

# **BPBIO320 / 320n**

## **User's Manual**

Please note the important information below before reading this manual.

 **Warning**

Failure to observe these precautions can result in personal injury or equipment damage.

 **Caution**

Failure to comply with safety precautions can damage the equipment.

 **Caution**

Referring to notes can help improve equipment use.

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Visit our website ([www.inbody.com](http://www.inbody.com)) to view and download additional information about the BPBIO320/320n. InBody Co., Ltd. reserves the right to modify the appearance, specifications, etc. of this product to improve its quality, without prior notice.

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# BPBIO320 / 320n

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# I. BPBIO320/320n Installation

## A. Product Components

The BPBIO320/320n consists of the following components. Make sure the following components are present.

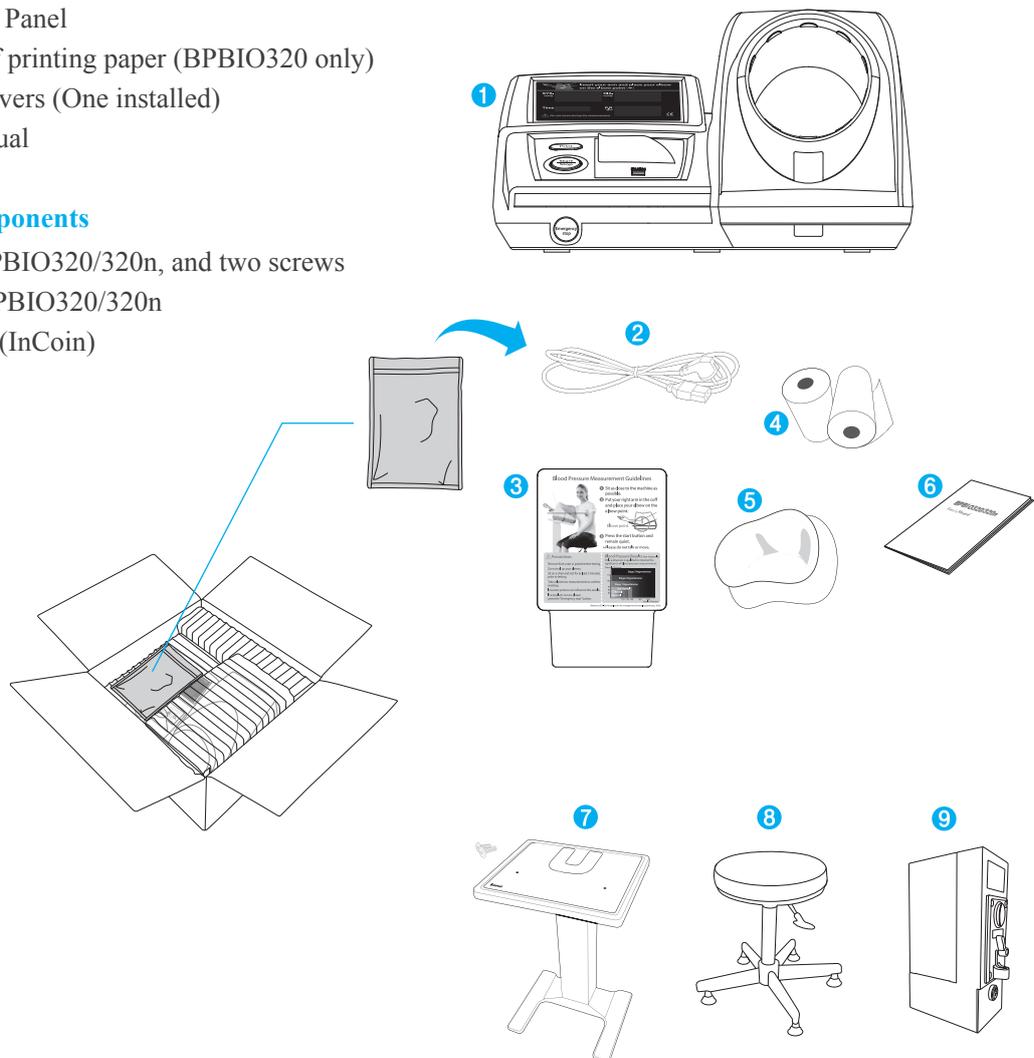
\* Please check each component of the system for damage prior to installation.

### Basic Components

- ① BPBIO320/320n
- ② Power cable (AC 250V 10A 1.8m) 1 EA
- ③ Information Panel
- ④ Two rolls of printing paper (BPBIO320 only)
- ⑤ Two cuff covers (One installed)
- ⑥ User's Manual

### Optional components

- ⑦ Desk for BPBIO320/320n, and two screws
- ⑧ Chair for BPBIO320/320n
- ⑨ Coin device(InCoin)



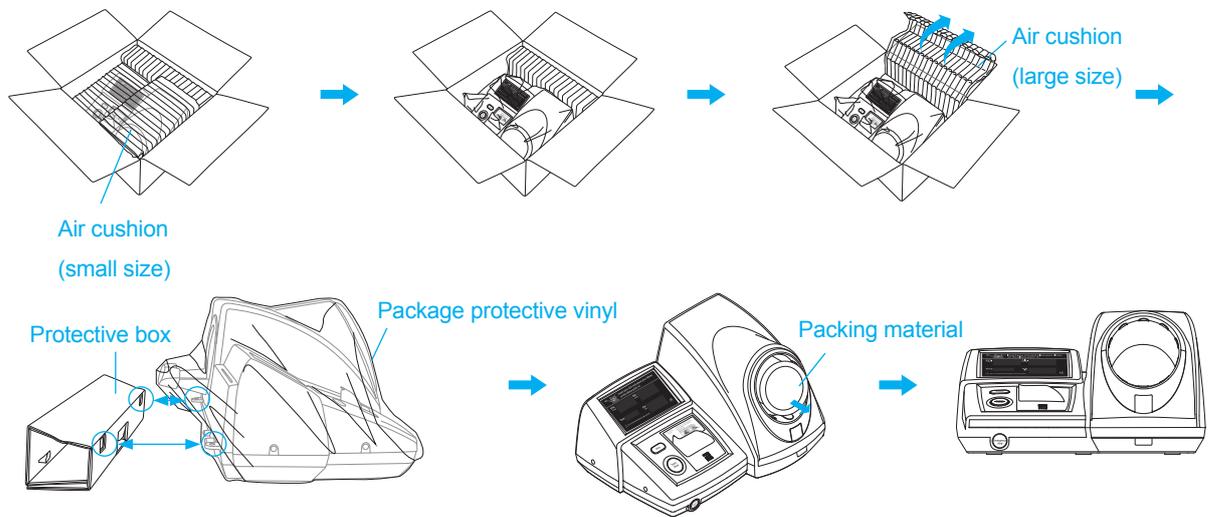
## B. Operating Environment

Please make sure the environment is adequate for the BPBIO320/320n installation. This equipment is designed for indoor use. If installing the equipment outdoors, the following requirements must be fulfilled:

Temperature range	10 to 40°C (50 to 104°F)
Relative humidity	30 to 75% RH
Atmospheric pressure range	70 to 106 kPa

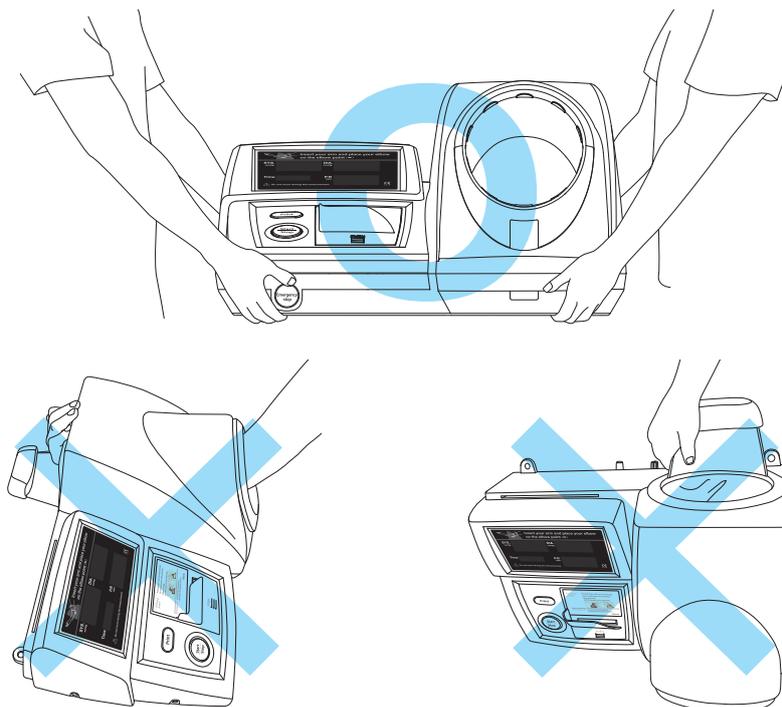
## C. Installation Instructions

1. Open the BPBIO320/320n box, and remove the air cushion (small size). Unfold the air cushion (large size) and take out the BPBIO320/320n from the box, and then remove the protective box. Take off the protective vinyl out of the BPBIO320/320n, and remove the packing material.



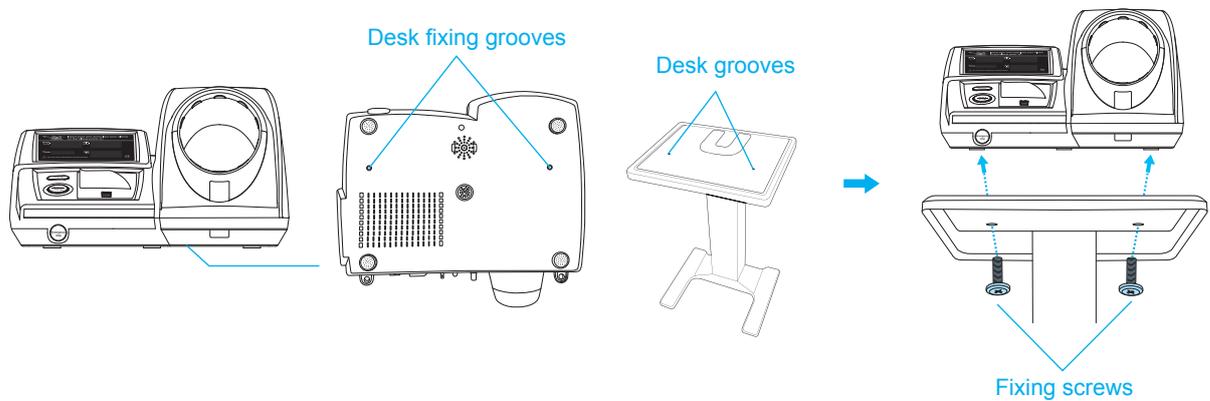
### ! Caution

- Do not carry the equipment by holding the cuff.
- Keep packing material to repack the BPBIO320/320n at a later time. Dispose of trash according to local laws and regulations.
- Refer to the figure below when transporting the BPBIO320/320n.



- Place the equipment on a solid table that can withstand the weight of the BPBIO320/320n (approx. 9kg). If desk for the BPBIO320/320n is available, align the grooves on the bottom of the BPBIO320/320n with the grooves on the desk and secure them with two fixing screws.

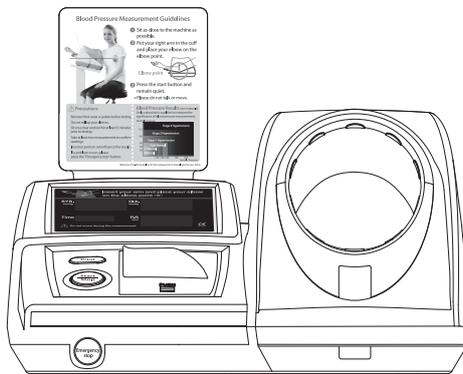
\* Desk for the BPBIO320/320n sold separately.



### Caution

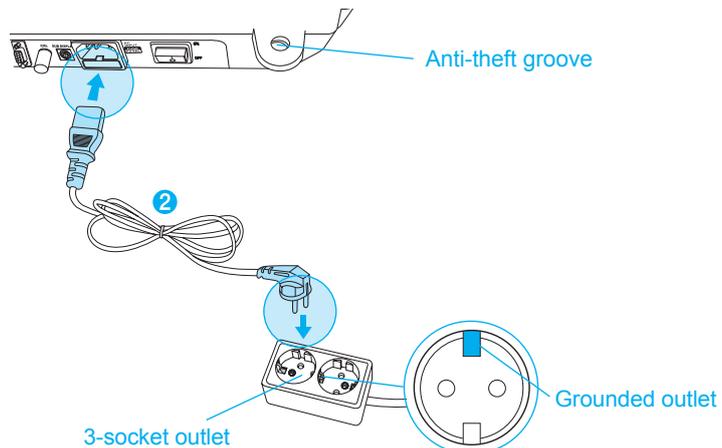
- Install the BPBIO320/320n on a flat, vibration-free floor. If the equipment is installed where the floor is not flat, it may topple during a test or the test results may be inaccurate.

- Mount the Information Panel onto the BPBIO320/320n.



- Connect the power cable provided with the BPBIO320/320n. Plug the power cable into a grounded 3-prong outlet.

\* The anti-theft groove can be used to secure the equipment to the table.



## Warning

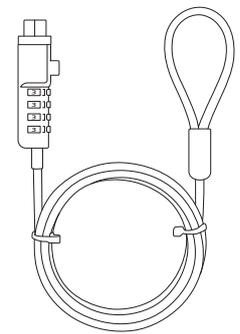
- Do not install the equipment where the power cable is difficult to disconnect.
- Do not plug or disconnect the power cable with wet hands. There is a risk of electric shock.
- Always use an outlet supplied to the correct power supply (AC 100-240 V). An incorrect power supply may cause fire or malfunctions.
- Do not disassemble the equipment arbitrarily. This may cause electric shock, injury, product malfunction, and/or inaccurate results. Unauthorized disassembly will void the manufacturer's warranty.
- Do not let the BPBIO320/320n touch with other electronic devices when on. This may cause electric shock.

## Caution

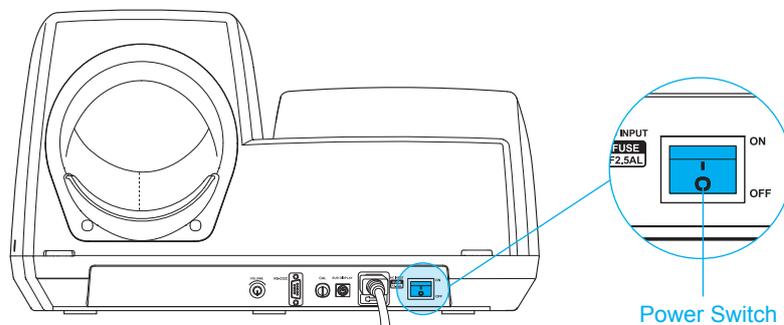
- Plugging the device into an ungrounded outlet may cause malfunction or electric shock.

5. Use the anti-theft groove to prevent theft.

\* Theft protection cable is sold separately.



6. Turn the BPBIO320/320n on by pressing the power switch located on the back of the device.



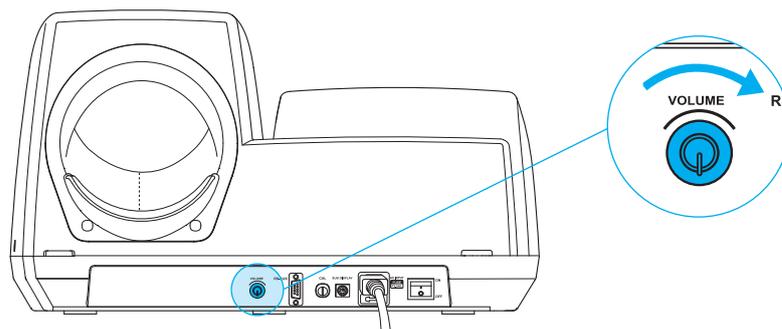
7. When the BPBIO320/320n is turned on, the following screen is displayed and a calibration is automatically performed.



## Caution

- Do not operate or touch the device while it is calibrating. It may cause errors to future tests.

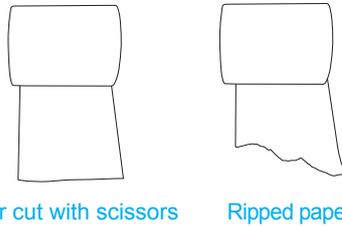
8. Adjust the volume by turning the volume knob on the rear of the BPBIO320/320n.



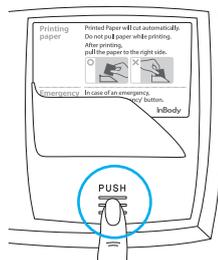
## D. Loading and Reloading Printer Paper (BPBIO320 only)

### 1. Loading Printer Paper

- 1) Cut off the end of the printer paper with scissors. If the end of the paper is ripped, it may cause a paper jam or damage the printer head.

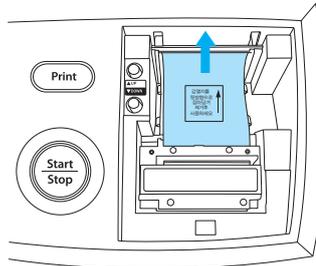


- 2) Open the cover by pressing 'PUSH' while the BPBIO320/320n is turned on.

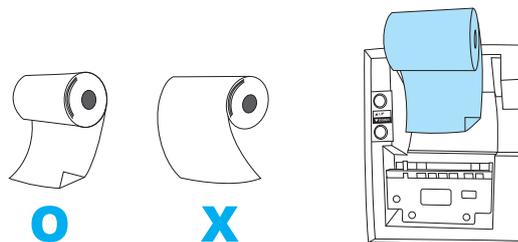


- 3) If the device is being used for the first time, remove the protective paper located inside.

\* The protective paper (thermal printing paper) is in the printer groove. Pull upward to remove it.



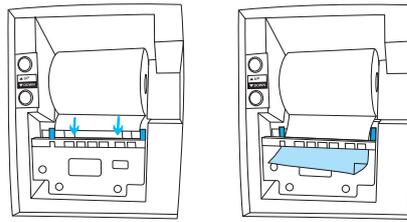
- 4) Fold one corner of the provided printer paper and insert it in the direction as shown.



### **Caution**

- The printer will not work if the paper is inserted incorrectly.

5) Insert the end of the paper through the feeder. The printer will automatically pull and cut the paper.

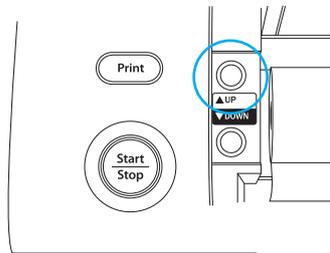


6) Remove the cut paper, and close the printer paper cover.

## 2. Reloading Printer Paper

1) Open the cover by pressing 'PUSH' mark on the bottom center of it while the BPBIO320/320n is turned on.

2) Press  button to remove the remaining paper.



3) Reload a new roll of printer paper by following the instructions for 'Loading Printer Paper'.

### **Caution**

- Remove all trash from previous printer paper rolls.

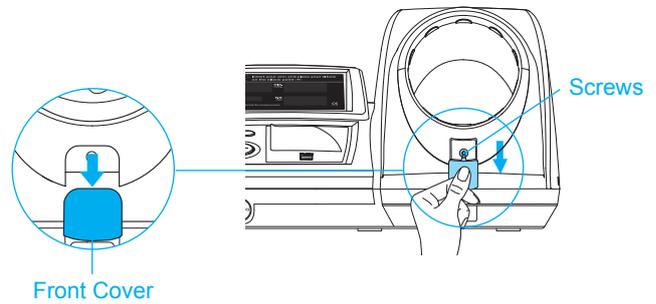
### **Note**

- Two rolls of printer paper are provided with the BPBIO320/320n.

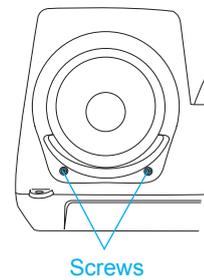
## E. Replacing Cuff Cover

The cuff cover of the BPBIO320/320n should be replaced periodically for sanitary purposes. Follow the guide below to replace the cuff cover.

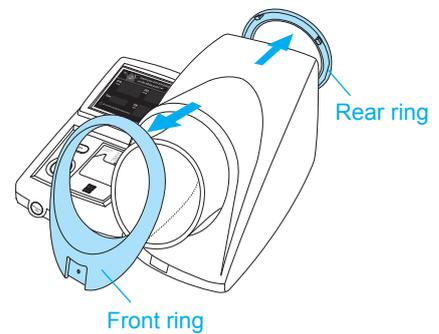
1. Remove the front cover of the BPBIO320/320n by pushing downward. Loosen the screw with a screwdriver.



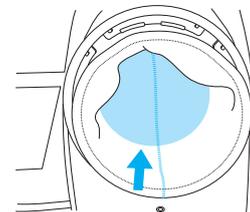
2. Loosen the two screws on the rear of the BPBIO320/320n with a screwdriver.



3. Remove the rings on the front and rear of the BPBIO320/320n by pulling the arrow mark and pull the cuff cover to remove it.



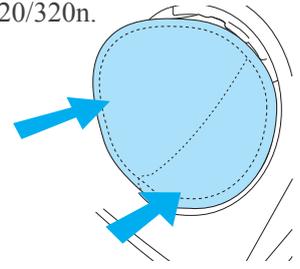
4. Place the seam of the new cuff cover down as shown, and align it with the front and rear ring.



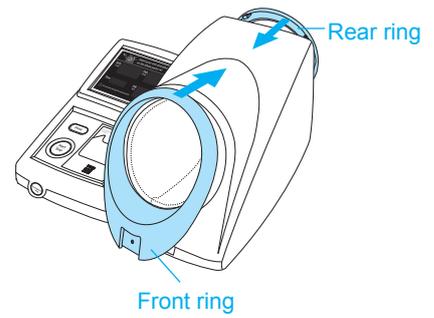
### **Caution**

- Blood pressure results may be inaccurate if the seam is not face down.

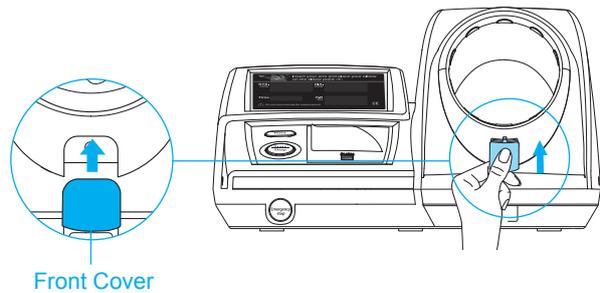
5. Secure the new cuff cover onto the grooves on the front and rear of the BPBIO320/320n.



6. Attach the previously removed front and rear rings on the BPBIO320/320n and secure them with screws.



7. Close the front cover of the BPBIO320/320n.



 **Note**

- Two cuff covers are provided with the BPBIO320/320n. (One is already mounted in the equipment.)
- Additional cuff covers can be purchased at <https://shop.inbodyusa.com>.

## F. Setup

Setup consists of sound settings, motion sensor settings, elbow sensor settings, Result Sheet printing, time stamps and cautionary comments.

### Note

- Contents of results sheet output are only applicable to BPBIO320.

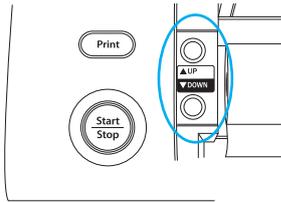
#### 1. Settings

- 1) When  button and  button are pressed and held at the same time for 2 seconds while on the home screen, the first screen of the Setup, 'Sound Setting' is displayed.

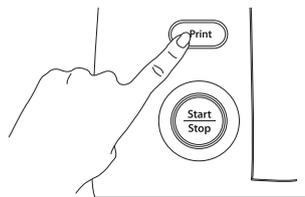


- 2) Use UP (▲) and DOWN (▼) buttons to change the settings.

\* UP (▲) and DOWN (▼) are located beneath the cover of the device.



- 3) Press  button to move to the next screen. Set values are automatically saved.



- 4) Press and hold  button for 2 seconds to return to the home screen.

\* The measurement value display time setting is applied when the blood pressure monitor restarts.

※ The following is an example showing how to change a '3-line manual output' Result Sheet setting.

1 While on the home screen, press and hold  button and  button at the same time for 2 seconds.

2 Press  button to move to *F02Prt* screen.

3 Press  button to select *OFF*.

4 Press and hold  button for 2 seconds to save changes and return to the home screen.



※ The following is an example showing how to change the screen timeout duration.

1 While on the home screen, press and hold  button and  button at the same time for 2 seconds.

2 Press  button several times to move to *F08Lcd* screen.

3 Press  button to select *10*.

4 Press and hold  button for 2 seconds to save changes and return to the home screen.



## 2. Detailed description of Setup

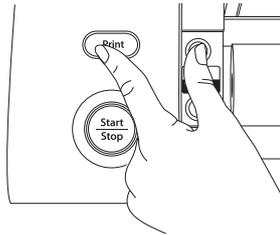
When in the Setup menu, the following information is displayed in the Systolic, Diastolic and Pulse sections of the screen.

Function	Display			Description
	Systolic	Diastolic	Pulse	
Sound	F01	Snd	Uoc	Voice guide
			bEF	Beep guide
			OFF	Disable speaker
Outputting results sheet* (BPBIO320 only)	F02	Prt	dat	3-line automatic printing
			grP	3-line + graph automatic output
			OFF	3-line manual output
Hour	F03	HOU		Number flashes on bottom left of Time section, allowing the hour to be set
Minute	F04	MU		Number flashes on bottom left of Time section, allowing the minute to be set
Year	F05	YEA		Year setting (between 2000 and 2099)
Month	F06	MEH		Set month (between 01 and 12)
Day	F07	DAY		Set day (between 01 and 31)
Screen timeout duration	F08	LCD	5	Display the test result value for 5 seconds
			10	Display the test result value for 10 seconds
			20	Display the test result value for 20 seconds
			179	Display the test result value for 2 minutes
Outputting caution comment* (BPBIO320 only)	F09	BA	SIC	The caution comment is printed on the results sheet.
		SCH	00L	The caution comment is not printed on the results sheet.

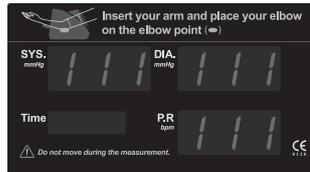
\* Outputting results sheet setting ( F02 ) and Outputting caution comment setting ( F09 ) are applicable only to BPBIO320, so they do not appear at BPBIO320n.

### 3. Blood Pressure Evaluation

- 1) While on the home screen, press and hold  button and UP (▲) button at the same time for more than 2 seconds.



- 2) When 111 is displayed in the systolic blood pressure column, diastolic blood pressure column, and pulse column as shown below, the blood pressure evaluation has been disabled.



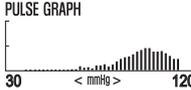
- 3) When 222 is displayed in the systolic blood pressure column, diastolic blood pressure column, and pulse column as shown below, the blood pressure evaluation has been turned on.

\* Blood pressure evaluation comment type: Optimal, Prehypertension, Stage 1 Hypertension, Stage 2 Hypertension



2017/12/06 19:12	
Systolic	110 mmHg
Diastolic	75 mmHg
Pulse	96 bpm
* Test result - Optimal	
Please consult with a physician for diagnosis and treatment.	

For 3-line automatic output

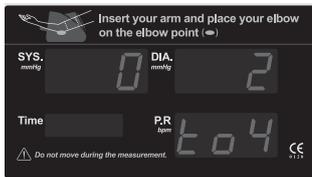
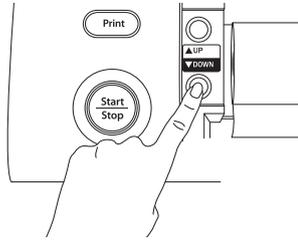
2017/12/06 19:12	
Systolic	110 mmHg
Diastolic	75 mmHg
Pulse	96 bpm
PULSE GRAPH	
	
* Test result - Optimal	
Please consult with a physician for diagnosis and treatment.	

For 3-line + graph automatic output

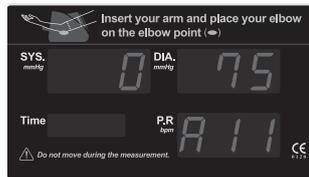
- 4) In order to change the blood pressure evaluation settings, press and hold  button and UP (▲) button at the same time for more than 2 seconds.

#### 4. Displaying test counts

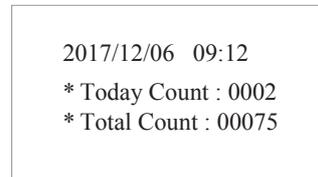
- 1) While on the home screen, hold the DOWN (▼) button for more than 2 seconds. Test counts for the day will be displayed in the diastolic blood pressure column. Test counts for the day and total test counts are printed.
- 2) When DOWN (▼) button is pressed again, the total test counts are displayed in the diastolic blood pressure column.



Test counts for the day



Total test counts



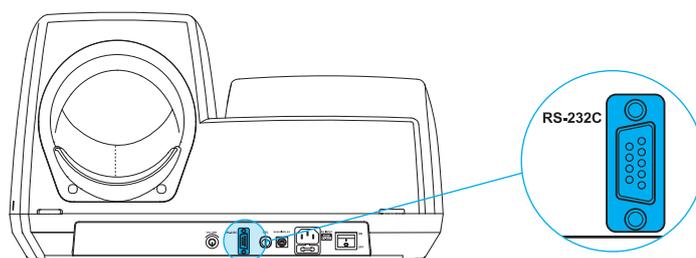
Test count printout

## G. Connecting to InBody

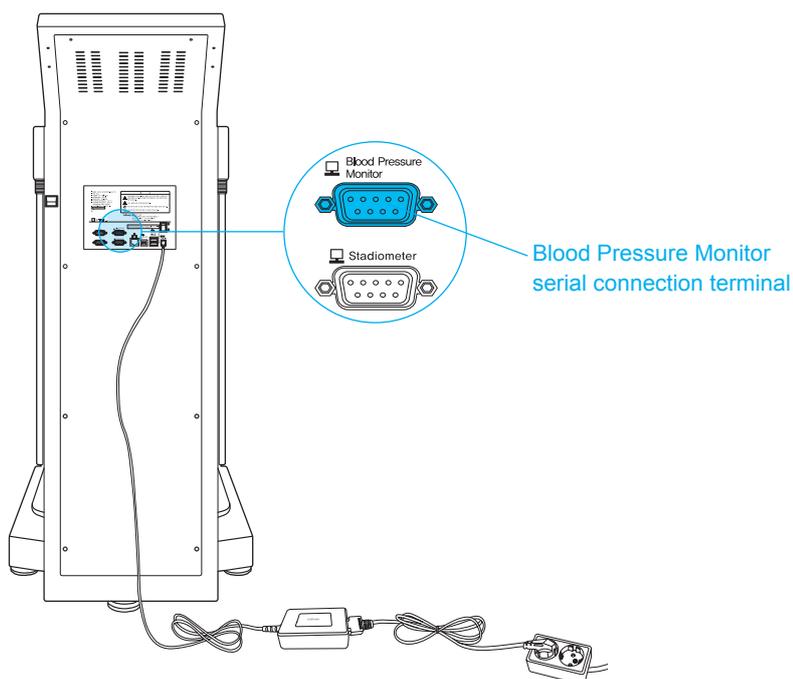
If the BPBIO320/320n connects to InBody products, the blood pressure test results can be transferred to the InBody.

- \* Only compatible with other InBody products
- \* Blood pressure values can be printed on the InBody Result Sheet.
- \* Serial cable is sold separately.

1. Turn off the BPBIO320/320n.
2. Connect the serial cable to the RS232C (9-pin serial) connection terminal located on the back of the BPBIO320/320n. Connect the other end of the serial cable to the serial connection terminal on the InBody device.
  - \* Refer to the InBody manual to find the location of the serial connection terminal.



Example: InBody770



3. Turn on the BPBIO320/320n.
4. Devices will connect automatically.

### Note

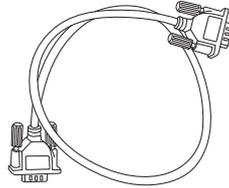
- Refer to the InBody product manual to print the blood pressure values on the InBody Result Sheet.

## H. Connecting to a Coin Device(InCoin)

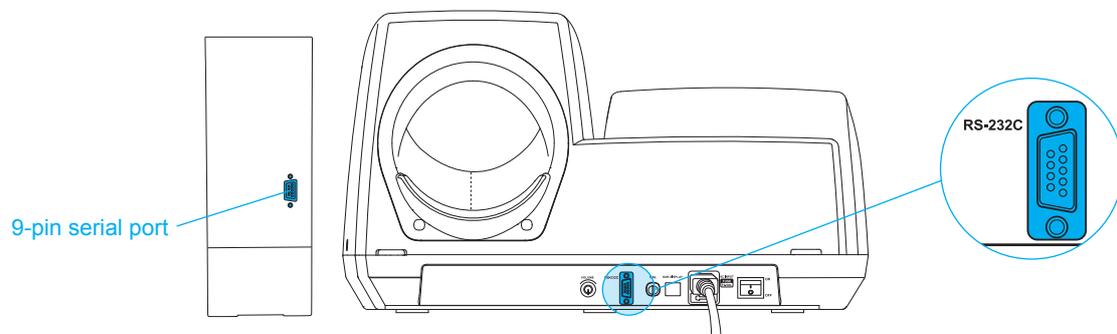
\* The coin device is an optional purchase.

By connecting the coin device to the BPBIO320/320n, the measurement can be conducted only when the set monetary value is received.

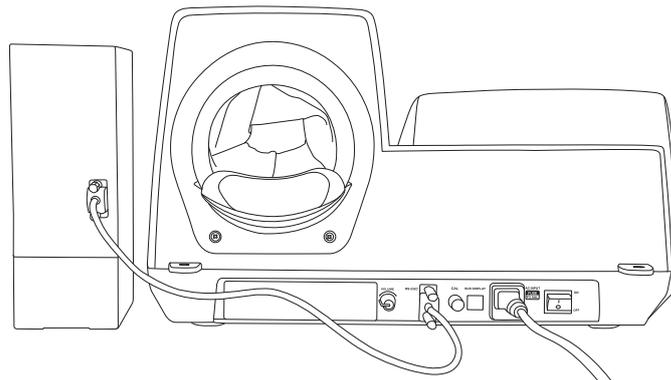
1. Prepare the enclosed RS232C cable from the coin device.



2. Connect the cable to the rear of the coin device and the RS232C connector on the rear of the BPBIO320/320n.



3. Connection between BPBIO320/320n and coin device is complete.



\* Please check the “Technical Manual” of the coin device for detailed assembly and setup.

## I. Precautions for Maintenance

### **Caution**

- Never move the equipment while the power is on.
- Do not let foreign objects, like dust and liquid to enter the device. Foreign objects can damage electric components.
- Clean the exterior of the device gently with a lint-free cloth once a week. Do not scratch the LED screen while cleaning the equipment.
- Replace the cuff cover when it becomes dirty or worn out.
- Packing material and other waste should be disposed of according to the laws and regulations.

### **Check the following before turning the equipment on.**

- Make sure the equipment was not damaged from impact.
- Make sure the equipment is not contaminated.
- Make sure the equipment is not wet.
- Make sure the power cord is completely plugged in.
- Make sure the power cord is not damaged.
- Make sure the power cord is not a tripping hazard.

The BPBIO320/320n calibrates automatically when it is turned on. But it may be necessary for a specialist to inspect the device once every two years to maintain its performance and safety. If an error message appears during the self-test, please contact product support at (323)932-6503 × 2.

## II. Blood Pressure Test

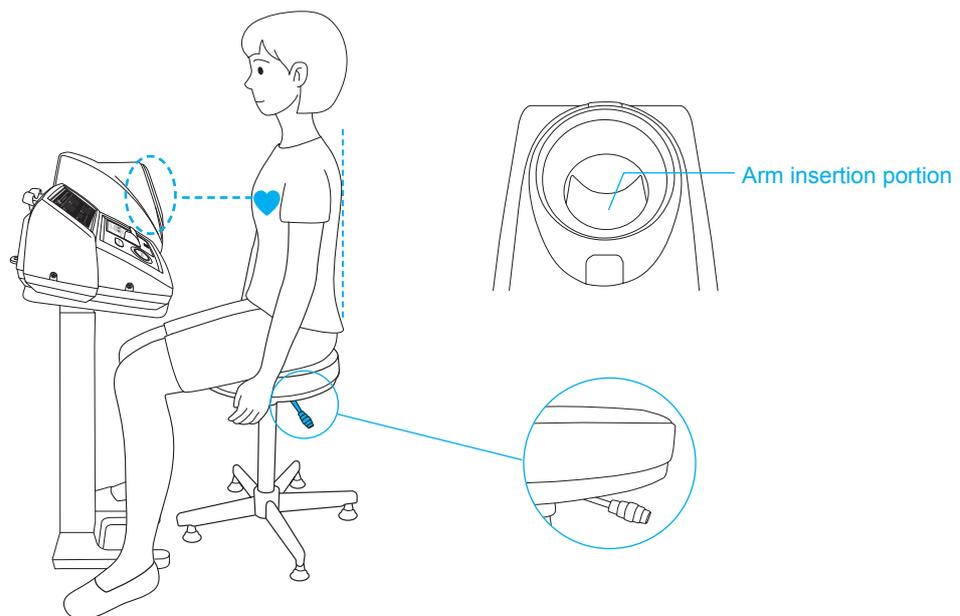
### A. Precautionary Steps

#### Caution

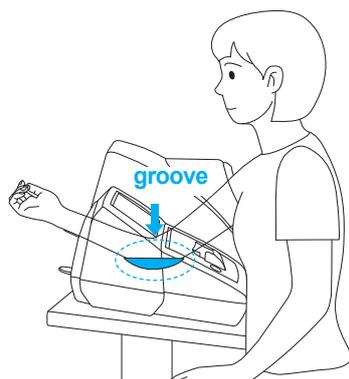
- User should rest at least 5 to 10 minutes before the test.
- Do not roll up the user's sleeve, but take off thick clothes.
- User should sit up straight in the chair.
- Insert the user's arm until the elbow is caught in the elbow groove.
- Adjust the height of the chair so that the inserted upper arm and the heart are horizontal.
- Test in a relaxed state.
- User should not talk or move during the test.
- The BPBIO320/320n uses the right arm. Test results may be inaccurate if the left arm is used.

### B. Test Instructions

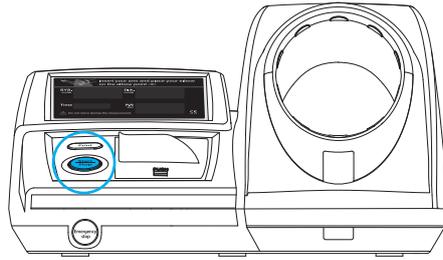
1. Adjust the height of the chair so that the inserted upper arm and the heart are horizontal.



2. Rest for at least 5 minutes prior to taking the test.
  - \* If examined in a bit unstable condition, the test result may be incorrect, and generally it will turn up higher than your usual blood pressure.
3. Insert the arm until the elbow is caught in the elbow groove, as shown.



4. Press  button to start the test.

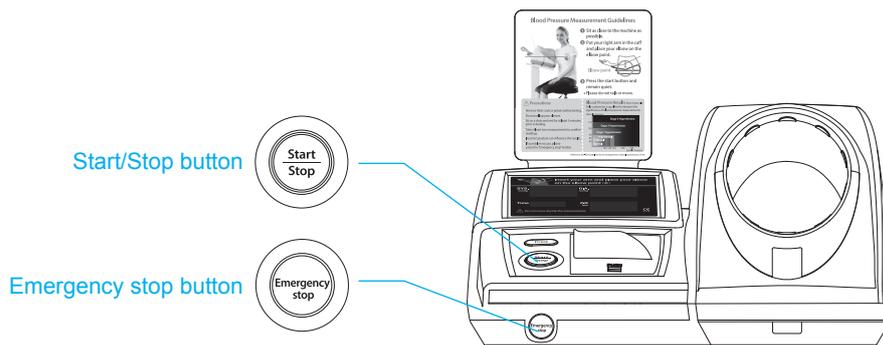


5. Pressure is automatically applied to the cuff, and the blood pressure is measured.

- \* Do not talk or move during the test.
- \* Relax while sitting up straight.

### Caution

- If an emergency occurs during the test, press  button or the  button on the front bottom left of the BPBIO320/320n. The cuff will release quickly.
- If the air is not released after the button is pressed, turn off the BPBIO320/320n.

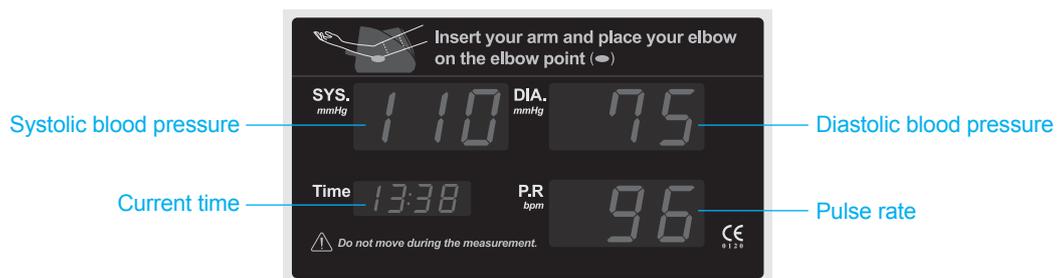


6. The cuff is automatically released after completing the test. Wait for the cuff to fully loosen and pull out your arm.

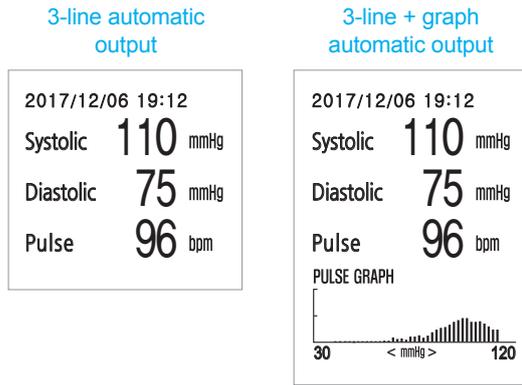
7. Check the results on the screen.

- \* The voice guide will be heard and the Result Sheet will be printed depending on settings.
- \* Do not pull the Result Sheet while it is printing. It will cut automatically.

\* Example of test result screen



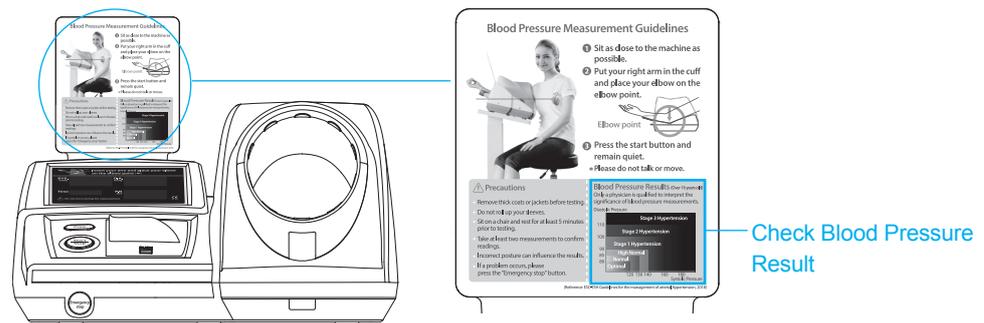
\* Example of Result Sheet



 **Note**

- Refer to 'Setup' for change Result Sheet settings.

- \* The user can check results by using 'Check Blood Pressure Result' at the bottom right of the Information Panel
- \* Consult a physician for accurate diagnosis.

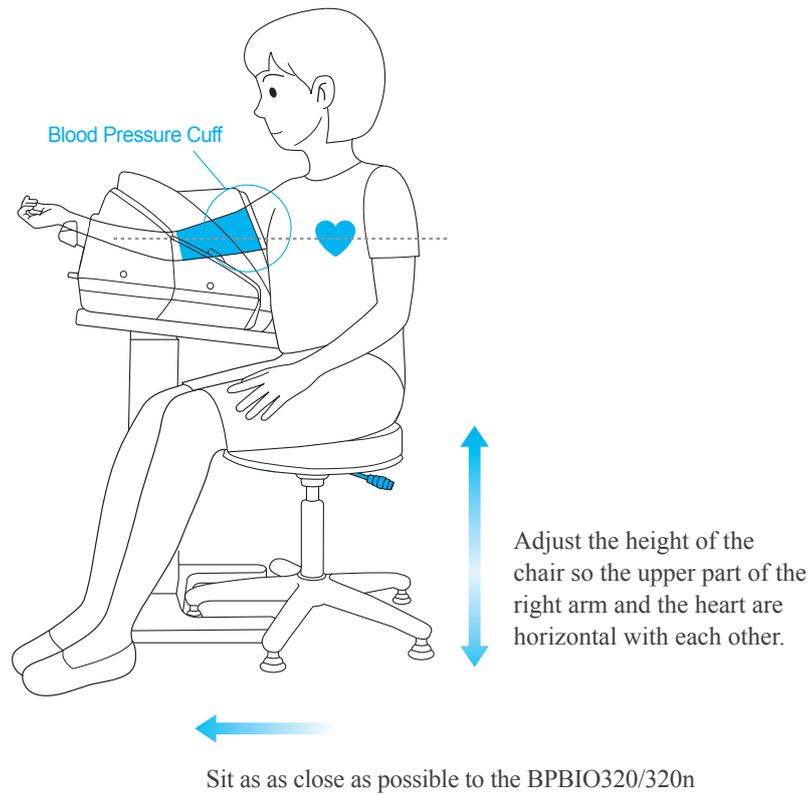


 **Note**

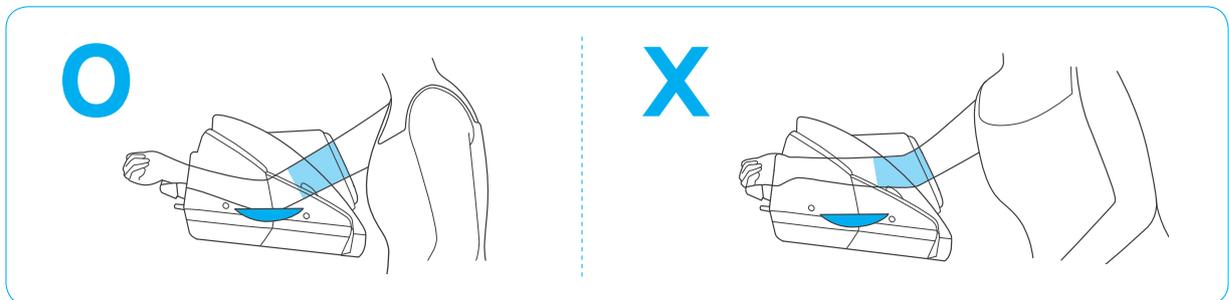
- Rest for 5 minutes before testing again.
- Blood pressure can vary. Consult your physician for accurate diagnosis.

## C. Test Posture

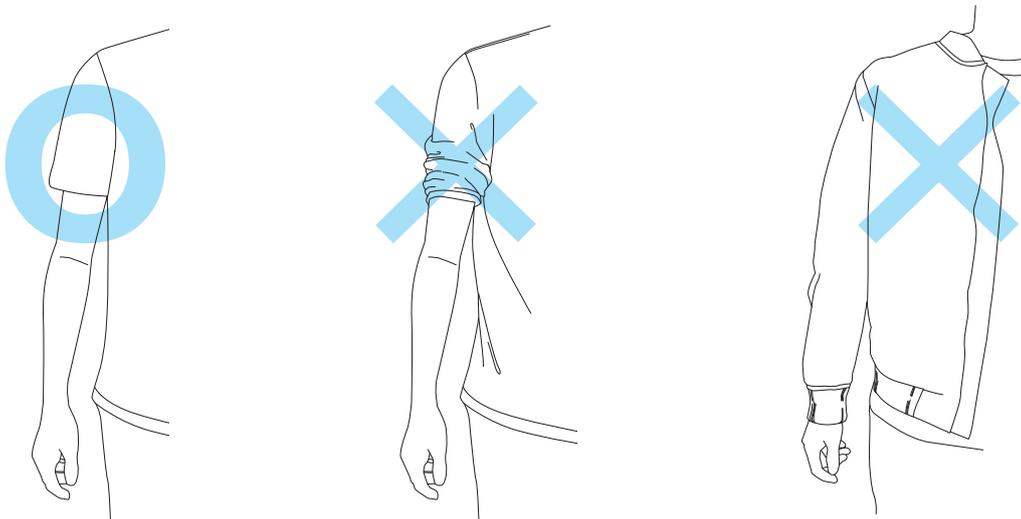
For correct test results, sit with proper posture while taking the test.



\*Be sure to place the elbow in the elbow groove before starting the test.



\*Remove thick clothes. Do not roll up sleeves.



### III. Transportation and Storage

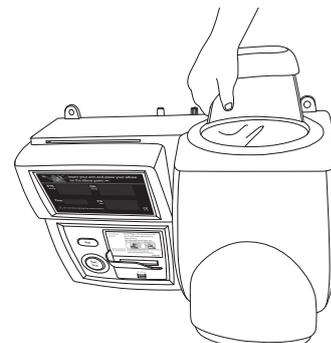
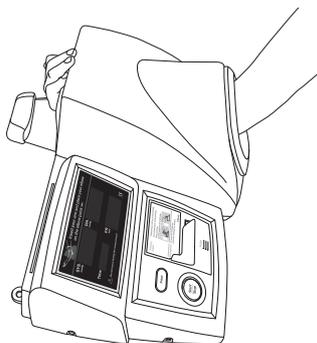
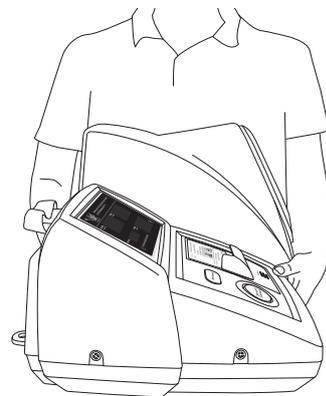
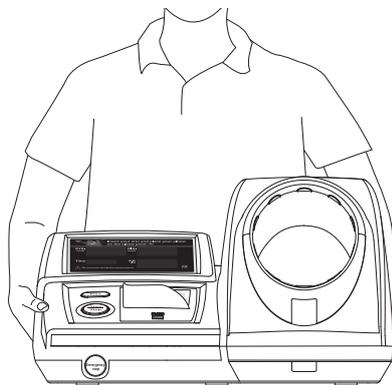
#### A. Cautions during Transportation

To transport the BPBIO320/320n safely, two people should keep the equipment parallel to the ground.



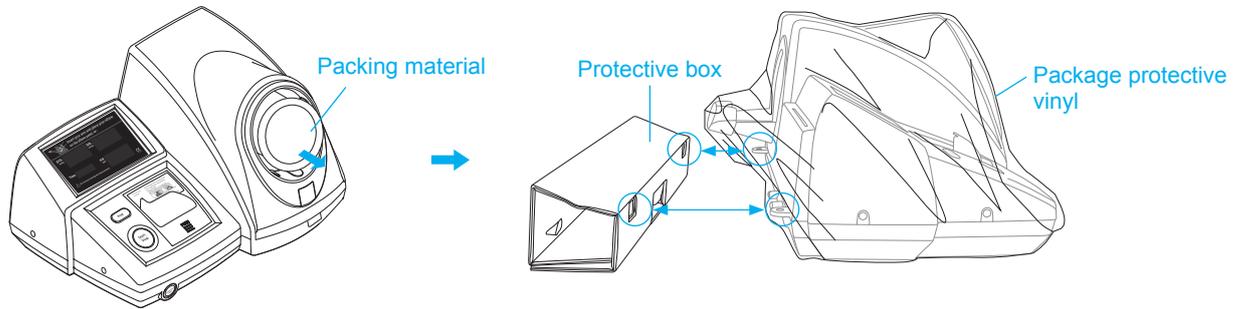
 **Caution**

- Keep the equipment horizontal while transporting.

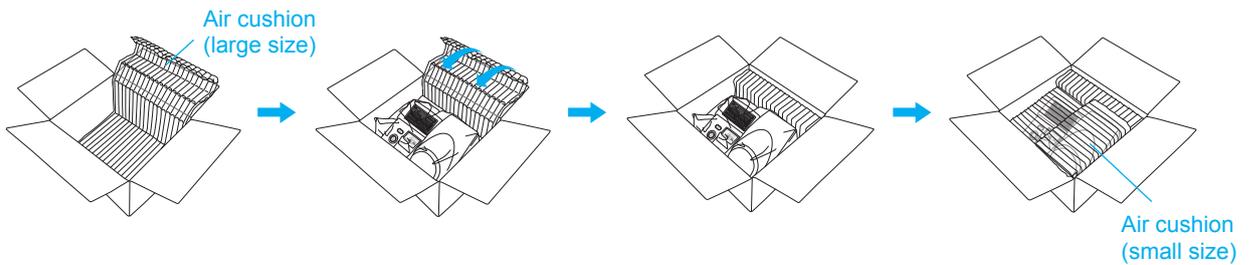


## B. Repacking Instructions

1. Turn off the BPBIO320/320n.
2. Remove all connected cables and put the packing material into the BPBIO320/320n. Wrap package in protective vinyl. Insert the protective box into the anti-theft groove on the rear of the BPBIO320/320n.



3. Place the large air cushion on the bottom of the packing box and place the BPBIO320/320n on it. Cover with the small air cushion and seal the box with tape.



### Caution

- When repacking the equipment, protective packing materials provided by InBody must be used.

## C. Transportation and Storage Environment

The BPBIO320/320n should be transported or stored under the following conditions.

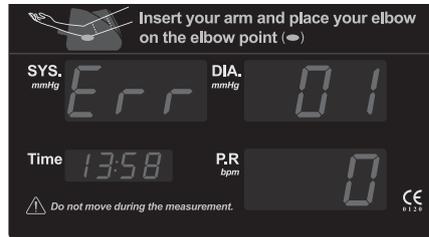
Temperatures range	-10 to 70°C (14 to 158°F)
Relative humidity	10 to 80% RH (No Condensation)
Atmospheric pressure range	50 to 106 kPa

## IV.FAQ

If a problem persists, please contact InBody.

### A.Error Code

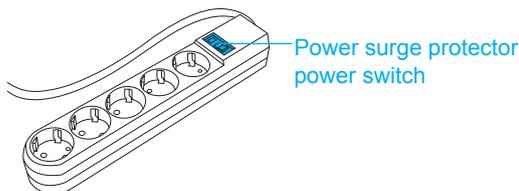
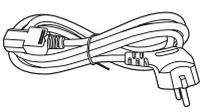
The error messages can be displayed on the screen if they occur during the test.

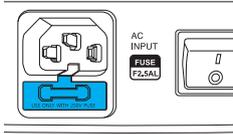
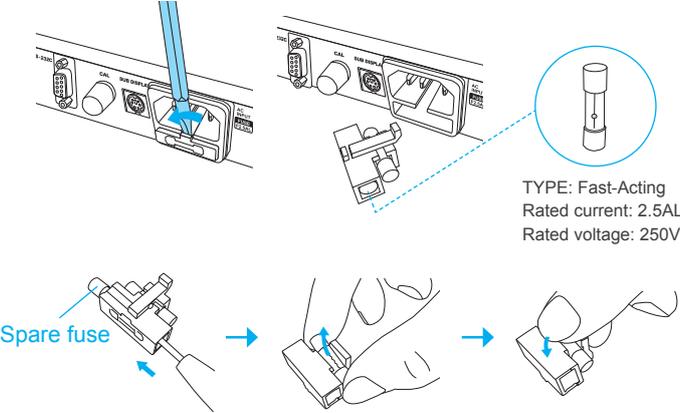
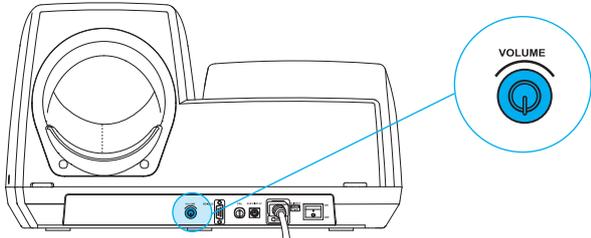


Please provide the error code to Product Support.

### B.Regarding the Equipment

If problems cannot be resolved with the information below, please contact InBody.

Problem	Cause	Corrective measures
The device is not turning on.	This can occur when the power cable is not fully inserted into the power outlet.	<ul style="list-style-type: none"><li>• Plug the power cable into a grounded 3-prong outlet. A diagram showing a power cable with a three-pronged plug being inserted into a grounded 3-prong outlet. A blue arrow points from the plug to the outlet, and a label "Grounded 3-socket outlet" points to the outlet.</li><li>• When using a power strip, make sure the switch is turned on. A diagram of a power surge protector with a power switch. A blue arrow points to the switch, and a label "Power surge protector power switch" points to it.</li><li>• Make sure the power cable (AC 250V 10A) provided by InBody is in use. A diagram of the provided power cable, which is a three-pronged AC power cable.</li></ul>

Question	Cause	Measures
<p>The device is not turning on.</p>	<p>The fuse is blown.</p>	<p>Turn off the BPBIO320/320n, and replace the fuse.</p> <p>❶ The fuse socket is located on the back of the device beneath the power plug.</p>  <p>❷ Pull the fuse out by using a flathead screwdriver. Replace the fuse with the provided spare fuse. Additional fuses can be purchased if necessary.</p>  <p><b>Warning</b></p> <ul style="list-style-type: none"> <li>• Be sure to turn off the power when replacing the fuse.</li> <li>• The correct rated fuse must be used. (250V, 2.5AL)</li> </ul> <p>TYPE: Fast-Acting Rated current: 2.5AL Rated voltage: 250V</p>
<p>Voice guide does not work.</p>	<p>The volume knob on the rear of the blood pressure monitor may be turned off.</p>	<p>Turn on the volume knob on the rear of the BPBIO320/320n.</p>  <p>The sound setting has been set to 'Beep Guide' instead of 'Speaker'.</p> <p>Refer to Setup on page 13 to change the sound settings.</p>

Question	Cause	Measures
The Result Sheet is not printing.	Printing may be disabled.	Ensure the Result Sheet printing is set to on. <i>OFF</i> * Refer to page 13.
	The printer may be out of paper.	Refer to 'Loading and Reloading Printer Paper' on page 9.
	Printer paper may be installed incorrectly.	Open the cover, and check the direction of the printer paper. * Refer to 'Loading and Reloading Printer Paper' on page 9.
	The cover may not be closed completely.	Make sure the central cover is properly closed.

 **Caution**

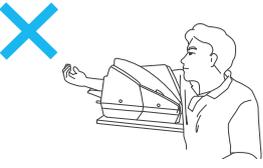
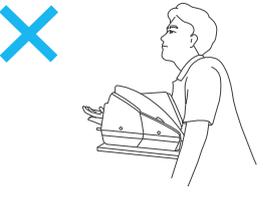
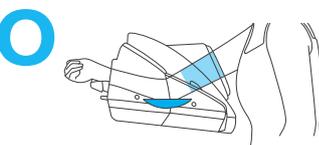
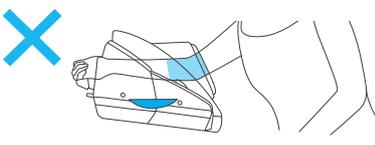
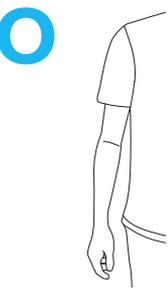
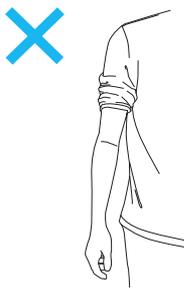
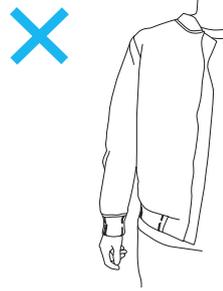
- Repair and inspection can only be done by InBody personnel. For repair or inspection, please contact InBody.

 **Note**

- Please record error messages that appear. It may be useful for Product Support.

## C. Regarding the Test

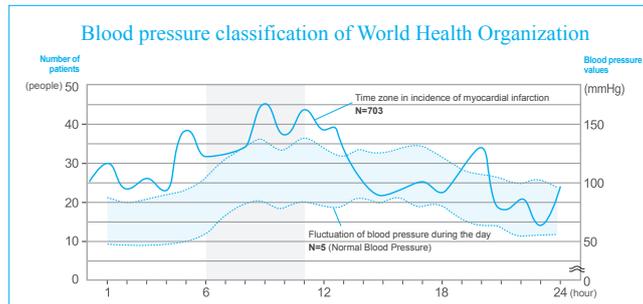
If problems cannot be resolved with the information below, please contact InBody.

Question	Answer
<ul style="list-style-type: none"> <li>• Test results are incorrect.</li> </ul>	<ul style="list-style-type: none"> <li>• The arm and heart are not aligned during the test. Adjust the height of the chair to align the arm and heart.</li> </ul>
	<p>Correct testing posture.</p>
	<p>Incorrect testing posture. The arm is higher than the heart. Blood pressure value will be measured lower.</p>
	<p>Incorrect testing posture. The arm is lower than the heart. Blood pressure value will be measured higher.</p>
<ul style="list-style-type: none"> <li>• Test results are incorrect.</li> </ul>	<ul style="list-style-type: none"> <li>• Inserting the arm too far or not far enough may produce incorrect results. Place elbow in elbow groove for accurate results.</li> </ul>
	
<ul style="list-style-type: none"> <li>• Test results are incorrect.</li> </ul>	<ul style="list-style-type: none"> <li>• Thick clothes or rolled up sleeves may produce incorrect results.</li> </ul>
	 
<ul style="list-style-type: none"> <li>• The user may have tested without sufficient rest. Take the test after resting at least 5 minutes.</li> <li>• Do not talk or move during the test.</li> </ul>	

\* Blood pressure may vary throughout the day. InBody recommends testing at different times of the day.

Question	Answer
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- When should blood pressure be measured?
- Blood pressure may vary throughout the day, as shown below.



It is best to test at the same time each day under the same conditions.

- 
- How frequently can tests be done?
  - Rest for about 5 minutes between tests.
- 
- When shouldn't blood pressure be measured?
  - If you had blood drawn or had an injection given in the right arm, it is recommended that you wait at least 1 hour before testing.
- 
- Can results vary depending on the testing environment and temperature?
  - Yes. Test in a relaxed, comfortable environment.
- 
- What are some factors that can change blood pressure?
  - The blood pressure may change:
    - Within 1 hour after meals
    - After having alcohol or caffeine
    - After smoking
    - After taking a bath
    - After exercise
    - After urination or defecation
    - When testing in an unfamiliar location
- 
- The blood pressure values are different at home and at the hospital.
  - Blood pressure can change depending on the environment. Test in the same environment when managing blood pressure.
  - Hospital-tested blood pressure tends to be higher than home-tested blood pressure.
-

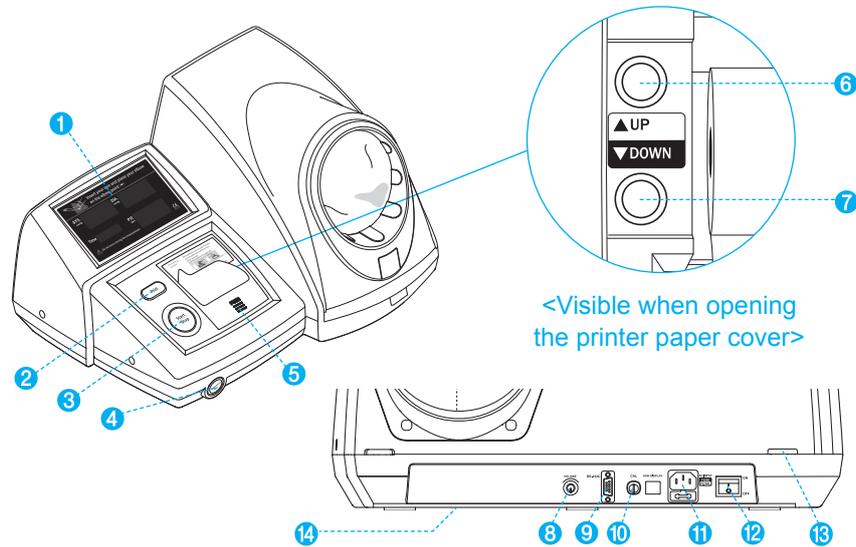
## V. Others

- \* The BPBIO320/320n was manufactured by the quality control procedures of InBody Co., Ltd. InBody Co., Ltd. complies with ISO9001 and ISO13485 which are international quality management systems.
- \* This equipment complies with IEC60601-1, the international safety standard for electronic medical equipment. This equipment also complies with IEC60601-1-2, the international standard for electromagnetic compatibility.

### A.Exterior and Functions

The names and functions of each part of the BPBIO320/320n are as follows:

- \* Please check each component of the system for damage prior to installation.



- 1**  : A display screen showing results, current time, etc.
- 2**  : A button to print Result Sheet
- 3**  : A button to start or stop a test
- 4**  : Emergency stop button
- 5**  (BPBIO320) : Printer paper cover  
 (BPBIO320n) : The central cover for covering UP/DOWN buttons.
- 6 7**  : UP/DOWN buttons to adjust settings
- 8**  : Volume control knob
- 9**  : RS232C (9-pin serial) connection terminal
- 10**  : A port used to connect a mercury monitor in order to adjust the pressure value
- 11**  : Input for external power source (AC 100-240V, 50/60Hz), Fuse (F2.5AL, 250V)
- 12**  : A switch used to turn the equipment on/off
- 13**  : A groove that can be fixed to a table for theft prevention
- 14**  : Speaker

## B. Safety Information

### Warning

- If this equipment has been altered, it must be inspected to ensure that it can be used safely.
- Results can only be interpreted by experienced healthcare professionals. It cannot be used for diagnosis, medication, or other treatments performed at the consumer’s discretion without a doctor’s prescription.

### Caution

- Excessively high or low temperatures, humidity and pressure may affect the operation of the equipment and may cause malfunction. Use blood pressure monitor within the range specified in the product specifications.
- Do not touch the external device connections such as RS232C (9-pin serial) connection terminal on the back of the equipment.
- Packing material and other wastes should be disposed of according to the relevant laws and regulations.

### Safety Symbols

	Danger high voltage
	Warning / Caution / Note
	BF-type equipment
	Power on
	Power off

### Other Symbols

	Manufacturer		Serial number
	Authorized representative in the EUROPEAN COMMUNITY		Alternating current
	European conformity		Operating instructions

## C. Product Classification

Oscillometric multi-functional electronic blood pressure monitor

- Type of protection against electric shock: Class 1 device
- Level of protection against electric shock: BF-type
- Level of protection against flooding: General Equipment (No special protection against external water infiltration)
- Class against electromagnetic radiation intensity: Class A

## D. Specifications

Test Instructions	Oscillometric
Test range	Pressure: 0-300 mmHg      Pulse: 30-240 bpm
Degree of Precision	Pressure: $\pm 2$ mmHg      Pulse: $\pm 1.5\%$
Test result	Systolic blood pressure, diastolic blood pressure, Average blood pressure, Pulse pressure, Heart rate, PRP (Pressure rate product)
Test Time	Approx. 30 seconds on average (20-50 seconds, depending on the pulse and blood pressure value)
Pressurization Time	Approx. 10 seconds
Minimum scale unit	1 mmHg
Screen Type	7-Segment LED
Result output	Result value: 3-line output / 3-line + graph output / 3-line manual output
Storage function	Can store results for up to 1 million tests
Energy saving	Automatically enters the energy saving mode after 2 minutes of idle time.
Dual safety mechanism	When the Start/Stop button is pressed, the cuff rapidly releases air. The cuff automatically releases when the air pressure exceeds 300 mmHg. When the Emergency Stop button is pressed, the cuff quickly deflates.
Voice guide	Guides user through blood pressure measurement and results.
Printer	High-speed thermal printer with a built-in automatic cutter (width: 2.5-inch)
Rated voltage and power consumption	AC 100–240V, 50/60Hz, 30VA
Dimensions	489 (W) $\times$ 409 (D) $\times$ 284 (H) mm 19.3 (W) $\times$ 16.1 (L) $\times$ 11.2 (H) in.
Weight	9kg (19.84 lbs) (BPBIO320n: 8.8 kg (19.40 lbs))
Operating environment	Temperature 10-40°C(50-104°F), Humidity 30-75% RH, Atmospheric pressure 70-106 kPa
Storage environment	Temperature -10-70°C(14-158°F), Humidity 10-80% RH, Atmospheric pressure 50-106 kPa (No Condensation)

\* Specifications are subject to change without notice.

\* This product is a medical device. Please read the guide and precautions before using this blood pressure monitor.

## E. EMC Information (Declaration)

The BPBIO320/320n is intended for use in the electromagnetic environment specified below. The customer or the user of the BPBIO320/320n should assure that it is used in such an environment.

Electromagnetic emissions		
Emissions test	Compliance	Electromagnetic environment
RF emissions CISPR 11	Group 1	The BPBIO320/320n 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 emissions CISPR 11	Class A	The BPBIO320/320n is suitable for use in all establishments, including domestic establishments and buildings directly connected to public low-voltage power supply networks.
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations flicker emissions IEC 61000-3-3	Complies	

Electromagnetic immunity – for all ME equipment and ME systems			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment
Electrostatic discharge (ESD) IEC 61000-4-2	± 6 kV contact ± 8 kV air	± 6 kV contact ± 8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC 61000-4-4	± 2 kV for power supply lines ± 1 kV for input/output lines	± 2 kV for power supply lines ± 1 kV for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	± 1 kV line(s) to line(s) ± 2 kV line(s) to earth	± 1 kV line(s) to line(s) ± 2 kV line(s) to earth	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5 % UT (>95 % dip in UT for 0.5 cycle 40 % UT (60 % dip in UT for 5 cycles 70 % UT (30 % dip in UT for 25 cycles <5 % UT (>95 % dip in UT) for 5 s	<5 % UT (>95 % dip in UT) for 0.5 cycle 40 % UT (60 % dip in UT) for 5 cycles 70 % UT (30 % dip in UT for 25 cycles <5 % UT (>95 % dip in UT) for 5 s	Mains power quality should be that of a typical commercial or hospital environment. If the user of the BPBIO320/320n requires continued operation during power mains interruptions, it is recommended the BPBIO320/320n be powered from an uninterruptible power supply or battery.

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 commercial or hospital environment.
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NOTE: UT is the AC mains voltage prior to application of the test level.

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80MHz	3 Vrms	<p>Portable and mobile RF communications equipment should be used no closer to any part of the BPBIO320/320n, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.</p> <p>Recommended separation distance  <math>d=1.2\sqrt{P}</math>  <math>d=1.2\sqrt{P}</math> 80 MHz to 800 MHz  <math>d=2.3\sqrt{P}</math> 800 MHz to 2.5 GHz</p>
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2.5GHz	3 V/m	<p>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,<sup>a</sup> should be less than the compliance level in each frequency range.<sup>b</sup></p> <p>Interference may occur near equipment marked with the following symbol:</p> 

NOTE 1: At 80 MHz and 800 MHz, the higher frequency range applies.

NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

<sup>a</sup> Field strength from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land/ mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be completed. If the measured field strength in the location in which the BPBIO320/320n is used exceeds the applicable RF compliance level, the BPBIO320/320n should be monitored to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the BPBIO320/320n.

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







