AC adaptor. Connect the AC adaptor to the AC ADAPTOR JACK located to the right of the monitor. The AC Adaptor is sold separately. Purchase the designated AC adaptor, ADP-W5, separately from the unit.



TIPS ON TAKING YOUR BLOOD PRESSURE

The reading may vary slightly, depending on your posture. Take your blood pressure at the same time every day.

- **Designate a time in the morning and the evening.**
It is said that your blood pressure is most stable before going to bed and soon after waking up in the morning. Check your blood pressure in the morning within an hour of waking up, before eating, and in the evening an hour or more after eating.
- **Use one designated arm (right/left) when taking blood pressure.**
The blood pressure of one arm may differ from that of the other. Designate an arm for measurement when you take your blood pressure.
- **Take your blood pressure in a quiet environment and use the same environment every time.**
Changes in the surroundings such as movement or noise may affect your blood pressure. Your blood pressure may increase when the temperature is low. A room temperature of 20° is ideal.
- **It is best to take your blood pressure when you are relaxed.**
Mental tension or nervousness may affect your blood pressure. Take a deep breath a few times, rest for approximately five minutes, and take your blood pressure.
- **Sit quietly and stay still while taking your blood pressure.**
Your blood pressure can be affected by speaking and moving your body. This product uses the oscillometric method for measurement of blood pressure and pulse rate. The oscillometric method can detect subtle pulsatory changes. For this reason, for accurate results, it is best not to speak, or move your body while taking your blood pressure.

Note

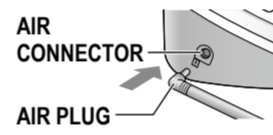
- If you need to urinate, do so before taking your blood pressure.
- Do not take your blood pressure after smoking.
- Rest after taking a bath or exercising before taking your blood pressure.

Your blood pressure increases if you need to urinate, and after eating, smoking, or exercising.

ATTACHING THE CUFF

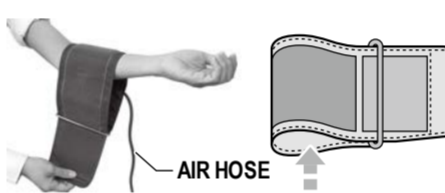
1 Connect the cuff and the main unit

Insert the AIR PLUG into the AIR CONNECTOR securely.



2 Sit on a chair and attach the cuff

Put the cuff on your left arm with the AIR HOSE positioned toward your hand.



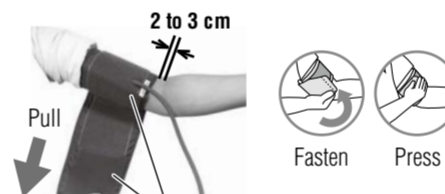
* If you are unable to wear the cuff on your left arm, wear it on your right arm. Once you have decided to wear it on one arm, always wear it on the same arm.

Your blood pressure cannot be measured accurately in the conditions listed below.

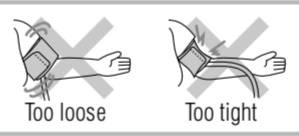
- When wearing thick clothes.
- When your sleeve is rolled up.
- When wearing tight clothes that prevent your blood from circulating freely.

3 Fasten the cuff

Fasten the cuff with the velcro, making sure that the lower edge of the cuff is approximately 2 to 3 cm above the inner elbow. Hold the cuff around your arm and fasten it tightly.

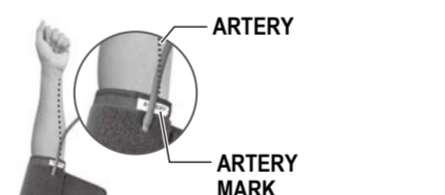


If the cuff still moves around, fasten it more tightly. Be careful not to fasten it too tightly.



4 Adjust the position of the cuff

Adjust the position of the cuff so that the ARTERY MARK is over the brachial artery or the AIR HOSE is at the center of your arm.



5 Let your forearm rest naturally on the table and keep the cuff at the height of your heart during measurement

If the cuff is higher than the heart, the measured reading tends to be lower whereas if the cuff is lower than the heart, the measured reading tends to be higher. In order to measure your blood pressure accurately, adjust the height of your chair or place a cushion under your elbow so that the cuff is level with your heart.

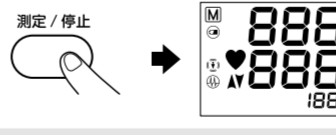


You may lay on your back and take your blood pressure. Even then, keep the cuff at the same level as your heart. The measured value may vary depending on your posture (whether sitting or lying on your back).

MAKING A MEASUREMENT

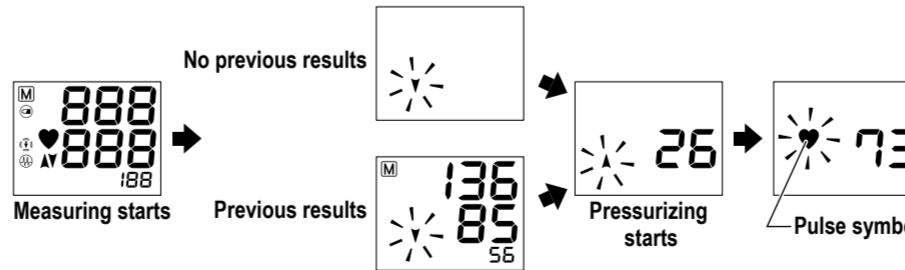
1 Start measuring your blood pressure

Press the START/STOP BUTTON. All the indicators light up and measuring begins automatically.



If you wish to stop the measurement, press the START/STOP BUTTON. The cuff releases the air and the main unit turns off.

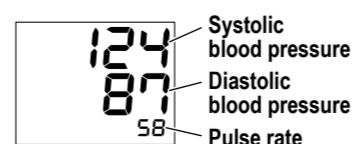
If the main unit has measured your blood pressure before, the previous result is shown before the cuff is pressurized.



- The battery symbol indicated when all the indicators light up at the beginning of the measurement does not mean the low battery state for battery replacement.
- The results are deleted when the batteries are taken out. Once the batteries are taken out, all the previous results will be deleted. Deleted results cannot be restored.

2 The measured value displayed

The cuff releases the air, the measurement stops and the main unit displays the result.



3 Turn off the main unit

Pressing the START/STOP BUTTON saves the measured value, and then the main unit turns off automatically.
* When the main unit is left on, it turns off automatically approximately 3 minutes after saving the measured value.



	BODY MOTION SYMBOL When you move your body during measurement, the result may not be as accurate as it may be otherwise. Sit still and take your blood pressure again.
	IRREGULAR PULSE RHYTHM SYMBOL When the intervals between pulses are irregular, the IRREGULAR PULSE RHYTHM SYMBOL is displayed.

TROUBLESHOOTING

When	Cause	Solution
Blood pressure is extremely high or low.	The cuff is not level with your heart. The cuff is wrapped incorrectly. You moved or spoke during measurement.	Keep the cuff at the level of your heart. Make sure that the cuff is wrapped correctly. Do not move or speak during measurement.
The results are different from usual.	The condition of your mind and body and the measurement method are affecting the result.	Take your blood pressure in the same environment as usual.
The measured value differs from one taken at a hospital.	Mental conditions such as nervousness at a hospital or feeling relaxed at home is influencing blood pressure.	Take records of your blood pressure taken at home and consult with your doctor.
is displayed.	You moved or spoke during measurement. The measurement reading is outside of the measurement range.	Do not move or speak during measurement. Receive instructions and consultation from your doctor if this error is indicated at every measurement.
is displayed.	The AIR HOSE is bent or squeezed. The AIR CONNECTOR is not connected properly. The cuff is wrapped incorrectly. You moved or spoke during measurement.	Make sure that the AIR HOSE is not squeezed or bent. Make sure that the AIR CONNECTOR is connected properly. Reconfirm how to put the cuff on your arm. Do not move or speak during measurement.
is displayed.	The pressure reached its maximum limit as you moved your hand or arm, or spoke during measurement.	Do not move or speak during measurement.
Nothing is displayed even when the buttons are pressed. (Measurement does not start)	The batteries are weak. Batteries are inserted incorrectly. The batteries terminals are not clean.	Replace all the batteries with four new batteries. Reinsert batteries correctly. Clean the terminals with a dry cloth.
is displayed.	The buttons were being pressed when the batteries were put in or when the AC adaptor was plugged in.	Press the START/STOP BUTTON then turn off the main unit.

If the above solutions do not fix the problem, contact your dealer or our customer service.

GENERAL INFORMATION

Blood pressure

Blood pressure is the pressure exerted by circulation of blood upon the walls of blood vessels.

Systolic blood pressure value

When the heart shrinks and a larger amount of blood flows out, blood pressure increases.

Diastolic blood pressure value

When the heart expands and blood returns to the heart, blood pressure decreases.

Blood pressure is constantly changing

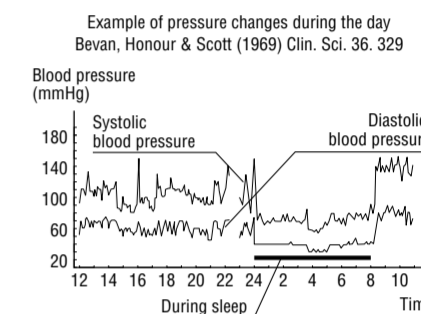
Blood pressure varies depending on both mental and physical conditions.

Blood pressure is affected by the factors below.

- Time and season
- Taking medicine for high blood pressure
- Eating and drinking (including Alcohol)
- Mental nervousness
- The urge to urinate
- Physical activity
- Smoking
- Bathing
- Conversation

High blood pressure

Measured blood pressure values are classified against WHO guideline. Measured blood pressure values vary depending on racial background, area, sex, and age. Therefore the ideal blood pressure is different for each individual. Do not diagnose yourself based on your own measurement results. Consult with your doctor.



	Systolic blood pressure	Diastolic blood pressure
Optimal	< 120	and < 80
Normal	120 - 129	and/or 80 - 84
High Normal	130 - 139	and/or 85 - 89
Grade1 Hypertension	140 - 159	and/or 90 - 99
Grade2 Hypertension	160 - 179	and/or 100 - 109
Grade3 Hypertension	≥180	and/or ≥110
Isolated Systolic Hypertension	≥140	and < 90

WHO/JSH Hypertension guidelines (2009)

CARE AND MAINTENANCE

The overall condition of the product may deteriorate depending on the number of times it is used, the way it is used/maintained and the number of years it is used. The service life of the product is either 5 years or 30,000 times.

Cleaning the product

Make sure that you clean the product after use. If it becomes dirty, wipe the surface of the main unit with a cloth using warm water or soapy water, then wipe it dry with a soft cloth. To clean the cuff, lightly pat the surface of it with a cloth using neutral detergent. Make sure that water never enters the AIR HOSE. Dry the cuff thoroughly. Do not use a washing machine. Do not use benzene, gasoline, paint thinner or alcohol. It may damage the product.

Storing the product

The pouch may be used for securely storing the product. Please remove AIR PLUG and AC Adaptor from the main unit when storing the product.

Do not store the product in the places described below for a long period of time. It may damage the product or may allow it to deteriorate.

- Places exposed to direct sunlight
- Places affected by differences in temperature or warm places with a high degree of humidity
- Dusty places
- Wardrobes where insecticide is used

When not using the product for a long period of time, remove the batteries from the main unit. Otherwise, battery fluid may leak from the batteries and damage the product.

Handling of Product

Make sure to turn off the power of the blood pressure monitor before removing the AC adaptor or batteries. Otherwise, a failure may occur.

To disconnect the cuff from the main unit, do not pull AIR HOSE but hold AIR PLUG and unplug it. Do not place heavy objects on the product. Do not bind or tie a knot with AIR HOSE.

Do not press the button or display forcibly, or do not place the main unit with display facing down. It may cause the damages on the product or malfunctions.

Do not drop or subject to a strong shock. A failure may occur.

Do not inflate the cuff when it is not wrapped around your arm. It may cause malfunctions.

Do not disassemble, repair, or modify the product. It may cause malfunctions.

In case the product is stored in the environment with ambient temperature above 40°C or below 10°C, please leave it for at least 2 hours under the temperature within the operating conditions before taking a measurement.

PRODUCT SPECIFICATIONS

Model	BLOOD PRESSURE MONITOR DS-A10		Operating Conditions	+10°C to +40°C, Relative humidity 30% to 85% RH (no condensation)
Operating Principle	Oscillometric method		Transportation/Storage Conditions	-20°C to +60°C, Relative humidity 10% to 95% RH (no condensation)
Measurement method	Measurement during inflation		Cuff coverage arm circumference	Approx. 22 to 32 cm
Pressure Indication Range	3 to 300 mmHg (cuff pressure)		Main Unit Dimensions	Approx. 122.2 x 116.5 x 69.9 mm (W x D x H)
Error of cuff pressure indication	within ±3mmHg		Main Unit Weight	Approx. 220 g (without batteries)
Blood pressure measurement range	50 to 250 mmHg (systolic) 40 to 180 mmHg (diastolic)		Protection against electric shock	Internally powered equipment/Class II equipment
Pulse rate measurement range	40 to 160 bpm		Protection class IP	IP20 (Protected against solid foreign particles with a diameter of more than 12.5 mm, no protection against water.)
Maximum pressure	300mmHg		Classification of safety level when used in air/flamable anesthetic gas, oxygen, nitrous oxide/flamable anesthetic gas.	Not suitable for use in these environments.
Limits of the error of the manometer from environmental conditions	≤ 3mmHg or ≤ 2% (Whichever is greater)		Classification by function (operation) mode	Continuous function (operation) equipment
Errors in blood pressure in clinical testing*	Against auscultation,	Mean difference	within ±5 mmHg	* The measurement accuracy of the product has been proven according to ISO 81060-2 protocol.
	Standard deviation	less than 8 mm		
Pulse rate measurement accuracy	within 5%		Classification by function (operation) mode	Class II equipment
Switching off	Deflating to ≤ 15mmHg within 30 sec. when switching off			Type BF Applied Parts
Reproducibility of the blood pressure determination	≤ 3mmHg			Read the attached manual.
Pressure	Automatic inflation			
Exhaust	Automatic exhaust valve			
Power Supply	4 AA batteries (alkaline) or AC adaptor (ADP-W5)			
Power Consumption	When using 4 AA batteries (alkaline): 6 V DC/4 W When using AC adaptor ADP-W5: Power consumption for AC adaptor ADP-W5 100-240 V AC 50/60 Hz 0.12 A Power consumption for main unit 6 V DC 500 mA			

TECHNICAL DESCRIPTION FOR ELECTROMAGNETIC DISTURBANCES

DS-A10 complies with the Electromagnetic Disturbances standard, IEC60601-1-2:2014. As a medical electrical equipment, special precautions regarding the electromagnetic disturbances shall be taken at usage of the device according to the information provided below.

- The device is not intended for use in environments where the intensity of electromagnetic disturbance is high, such as near active HF surgical equipment and MRI (magnetic resonance imaging) equipment etc.
- Use of the device adjacent to or stacked with other equipment must be avoided because it could result in improper operation.
- Use of accessories other than those specified or provided by the manufacturer could result in increased electromagnetic emissions or decreased electromagnetic immunity of the device and result in improper operation.
- Portable RF communications equipment (including peripherals such as antenna cables and external antennas) should be used at least 30cm away from any part of the device, including specified cables. Otherwise, degradation of the performance of this equipment could result.

Please contact your dealer or the manufacturer for specific information regarding the compliance to the standard.