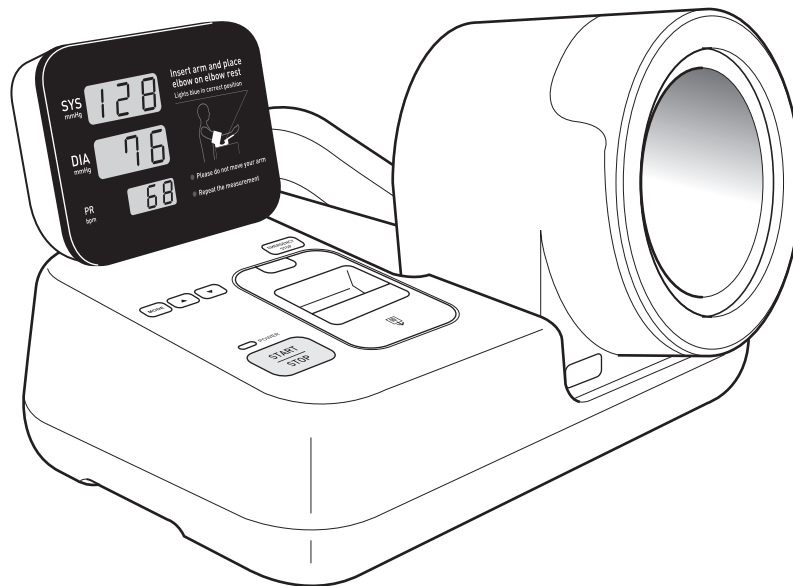


OMRON

Automatic Blood Pressure Monitor HBP-9020

Instruction Manual



Thank you for purchasing the OMRON HBP-9020 unit.

Read all of the instructions in the manual before you operate the unit and keep the manual near the unit at all times for future reference.

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Exemptions

Disclaimer

Our company assumes no responsibility for the following:

1. Failures, damage, or injuries due to maintenance or repair work performed by other than our company or a company that we specify.
2. Failures or damage to one of our products caused by a product of another manufacturer not delivered by us.
3. Failures, damage, or injuries due to maintenance or repair work using a repair part other than a part that we specify.
4. Failures, damage, or injuries caused by failure to observe the safety instructions and operational procedures given in this manual.
5. Use of the product in conditions that do not conform to the product usage conditions indicated in this manual, including power, installation, and storage conditions.
6. Failures, damage, or injuries due to modification or inappropriate repair of the product.
7. Failures, damage, or injuries due to natural calamities such as fire, earthquake, flooding, or lightning.

Principles

1. The contents of this manual are subject to change without notice.
2. Considerable care has been taken in the preparation of this manual. If the unlikely event that an error or other problem is discovered in the manual, please contact us.
3. Unauthorized reproduction of all or part of this manual is prohibited. Use other than individual (corporate) use without the permission of our company is prohibited by copyright.

Trademark

Product brand names shown in this manual are likely to be the trademark or registered trademark of the company concerned.

Notes on Safety

- The following information is provided to ensure safe and correct use of the product, and to prevent injury to the user and others as well as damage to property.
- The icons and meanings are as follows.

Danger, Warning, Caution	
 Danger	Indicates an immediate danger of death or serious injury may arise as a result of incorrect handling.
 Warning	Indicates the matters in which death or severe bodily damage may arise as a result of incorrect handling.
 Caution	Indicates the matters in which bodily harm or material damage* may arise as a result of incorrect handling.

* Material damage refers to a wide range of damage involving your house, household goods, domestic animals, and pets.

Examples of signs	
	● indicates "mandatory" (an action that must be observed).
	⊘ indicates "forbidden" (an action that must not be taken).

Danger:

General rules



Do not use this device in the presence of a flammable gas such as a highly inflammable anesthetic, or in a high-pressure oxygen chamber or tent. Fire and explosion may result.

Warning:

General rules



If a problem with the monitor is encountered, immediately turn off the power and remove the plug from the electric outlet. Attach an "Out of Service" notice and do not use the monitor. Otherwise fire or electrical shock may result.



Do not measure blood pressure if the arm has a wound. Blood may come in contact with the cuff cover, allowing infectious diseases to spread.



Do not use the monitor in a place where it may get wet, such as by pool. This may result in fire or electrical shock.



Do not install any component or equipment that is not specified by OMRON on this monitor. This may cause fire or electrical shock.



Do not disassemble, repair or modify the monitor. This may cause electric shock, fire, failure, or other problems.

Warning:

Power



Insert the power plug all the way into the outlet. Otherwise electric shock, short circuiting, or fire may result.



When removing the power plug from the outlet, grasp and pull on the plug, not the cord. Pulling on the cord may break wires and cause a short circuit, resulting in fire or electric shock.



Observe the rules below when handling the power cord. Failure to observe these rules may result in electric shock or device failure.

- Do not damage the cord
 - Do not break the cord
 - Do not modify the cord
 - Do not bend or pull on the cord with undue force
 - Do not twist the cord
 - Do not tightly coil the cord when in use
 - Do not place heavy objects on the cord
 - Do not let the cord become pinched
-



Wipe dust off the power plug. Otherwise electric shock, short circuiting, or fire may result.



If the monitor will not be used for an extended period of time, be sure to unplug the monitor. Otherwise, electrical shock or fire may result due to deterioration of the insulation.



Before cleaning the monitor, unplug the power plug from the electric outlet. Otherwise, electrical shock or injury may result.



Do not use a frayed or damaged power cord or plug. Otherwise electric shock, short circuiting, or fire may result.



Do not use the monitor in a way that exceeds the rating of the electrical outlet, cords, and other wiring equipment, and do not use at a voltage other than 100-240 V AC. Connecting multiple appliances to the same outlet or otherwise exceeding the rating may cause fire.



Do not touch the power plug with wet hands. Otherwise electric shock or injury may result.

Caution:

General rules



A person with a serious blockage of blood flow or other blood disorder should use this monitor only under the supervision of a doctor. Otherwise, compression by the monitor may cause temporary internal bleeding.



If the monitor does not stop inflation during measurement or otherwise operates abnormally, press the [EMERGENCY STOP] switch. If the monitor still operates abnormally even after you press the [EMERGENCY STOP] switch, turn off the power. Otherwise, there is a risk of temporary internal bleeding or peripheral nerve impairment in the arm.



Self-diagnosis and treatment based on the measurement results is dangerous. Be sure to follow the instructions of a doctor. Otherwise, the symptoms may worsen.



Do not use a cellular phone near the monitor. This may cause faulty operation.



Do not use this monitor to measure the blood pressure of children under elementary school age. Measurement is not possible on small children, and unexpected behavior may result in injury.



Do not use this monitor on a person who cannot express their desires. This may result in an accident or other trouble.



Do not use the monitor if the mark that may remain on the arm is undesirable. A red mark may temporarily appear on some people (the mark will disappear over time).

General Advice

- Do not place anything on this monitor.
 - Be sure to inspect the monitor before starting and perform regular maintenance inspections to ensure safe and proper use of the monitor.
 - If a measurement error occurs or a result is questionable, use auscultation or other method to check.
 - Measured values may be indicated erroneously or measurement may not be possible for a person who has significant short-term fluctuation of blood pressure such as an irregular pulse.
 - For people who have low peripheral blood flow, significantly low blood pressure, or significantly low body temperature, measurement may not be possible (an error will occur) or the measurement result may not be reliable due to insufficient blood flow in the measurement location.
 - Measurement reliability will decrease if the user moves or speaks during measurement, or the body position is not correct.
 - Measurement reliability will decrease if the arm is compressed because a garment with thick sleeves is worn or the sleeves are rolled up.
 - Measurement reliability will decrease after bathing or showering, drinking an alcoholic beverage, smoking tobacco, exercising, or eating.
 - Do not install the monitor in a location that is exposed to direct sunlight for an extended period of time.
 - Do not store this monitor in the following locations.
 - A location where water may splash onto the monitor
 - A place where the device receives the direct sunlight for a long time
 - Place filled with plenty of dusts, salt, and sulfur in the air
 - Slanted place or the place that receives vibration or shock (including while carrying the monitor)
 - In a location where chemicals are stored or corrosive gas is generated
 - In a location that is not within the suitable temperature and humidity range (ambient temperature -20 to 60°C, humidity 10 to 95% RH)
 - Do not block or place objects in the printer paper outlet.
 - This will cause paper jams.
 - Do not attempt to pull out the printer paper until it is automatically cut.
 - Do not subject the monitor to shock or drop the monitor.
 - Do not use a solvent, such as thinner or benzene, for cleaning this device.
 - It causes damage to its exterior.
 - Read the instruction manual of the other devices to be used at the same time with this unit to understand and be aware of the interaction between the devices.
 - Do not measure without inserting the arm in the cuff.
-

Maintenance

If the monitor has not been used recently, be sure to verify that it operates correctly before using it.
(Page 16)

Durable period

6 years, provided that the appropriate maintenance has been done. (Self-certification through OMRON HEALTHCARE's own data)

Measures to be taken if a problem or accident occurs

If an equipment error (E9) occurs, take the following measures promptly.

1. Remove the arm from the cuff.
2. Turn off the power and unplug the monitor.
3. Place an "Out of Service" note on the monitor so nobody will use it.
4. Please contact your local authorized OMRON dealer/supplier.

Features of the Product

- **Supports accurate measurement and can easily be used by a single person.**

Includes a "Correct Measurement Support" function that enables even beginners to assume the correct body position.

This prevents measurement errors due to incorrect body position.

- When the elbow rest detects the elbow, the elbow detection lamp lights up.
- The moveable arm cuff allows even tall people to assume the correct body position.

- **Measurement is possible over a wide range of arm circumferences (17 to 42 cm).**

- **Left or right arm can be used for measurement.**

- **Oscillometric measurement.**

The monitor can detect low and soft Korotkoff's sound, and be used in a moderately loud environment.

During cuff depressurization, the monitor determines blood pressure by detecting the pressure pulse wave that occurs simultaneously with the heart beat.

- **Measurement results can be announced.**

- **Customised printed results.**

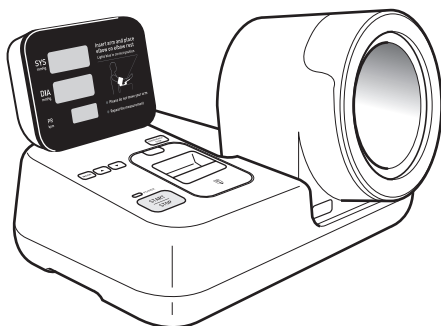
Logo/image can be uploaded and printed on the results print out.

- **The unit and cuff cover are antibacterial.**

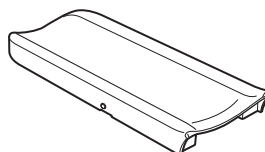
Components of the Product / Options

Before using this product, make sure that no accessories are missing and that neither the unit nor the accessories are damaged. Please contact your local authorized OMRON dealer/supplier if an accessory is missing or damaged.

Main Unit



Armrest

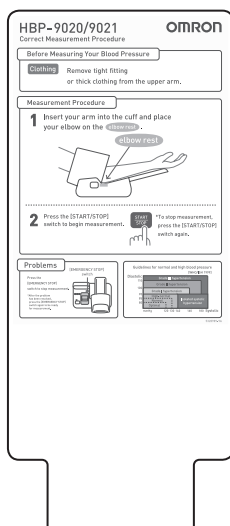


Cuff Cover

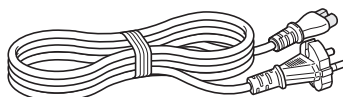
* Attached to the monitor at the factory.



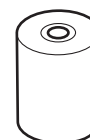
Instruction Panel



Power Cord



**Printer Paper
(1 roll)**



Elbow rest guide plate

**Instruction Manual
(this manual)**

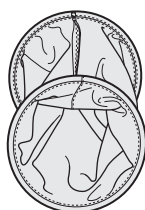
Options (Sold Separately)

Stand and Chair



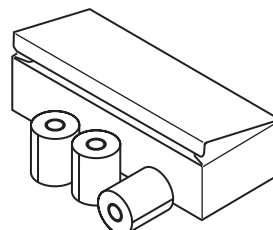
**Cuff Cover
(1 set)**

HBP-9021-CUCO
PIM: 9514869-1



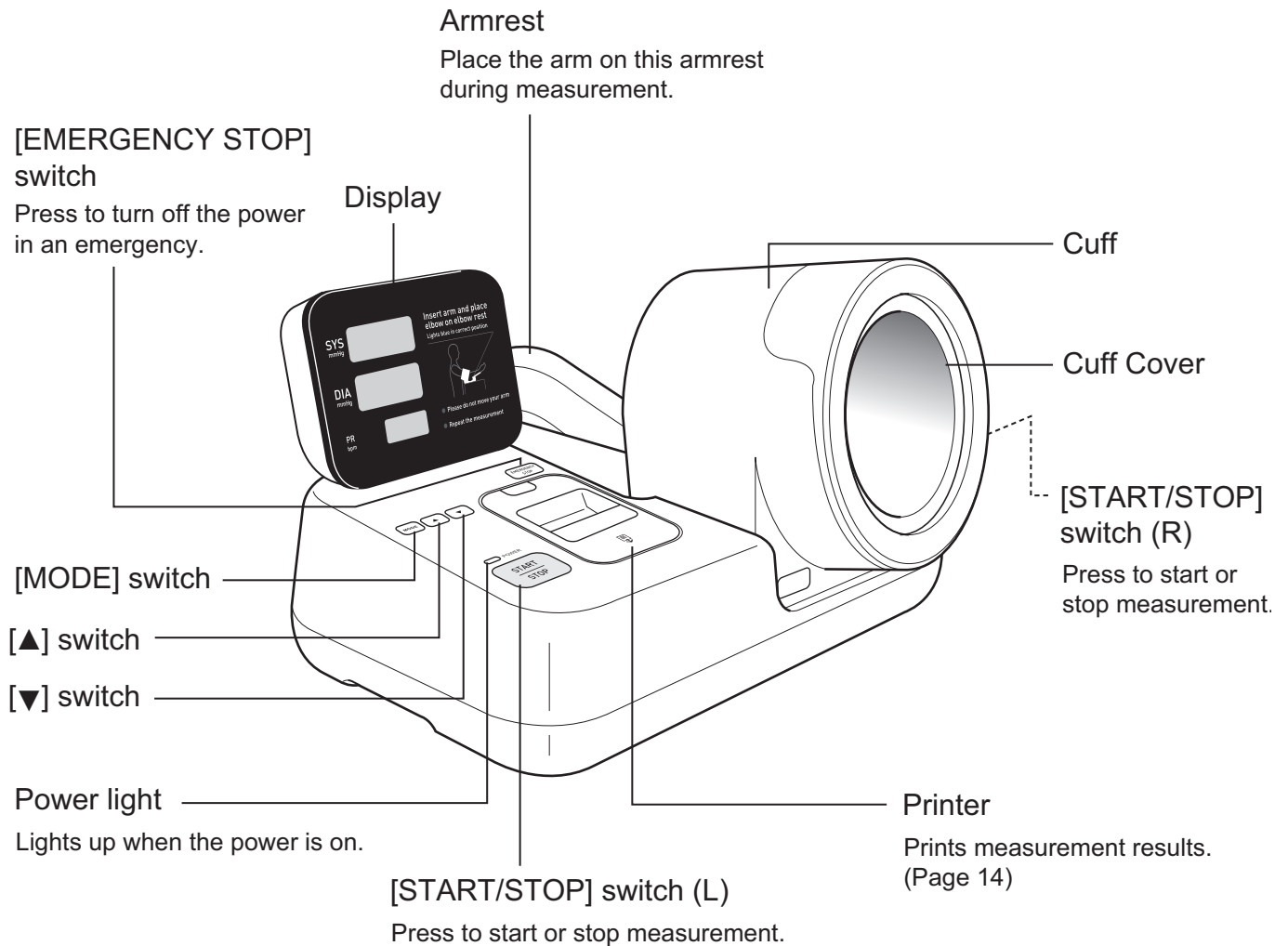
**Printer Paper No. 16
(10 rolls per box)**

HBP-PAPER-NO16
PIM: 0946260-5



Names and Functions of the Components

Main Unit



Display

Systolic blood pressure display

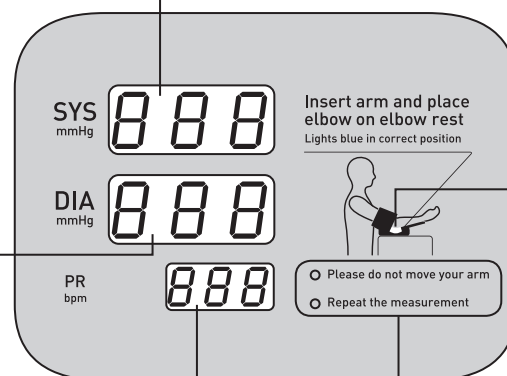
Displays the systolic blood pressure.
* Displays an error code when an error occurs. (E0 to E5, E9)
(Page 28, 29)

Diastolic blood pressure display

Displays the diastolic blood pressure.
* Displays the pressure during measurement.

Pulse rate display

Displays the pulse rate.
* Displays an error code when an error occurs. (HU, PE, typ, no, crc)
(Page 29)



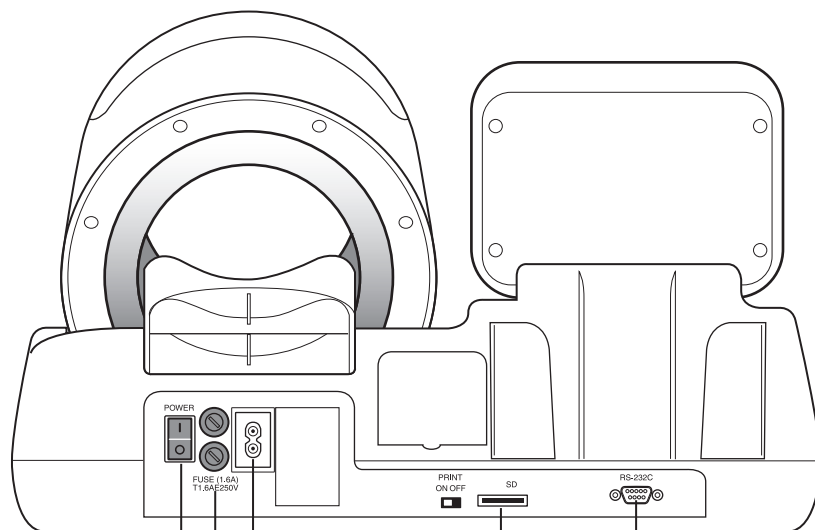
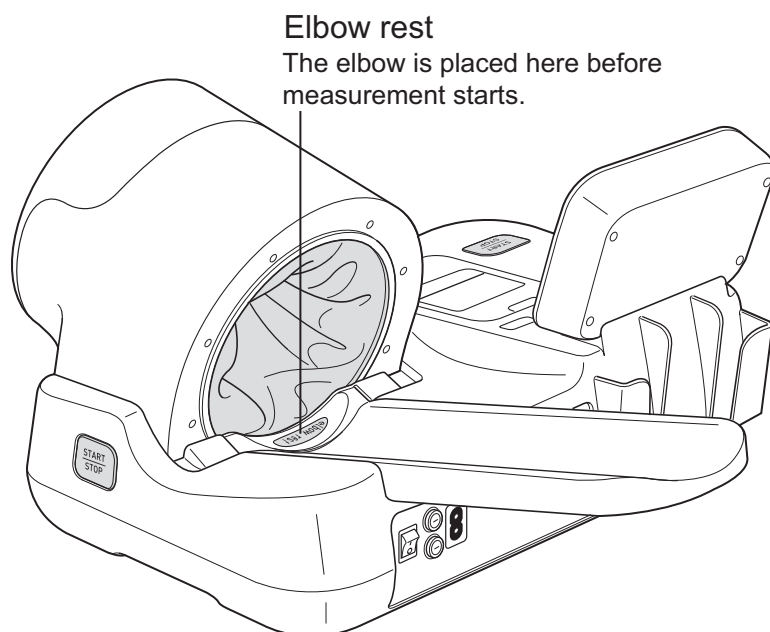
Elbow detection lamp

Lights blue when the elbow is detected.

Operating status indicator

Lights up to indicate the operating status.

Rear



RS-232C connector

Enables connection to a computer.

SD memory card connector

An SD memory card can be inserted in this connector.

[PRINT] switch

Selects whether or not results are printed.

AC connector

The provided power cord plugs into this connector.
(Page 12)

Fuse

A fuse has been installed.

[POWER] switch

Turns the power on/off.

How to Install the Monitor

When installing the monitor, it is also recommended that the optional stand and chair be installed. (Page 8)

If the optional stand and chair are not used, correct blood pressure measurement may not be possible.

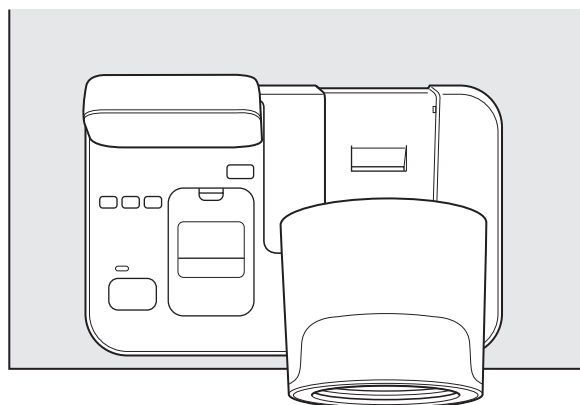
* If the optional stand and chair cannot be installed, use the following desk and chair:

- Desk on which the monitor is placed:
Width of 60 cm or more, depth of 40 cm or more, and height of 70 cm. (When the user sits down on the chair, both feet should fit under the desk.)
 - Chair for the user to sit on: Height of the seat must be 43 cm.
- * The temperature of the room in which the monitor is installed must be kept within the range 20°C to 25°C (a temperature that feels neither hot nor cold).
-

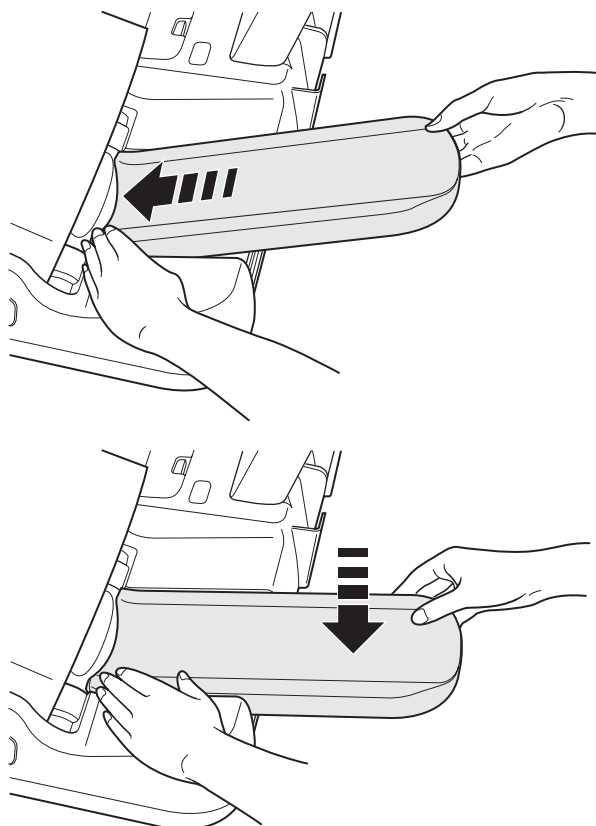
Place the monitor on the desk

Place the monitor so that the front side is aligned with the front edge of the desk.

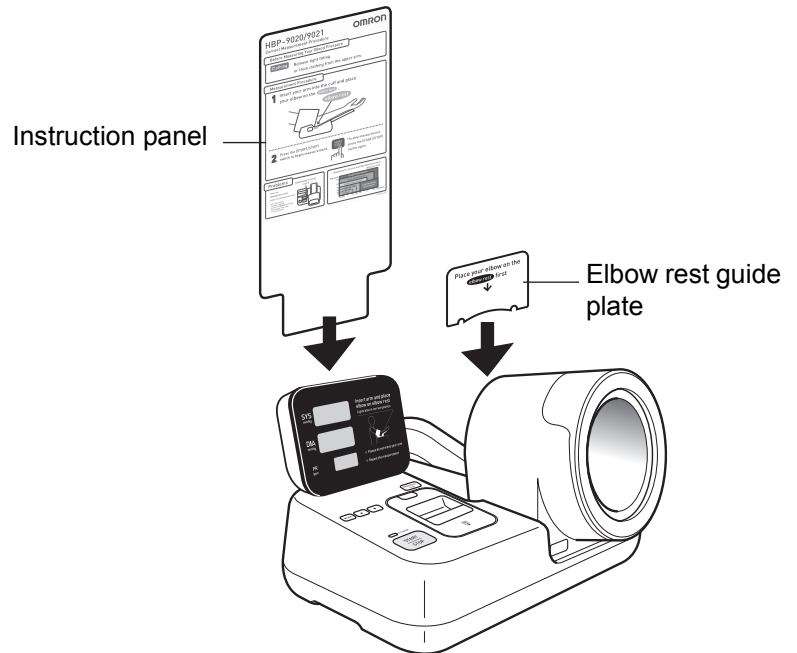
- If the optional stand is used, the monitor can be secured to the stand.



Attach the armrest



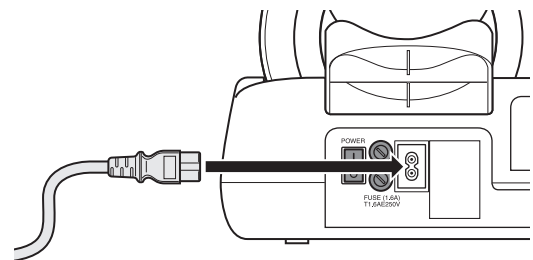
Attach the instruction panel and the elbow rest guide plate



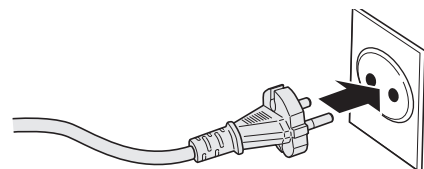
How to connect to the power source

1. Connect the provided power cord.

- 1) Insert the socket side of the power cord into the AC connector on the back of the monitor.
 - Never use a power cord other than the provided power cord.

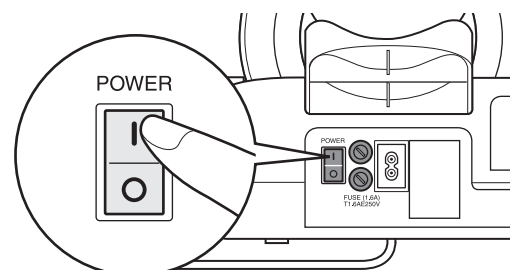
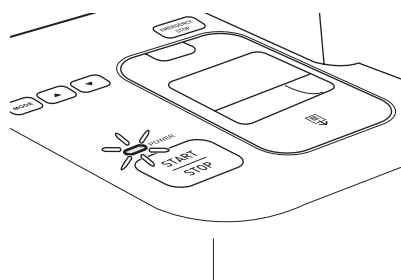


- 2) Insert the power cord plug into the outlet.



2. Make sure the power cord is connected correctly.

Turn the [POWER] switch to the ON position in order to turn on the power.
Check that the power light lights up.



How to Set the Date and Time

Turn on the power and follow the steps below to check the date and time.

A confirmation beep will sound each time a switch is pressed.

(If the sound volume is set to "0" in function selection mode, confirmation beeps will not sound.)

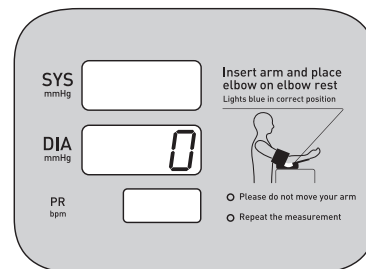
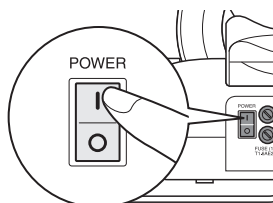
1. When the [MODE] switch is pressed in the standby display (when "0" appears in the diastolic blood pressure display), the date display appears.
2. When the [MODE] switch is pressed again, the time display appears.
3. When the [MODE] switch is pressed again, the standby display appears.

* If no action is taken for about 10 seconds in the date display or time display, the display will return to the standby display.

Follow the steps below to change the date and time.

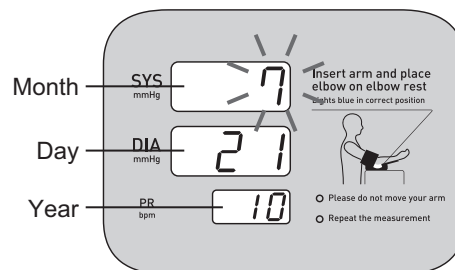
1. Turn the [POWER] switch to the ON position.

All lights turn on and then "0" appears on the diastolic blood pressure display.



2. Press the [MODE] switch to change to the date display or the time display, and then hold the [MODE] switch for at least 3 seconds.

The "Month" or "Hour" will blink to indicate that the monitor is in change setting mode.

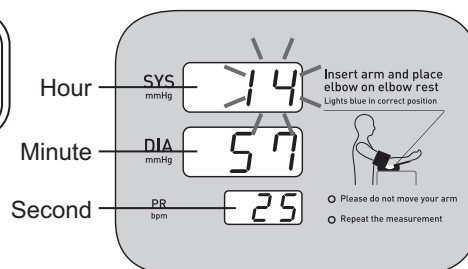
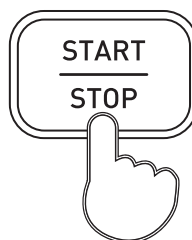


3. Select the item to be changed by pressing the [START/STOP] switch.

The item changes as follows each time the [START/STOP] switch is pressed.

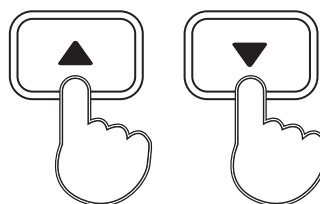
Date display: "Month" > "Day" > "Year" > "Month"...

Time display: "Hour" > "Minute" > "Hour"...



4. Change the value by pressing the ▲ / ▼ switches.

Each time one of the switches is pressed, the value increases/decreases by 1.



5. To change another item, repeat steps 3 and 4.

6. When the changes have been completed, press the [MODE] switch to exit change setting mode.

- "Second" reverts to zero when the [MODE] switch is pressed to exit "Hour" and "Minute" change setting mode.
- If no action is taken in change setting mode for about 30 seconds, the display will return to the standby display.

Note:

If the date appears when the power is turned on, set the date and time.

If the same display appears the next time the power is turned on, the backup battery must be replaced.

Please contact your local authorized OMRON dealer/supplier.

How to Load Printer Paper

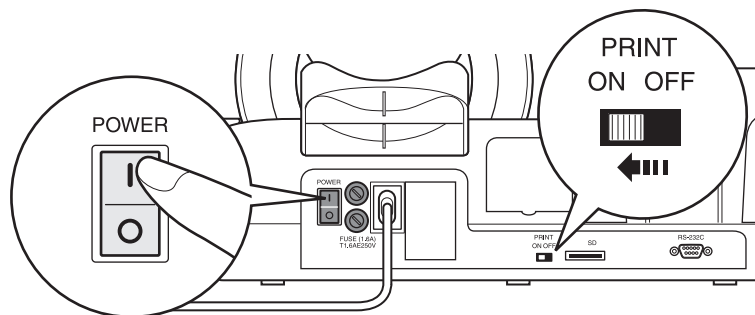
To print measurement results, load printer paper and set the [PRINT] switch on the back of the monitor to "ON".

Set the print pattern in function selection mode. (Page 23)

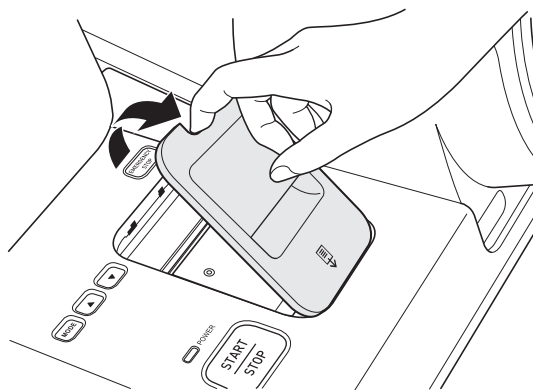
- Thermal paper is used for the printer paper. The paper may discolor and the printing may fade, so make a copy if it is necessary to store a record of the results.
- When about 1 m of the printer paper remains, a red line will appear. Load a new roll of printer paper.
- Do not load printer paper during initialization, measurement, or printing. This may cause a paper jam.
- Replacement printer paper is available as an option. For details, please contact your local authorized OMRON dealer/supplier.

1. Make sure that the [POWER] switch is set to the ON position, and the [PRINT] switch is set to "ON".

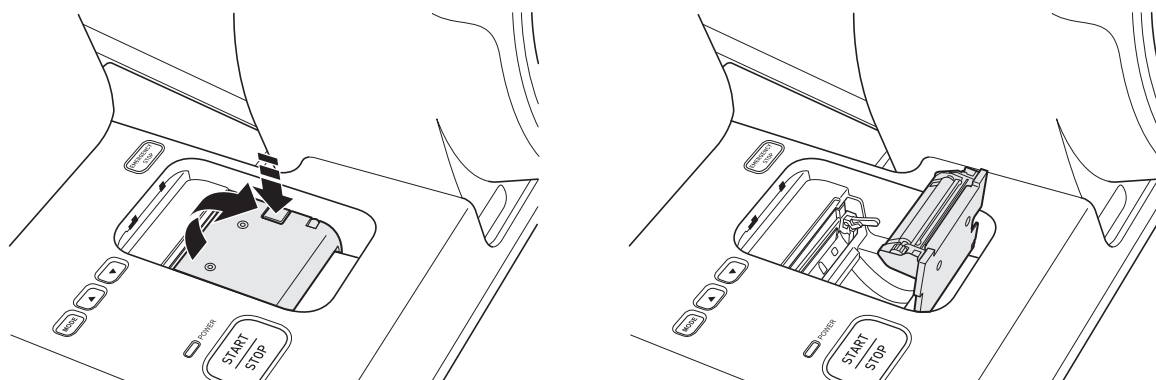
- Switching the [PRINT] switch ON/OFF is only effective in the standby display.



2. Make sure that initialization, measurement, printing are not taking place, and remove the printer cover.

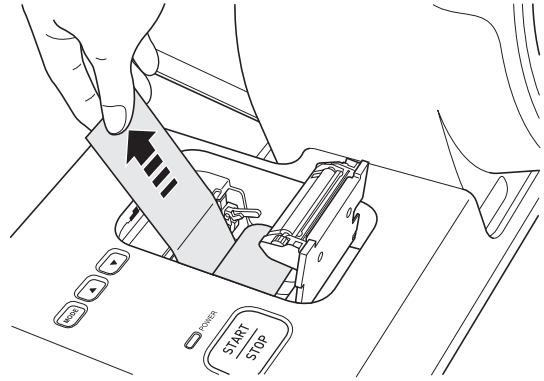


3. Press the lock release button and open the paper cover.



- 4.** Insert the printer paper in the orientation shown, and pull out about 10 cm.

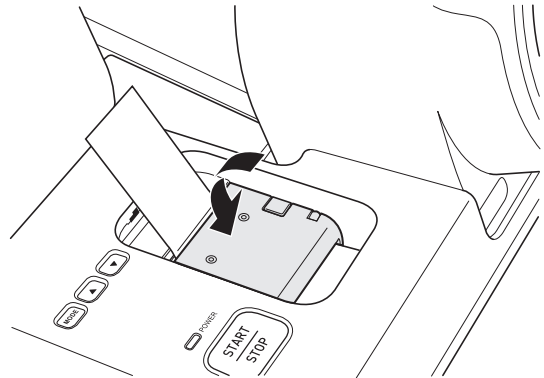
Make sure the printer paper is in the correct orientation.



- 5.** Close the paper cover.

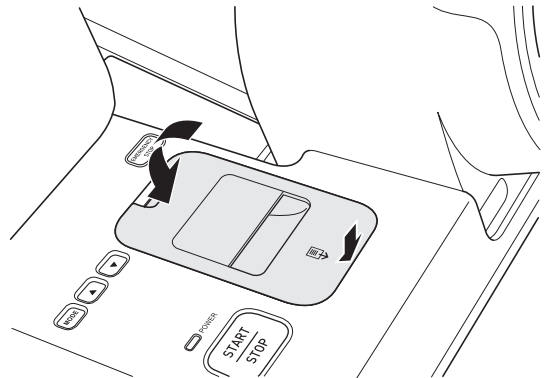
The printer paper will be cut automatically.
Remove the cut paper.

- Do not pull the paper until it has been cut. This may cause a paper jam.

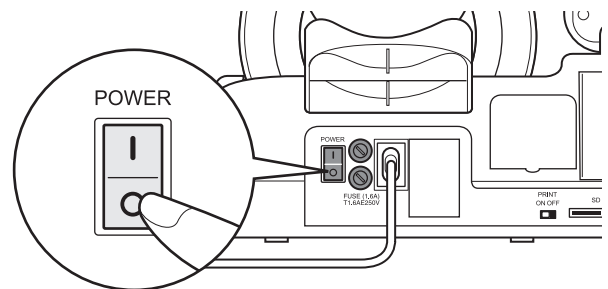


- 6.** Attach the printer cover.

If the printer cover is not firmly attached, a paper jam may result.



- 7.** Set the [POWER] switch to the OFF position.



Checking the Unit Before Usage

Before turning on the power, check the followings :

- | | |
|---------------------|--|
| External appearance | <ul style="list-style-type: none">• The monitor is not deformed due to falling or other impact.• The monitor is not dirty or wet.• The power cord is not damaged and there is no loose connections.• The cuff or cuff cover is not deformed or damaged.• The cuff cover is installed properly. (Page 26) |
| Printer paper | <ul style="list-style-type: none">• The specified type of printer paper is loaded, and there is enough paper. |
| Power cord | <ul style="list-style-type: none">• Check if the power cord is completely connected.• The power cord is firmly connected to the connector on the monitor.• Make sure the power cord is not damaged (no core-wire exposure, breaks, etc.).• The power cord is placed where it will not be tripped over. |

After turning on the power, check the followings :

- | | |
|---------------------|--|
| External appearance | <ul style="list-style-type: none">• Make sure there is no smoke or bad smell. |
| Switches and lamps | <ul style="list-style-type: none">• Press the switches and make sure they are functional.• If a lamp is supposed to light when a switch is pressed, check to make sure it lights. |
| Date and Time | <ul style="list-style-type: none">• The date and time are set correctly. (Page 13) |
| Measurement | <ul style="list-style-type: none">• Take a measurement and make sure the result is near the usual blood pressure.• The volume for audio voice is OK.• There are no strange noises during measurement.• There are no indication of IP leakage. |

How to Measure Blood Pressure

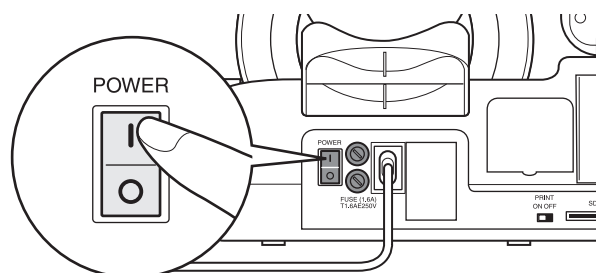
While blood pressure is being measured, constantly monitor the user and the blood pressure monitor to make sure there are no problems.

To print measurement results, printer paper must be loaded. (Page 14)

Notes:

- The volume of the audio voice and other settings related to measurement can be configured in function selection mode. (Page 23)
- If the monitor operates abnormally and does not stop inflating during measurement, press the [EMERGENCY STOP] switch.
- The monitor cannot be used to measure blood pressure on pre-elementary school children, or on children whose arm circumference is not within the range 17 cm to 42 cm.

1. Set the [POWER] switch to the ON position.



2. If a thick garment such as a jacket or sweater is worn, it should be removed.

Measurement is possible on bare skin or over thin clothing.

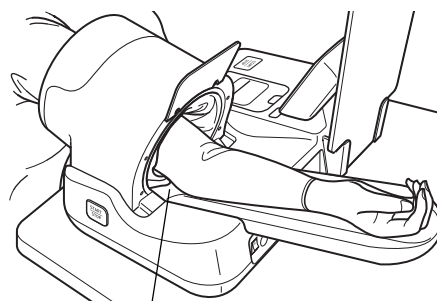


Bare skin or thin clothing

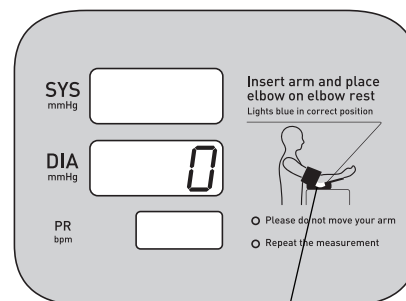
3. Sit on the chair, insert the arm into the arm cuff, and place the elbow on the elbow rest.

When the elbow rest detects the elbow, the elbow detection lamp (blue) stops blinking and remains lit.

- When the elbow is removed from the elbow rest, the elbow detection lamp resumes blinking.
- Measurement is possible with the right arm or the left arm.
- The moveable cuff allows even tall people to assume the correct body position.



Elbow rest



Elbow detection lamp

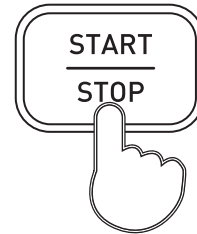
4. Relax, take two or three deep breaths, and remain quiet.

5. Press the [START/STOP] switch.

The cuff automatically wraps around the arm and the monitor starts measurement.

The pressure will appear in the diastolic blood pressure display during measurement.

- When the left arm is used for measurement, use the [START/STOP] switch on the right side of the monitor.
- If it is necessary to cancel measurement, press the [START/STOP] switch again.
- Do not allow the user to move the arm or body during measurement.
- If the monitor detects insufficient inflation, it may start inflation again.



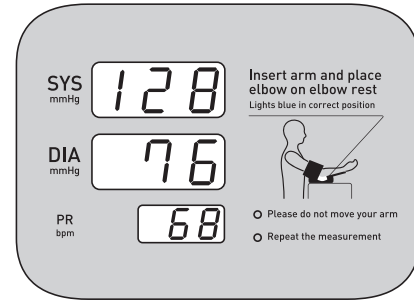
6. When the measurement is finished, remove the arm.

The cuff will automatically expand. Wait until the cuff expands and then remove the arm.

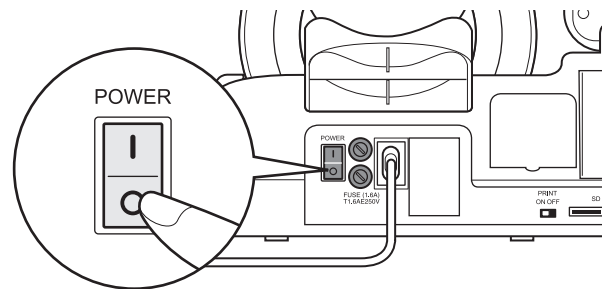
The measurement results appear.

If the [PRINT] switch on the rear of the monitor is set to "ON", the results will be printed and the printer paper will be automatically cut.

- The displayed measurement results are automatically cleared and the monitor returns to standby after the set time (factory default setting is 30 seconds). Measurement is also possible without displaying the results. (Page 23)

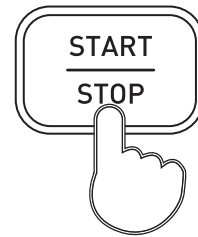


7. Set the [POWER] switch to the OFF position.



■ Canceling measurement

If pain is felt in the arm or discomfort is experienced, remain calm and press the [START/STOP] switch again.



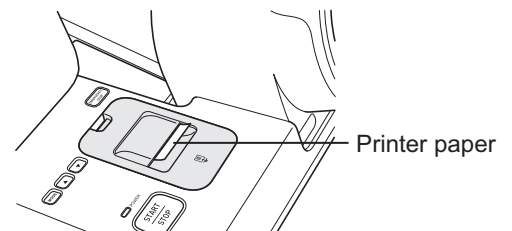
■ Emergency stop

If a problem is encountered, for example, if the air in the cuff does not deflate even after the [START/STOP] switch is pressed, press the [EMERGENCY STOP] switch. Remove the arm from the monitor, make sure conditions are safe, and then press the [EMERGENCY STOP] switch again to reset the monitor.



■ Important points during printing

Do not place the hand or other object near the printer paper outlet during printing, as this may cause a paper jam. The printer paper will be cut automatically, so do not forcibly pull out the printer paper.



Checklist for situations when the measurement results are doubtful or measurement is not possible

1. Basic points to ensure correct measurement

- ☐ The elbow detection lamp should be on during measurement.
(If the elbow detection lamp is on during measurement, "Measurement was performed at the correct arm position" will appear on the printed measurement results.)
- ☐ The arm should be bare or with thin clothing.
- ☐ The optional stand and chair are used, or a desk and chair with the specified heights are used.
(Desk: 70 cm, chair: 43 cm)
- ☐ The temperature of the room where the monitor is installed is at 20°C to 25°C (neither hot nor cold).

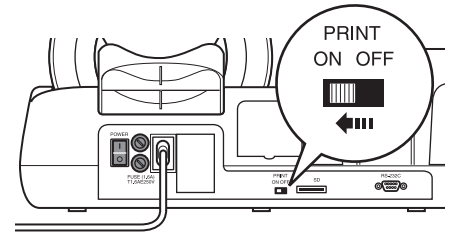
2. Checklist for factors that will reduce measurement reliability or prevent measurement

- ☐ The user has an irregular pulse (arrhythmia) or other rapid fluctuations of blood pressure.
- ☐ The user has poor peripheral circulation or noticeably low blood pressure or body temperature.
- ☐ The user moves or speak during measurement.
- ☐ The sleeve is rolled up and exerting pressure on the upper arm.
- ☐ Measurement is taken immediately after exercise.

Printing the Measurement Data

When the [PRINT] switch on the back of the monitor is set to "ON", the measurement results will be printed out when the measurement is complete.

The items that appear in the printed results depend on the settings of function selection mode.
("Function selection mode" page 23)



Example of printed measurement results

(1) Measurement results

The results of the measurement.
"Mean arterial pressure (MAP)" will appear only when "MAP print" is set to "ON" in function selection mode.

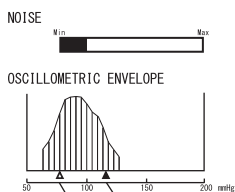
(2) Arm position

If measurement was started with the elbow detection lamp remaining lit on the display, "Measurement was performed at the correct arm position" will be indicated on the printed measurement results.
If the elbow detection lamp was still blinking when measurement was started, "Placing your elbow on the elbow rest will enable a more accurate measurement" will be indicated on the printed measurement results.

(3) Noise level/oscillometric envelope

If the user moves or talks during the measurement, oscillations similar to pulses will occur at the measuring site. The monitor interprets these oscillations as noise.
If there is too much noise, the measurement will not be accurate. In this case, repeat measurement, taking care not to move or talk.

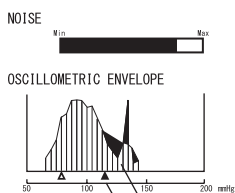
Excellent measurement results



For these measurement results, the oscillometric envelope is a clean mountain shape, there is no noise during the measurement such as motion artifacts, and the results are highly reliable.

— Determined systolic blood pressure (SYS)
— Determined diastolic blood pressure (DIA)

Measurement results with low reliability



For these measurement results, the oscillometric envelope is not a clean mountain shape and it is likely that there was noise and it is conceivable that there was noise such as motion artifacts during the measurement.

— Signal that is assumed to be noise
— Assumed systolic blood pressure

(4) Results commentary

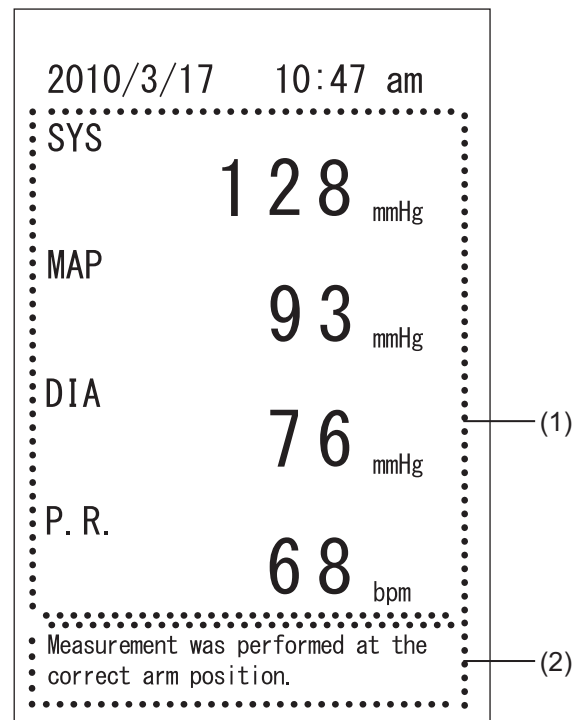
A comment will appear based on the measurement results.

(5) Advertisement print

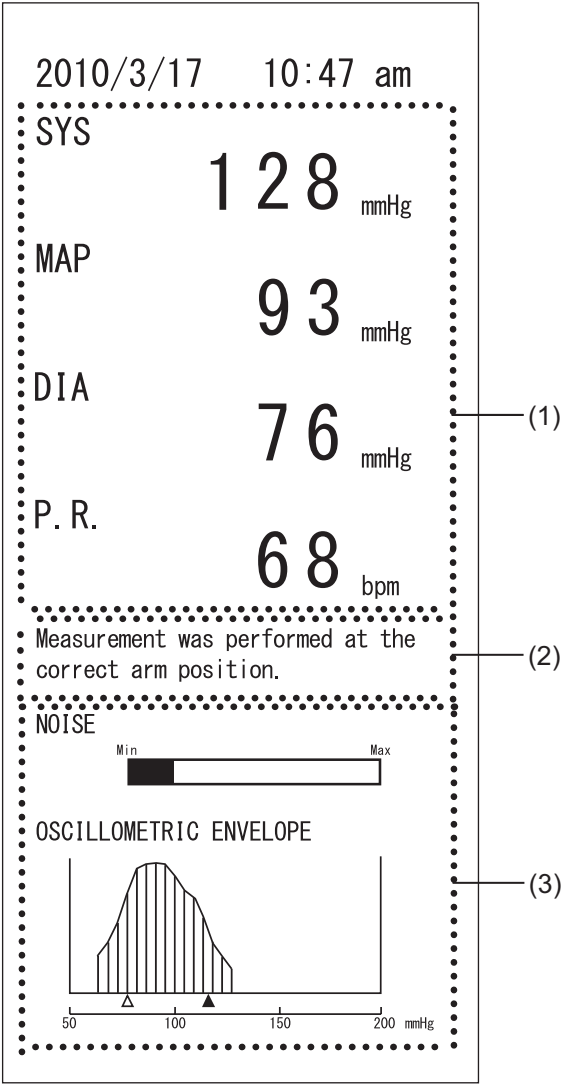
If "Image upload" in function selection mode is used to upload an advertisement image from an SD memory card*, the image will be printed.

*For a compatible SD memory card, please contact your local authorized OMRON dealer/supplier.

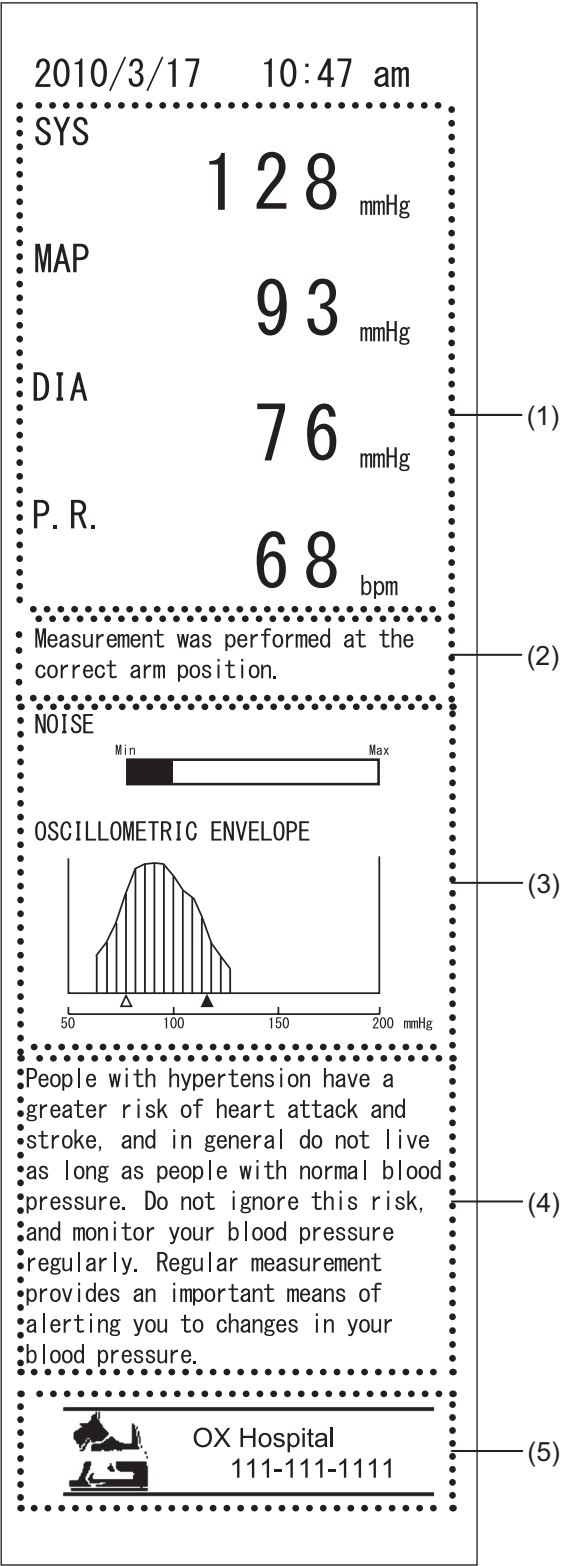
Print pattern: A



Print pattern: B



Print pattern: C



Function Selection Mode

Function selection mode allows various settings and special functions to be used.
(The settings are retained even if an interruption in the power supply occurs.)

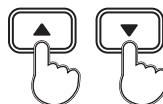
How to enter function selection mode and change settings

To enter function selection mode, hold the [MODE] switch and then the [START/STOP] switch for at least 3 seconds until a beep sounds.

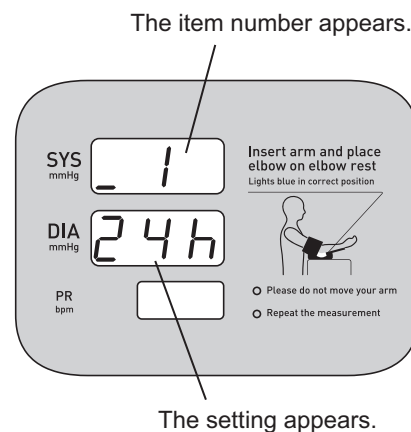
(If the volume is set to "0" in function selection mode, a confirmation beep will not sound.)

* If no action is taken for about one minute in function selection mode, the display will return to the standby display.

1. Select the item by pressing the ▲ / ▼ switches.



2. Change the setting by pressing the [START/STOP] switch.



3. To change other items, repeat steps 1 and 2.

4. Exit "Function selection mode" by pressing the [MODE] switch.



Settings in function selection mode

No.	Item	Settings	Factory default	Description
_1	12/24 H selection	12 H, 24 H	24 H	Select the time print format.
_21	Volume	0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10	5	Set the volume of the audio voice for the measurement results.
_22	Meas. results voice	ON, OFF	OFF	Turn on/off audio voice of measurement results.
_31	Print pattern	A, B, C	A	Select the measurement results print pattern.
_32	MAP print	ON, OFF	OFF	The mean arterial pressure (MAP) can be printed in the measurement results.
_4	Result display time	15, 30, 60, OFF	30 sec	Set the duration of time the measurement results appear in the display after measurement.
_5	External input/output selection	1, 2, 3, 4 (RV1, RV2, RV3, 10 keys)	3	Set this when the monitor is connected to a computer.
InF 1	Counter value check			When the [PRINT] switch on the back of the monitor is set to "ON", this displays and prints the total number of times the monitor has been used. (The most significant 3 digits appear in the systolic blood pressure display and the least significant 3 digits appear in the diastolic blood pressure display.)
InF 2	Mode settings print			When the [PRINT] switch on the back of the monitor is set to "ON", this prints the current status of the settings.
InF 3	Error log print			When the [PRINT] switch on the back of the monitor is set to "ON", the [START/STOP] switch can be held for 3 seconds to print the error log.
InF 4	Version			Displays the version of the main CPU in the systolic blood pressure display and the version of the blood pressure measurement CPU in the diastolic blood pressure display.
CLr Cnt	Total meas count clear			Hold the [START/STOP] switch for 5 seconds to clear the total measurement count.
CLr ALL	Usage history counter clear			Hold the [START/STOP] switch for 5 seconds to clear counts other the total usage count.
UPd Pct	Image upload			Hold the [START/STOP] switch for 3 seconds to upload an advertisement print image from an SD memory card. When "UPd Pct" appears, insert the SD memory card.

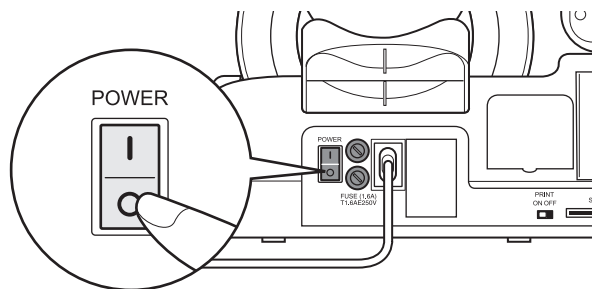
Maintenance and Cleaning

Cuff Cover Maintenance

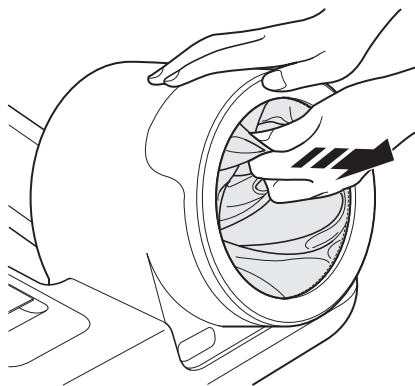
- If the cuff cover is dirty, remove it and wash by hand.
- A replacement cuff cover is available as an option. For details, please contact your local authorized OMRON dealer/supplier.

How to remove the cuff cover

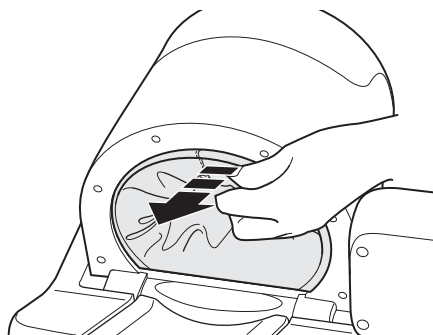
1. Make sure that the [POWER] switch is in the OFF position.



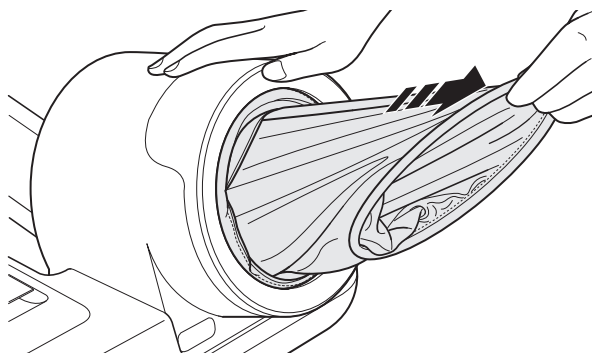
2. Pull the cloth at the upper front of the cuff cover and remove from the groove in the monitor.



3. Pull the cloth at the upper back of the cuff cover and remove from the groove in the monitor.

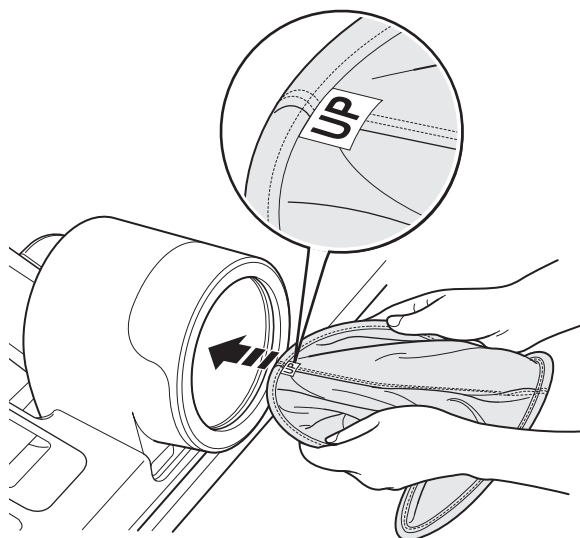


4. Pull the back of the cuff cover to the front and out.

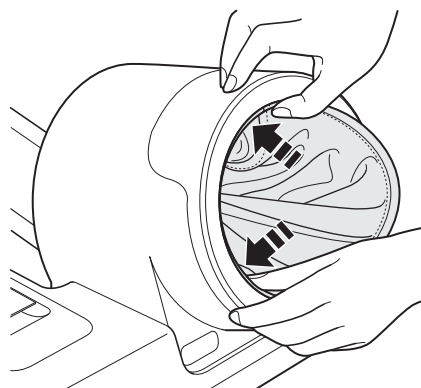


How to attach the cuff cover

1. Insert the ring marked "UP" from the front as shown, and pull to the back.



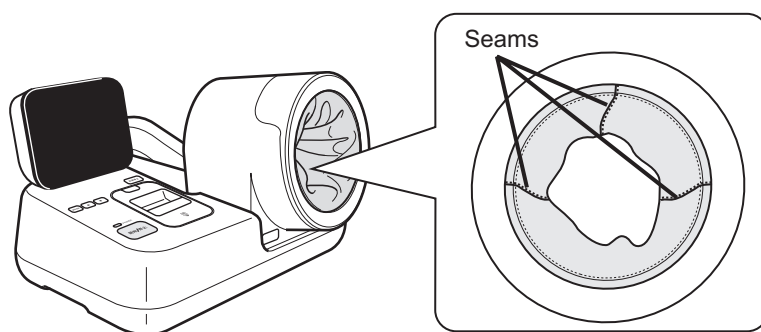
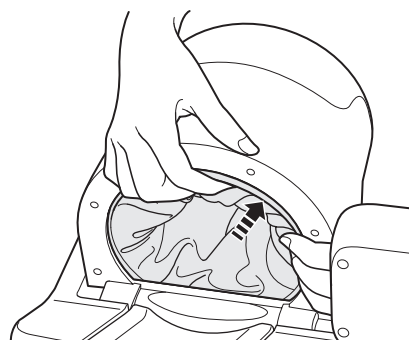
2. Insert the front of the cuff cover into the groove.



3. Insert the back of the cuff cover into the groove.

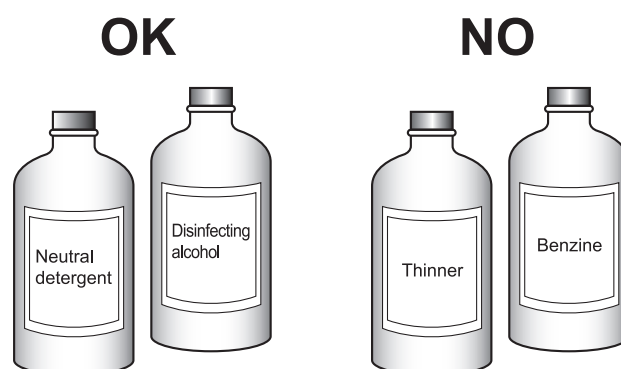
Make sure that the cuff cover rings are completely inserted into the grooves.

Make sure the seams of the cuff cover are at the right, left, and top.



Cleaning Surface

If the monitor is dirty, use a soft cloth moistened with diluted neutral detergent or diluted disinfecting alcohol (well wrung) to wipe off the dirt. Note, however, that the power connector should not be wiped or moistened in any way.



Disposal

Description

Disposing or recycling this device could contaminate the environment. Please handle in accordance to the methods stipulated by local and national agencies.

List of Error Codes

Errors indicating unsuccessful measurement

These error codes appear in the systolic blood pressure display area.

Error code	Cause	Remedial action
E0	The [EMERGENCY STOP] switch remains pressed down (the [EMERGENCY STOP] switch is lower than the monitor surface).	After the arm has been removed from the cuff, press the [EMERGENCY STOP] switch to reset. When the emergency stop is reset, the error is cleared.
E1	- The [START/STOP] switch was pressed without the arm being inserted. - The arm is too thin.	- Make sure the arm is inserted correctly. - If the circumference of the arm is less than 17 cm, it may not be possible for the cuff to wrap around the arm and measurement will not be possible.
E2	- The user moved the arm or body during measurement. - The user had frequent irregular pulse waves during measurement.	- Ask the user not to move or speak during inflation and measurement. - Check if the user has an irregular pulse wave.
E3	The cuff pressure reached 300 mmHg or more.	If the cuff pressure rises above 300 mmHg, emergency air release will automatically take place.

Accessory function errors

These error codes appear in the systolic blood pressure display area.

Error code	Cause	Remedial action
E4	Printer failure.	Please contact your local authorized OMRON dealer/supplier. (This error does not appear when the [PRINT] switch is set to "OFF".)
E5	Unable to upload advertisement print image.	Remove and then reinsert the SD memory card.

Equipment error

This error code appears on the systolic blood pressure display.
If this error code still appears after the power has been turned off and then on, the monitor requires service.

Error code	Cause	Remedial action
E9	A failure has occurred in the monitor.	1. Remove the arm from the cuff. 2. Turn off the power and unplug the monitor. 3. Place an "Out of Service" note on the monitor so that nobody will use it. 4. Please contact your local authorized OMRON dealer/supplier.

Printer errors

These error codes appear in the pulse rate display.
(These errors do not appear when the [PRINT] switch is set to "OFF".)

Error code	Cause	Remedial action
HU	The lock release button has been pressed and the paper cover is opened (the head is up).	Close the paper cover of the printer. (Page 14)
PE	No more printer paper (out of paper).	Load new printer paper. (Page 14)

Image upload error

These error codes appear in the pulse rate display.

Error code	Cause	Remedial action
typ	The format of the image file on the SD memory card is incorrect.	Check the file on the SD memory card.
no	No corresponding image file on the SD memory card.	Check if the image file is on the SD memory card.
crc	An incompatible SD memory card is inserted.	For SD memory cards that can be used, please contact your local authorized OMRON dealer/supplier.

Troubleshooting

If a problem occurs while using the monitor, check the following troubleshooting list.

Problem	Probable cause	Remedial action
Nothing appears on the display when the [POWER] switch is set to the ON position.	The power cord is loose or disconnected.	Insert the power cord into the electric outlet correctly. (Page 12)
	The fuse has blown.	Have the monitor serviced.
The monitor does not inflate when the [START/STOP] switch is pressed.	The date display or the time display appears.	Press the [MODE] switch to show the standby display, and repeat measurement. (Page 13)
There is no audio voice.	The volume is set to 0.	Set the volume in function selection mode. (Page 23)
The monitor inflates to an extremely high (low) pressure.	The arm is not inserted correctly.	Place the elbow on the elbow rest and repeat measurement. (Page 17)
	The user moved the arm or body during inflation.	Ask the user not to move the arm and body during measurement, and repeat the measurement.
	This only happen to a specific user. For some users, proper inflation may not be possible due to irregular pulse waves or other reasons.	Check the blood pressure by auscultation using a stethoscope.
Measurement is not completed successfully. The measured values are abnormal.	First, check the condition of the user.	Please take appropriate actions as indicated in "List of Error Codes". If necessary, check the user by auscultation using a stethoscope. (Page 28)
	The user moved the arm or body during measurement.	Measure again after asking the user not to move the arm and body during measurement.
	The user has irregular pulse waves.	Check the blood pressure by auscultation using a stethoscope.
	The desk or chair is too high or too low.	If the optional stand and chair cannot be used, use a desk and chair with the specified heights. (Page 11)
	The arm is not inserted correctly.	Place the elbow on the elbow rest and repeat measurement. (Page 17)

Trouble	Probable cause	Remedial action
Printing is not possible.	The [PRINT] switch is set to "OFF".	Set the [PRINT] switch to "ON". (Page 14)
	The paper is loaded backwards.	Load the paper in the correct orientation. (Page 14)
	The paper is jammed.	Turn off the power, open the printer cover, and press the lock release button to open the paper cover. Pull out the paper, and then correctly load the paper. (Page 14)

* If the problem persists even after the above list has been checked, a failure may have occurred. For product failures and repairs, please contact your local authorized OMRON dealer/supplier.

* In rare cases the body constitution of some people causes an error to occur and measurement is not possible. In this situation, please contact your local authorized OMRON dealer/supplier.

Specifications

Product description	Blood pressure monitor
Model	HBP-9020
Display method	LED digital display
Measurement method	Oscillometric method
Measurement range	Pressure 0 ~ 299 mmHg Pulse 40 ~ 180/min.
Accuracy	Pressure ± 3 mmHg Pulse $\pm 5\%$ of display reading
Inflation	Automatic inflation
Deflation	Automatic deflation
Air release	Automatic rapid air release
Arm circumference	17 ~ 42 cm
Power	AC 100 ~ 240 V 50/60 Hz
Power consumption	70 VA
Type of protection against electric shock	ClassII TypeB
Operating range	Temperature 10°C ~ 40°C Humidity 15 ~ 90%RH
Storage range	Temperature -20°C ~ 60°C Humidity 10 ~ 95%RH
Weight	Approximately 5.5 kg
Outside dimensions	Approximately 370 (l) x 460 (w) x 270 (h) mm (without Armrest)
Accessories	Armrest / cuff cover / power cord / printer paper (1 roll) / instruction panel / instruction manual / elbow rest guide plate
Options	Stand and chair / printer paper (10 rolls per box) / cuff cover
Manufacturer	OMRON HEALTHCARE Co.,Ltd. 24, Yamanouchi Yamanoshita-cho, Ukyo-ku, Kyoto, 615-0084 Japan
Asia Pacific HQ	OMRON HEALTHCARE SINGAPORE PTE LTD. 438A Alexandra Road, #05-05/08, Alexandra Technopark, Singapore 119967

Note: Specifications may be changed without prior notice.

- This device supports SD Association standard SD memory cards.
- OMRON HEALTHCARE Co., is a member of the SD Association.



Manufacture's Declaration

Warning

For best product performance and measurement accuracy, use only accessories supplied or recommended by OMRON HEALTHCARE Co. The use of accessories, transducers, and cables other than those specified may result in increased emission and/or decreased immunity of the HBP-9020.

The HBP-9020 is suitable for use in the specified electromagnetic environment. The customer and/or user of the HBP-9020 should assure that it is used in an electromagnetic environment as described below;

Electromagnetic Emissions (IEC60601-1-2)

Emission Test	Compliance	Electromagnetic Environment
RF emission CISPR 11	Group 1	The HBP-9020 uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emission CISPR 11	Class A	The HBP-9020 is suitable for use in all establishments.
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations/ flicker emission IEC 61000-3-3	Complies	

Electromagnetic Immunity (IEC60601-1-2)

Immunity Test	IEC60601-1-2 Test Level	Compliance Level	Electromagnetic Environment Guidance
Electrostatic discharge (ESD) IEC 61000-4-2	±2,4,6 kV contact ±2,4,8 kV air	±2,4,6 kV contact ±2,4,8 kV air	Floor should be wood, concrete, or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electric fast transient/burst IEC 61000-4-4	±2 kV for power supply lines ±1 kV for input/output lines	±2 kV for power supply lines ±1 kV for input/output lines	Mains power quality should be that of a typical commercial and/or hospital environment.
Surge IEC 61000-4-5	±1 kV normal mode ±2 kV common mode	±1 kV normal mode ±2 kV common mode	Mains power quality should be that of a typical commercial and/or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply IEC 61000-4-11	<5 % UT (>95 % dip in UT) for 0.5 cycle	<5 % UT (>95 % dip in UT) for 0.5 cycle	Mains power quality should be that of a typical commercial and/or hospital environment. If the user of the HBP-9020 requires continued operation during power mains interruption, it is recommended that the HBP-9020 be powered from an uninterruptible power supply.
	40 % UT (60 % dip in UT) for 5 cycles	40 % UT (60 % dip in UT) for 5 cycles	
	70 % UT (30 % dip in UT) for 25 cycles	70 % UT (30 % dip in UT) for 25 cycles	
	<5 % UT (95 % dip in UT) for 5 sec.	<5 % UT (95 % dip in UT) for 5 sec.	
Power frequency (50/ 60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
Note: UT is the AC mains voltage prior to application of the test level.			

Immunity Test	IEC60601-1-2 Test Level	Compliance Level	Electromagnetic Environment Guidance
Conducted RF IEC 61000-4-6 Radiated RF IEC 61000-4-3	3 V r.m.s 150 kHz ~ 80 MHz 80% AM (2Hz) 3 V/m 80 MHz ~ 800 MHz 3 V/m 800 MHz ~ 2.5 GHz	3 V r.m.s 3 V/m 3 V/m	Potable and mobile RF communications equipment should be used no closer to any part of the HBP-9020 including cables, than the recommended separation distance calculated from the equation appropriate to the frequency of the transmitter. Recommend separation distance $d = 1.2 \sqrt{P}$ 150 KHz to 80 MHz $d = 1.2 \sqrt{P}$ 80 MHz to 800 MHz $d = 2.3 \sqrt{P}$ 800 MHz to 2.5 GHz where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m). Field strengths from fixed RF transmitters as determined by an electromagnetic site survey* should be less than the compliance level in each frequency range.** Interference may occur in the vicinity of equipment marked with the following symbol: 
Note1: At 80 MHz and 800 MHz, the higher frequency range applies. Note2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.			
* Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radio, AM and FM radio broadcast, and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the HBP-9020 is used exceeds the applicable RF compliance level above, the HBP-9020 should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the HBP-9020. ** Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.			

Recommended Separation Distances

Recommended separation distance between portable and mobile RF communications equipment and the HBP-9020

The HBP-9020 is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the HBP-9020 can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the HBP-9020 as recommended below, according to the maximum output power of the communications equipment.

Rated maximum output power of transmitter in watt	Separation distance according to frequency of transmitter in meter		
	150 kHz to 80 MHz $d = 1.2 \sqrt{P}$	80 MHz to 800 MHz $d = 1.2 \sqrt{P}$	800 MHz to 2.5 GHz $d = 2.3 \sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

For transmitters rated at a maximum output power not listed above, the recommended separation distance d in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

Note1: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies

Note2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.

Manufacturer	OMRON HEALTHCARE Co., Ltd. 24, Yamanouchi Yamanoshita-cho, Ukyo-ku, Kyoto, 615-0084 Japan
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