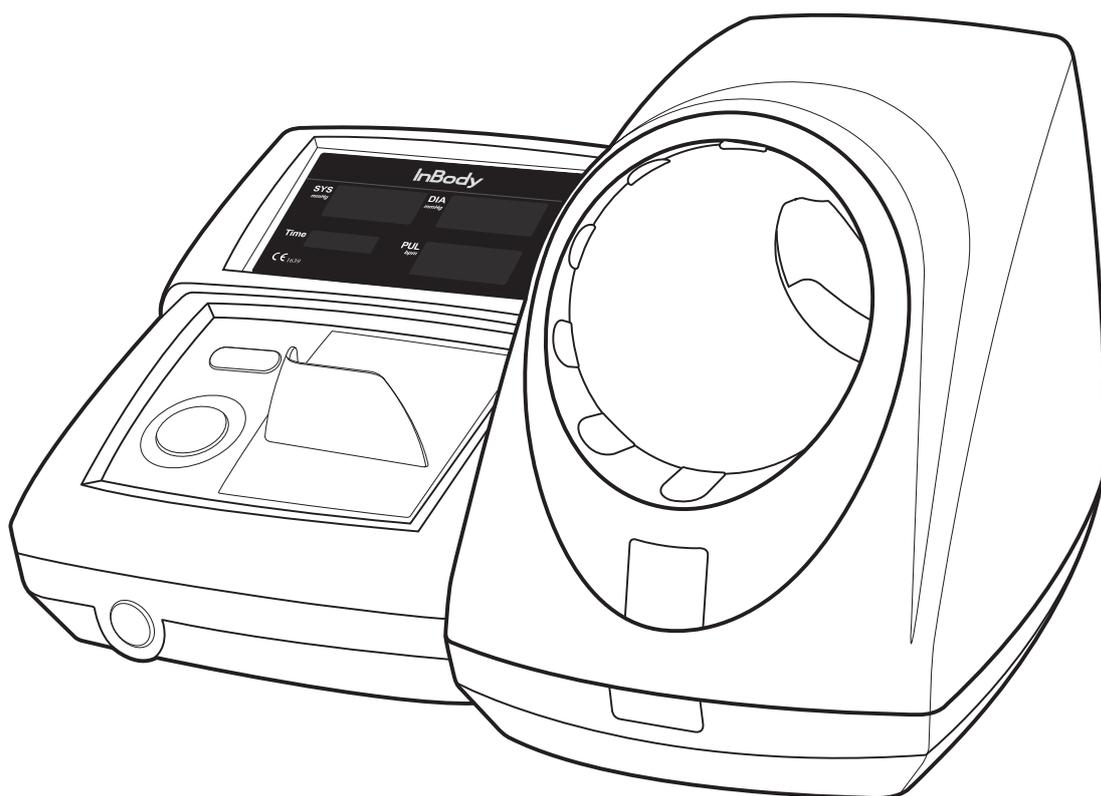


# BPBIO320 / 320n

## User's Manual



# Intended Use

The BPBIO320/320n is a digital monitor intended for use in measuring blood pressure and pulse rate in user population with upper arm circumference ranging from 17cm to 42cm. The systolic blood pressure and diastolic blood pressure are measured by non-invasive blood pressure ("NIBP") measuring method. The BPBIO320/320n may provide useful clinical information about the current health status of not only the users who are diagnosed with hypertension but also those who are not diagnosed with hypertension. Warnings and cautions described in the user's manual should be observed at all times.

\*This device is not designed for use in home environment

Thank you for purchasing the BPBIO320/320n. This user's manual describes all the features of the BPBIO320/320n. Please read before use and keep it in a safe place. By following the manual instructions, you will be able to use the BPBIO320/320n more safely and effectively.

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## Safety Symbols used in the User's Manual.



### **Warning**

Failure to comply with safety Warnings and regulations can cause serious injury or death.



### **Caution**

Failure to comply with safety precautions can damage the equipment.

### **Note**

Reading the notes can help you get the most out of your device.

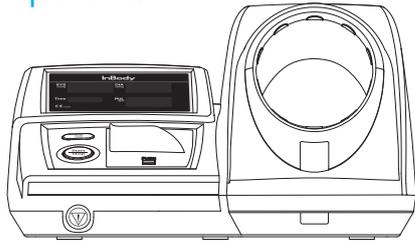
# I BPBIO320/320n Installation

## A. Product Components

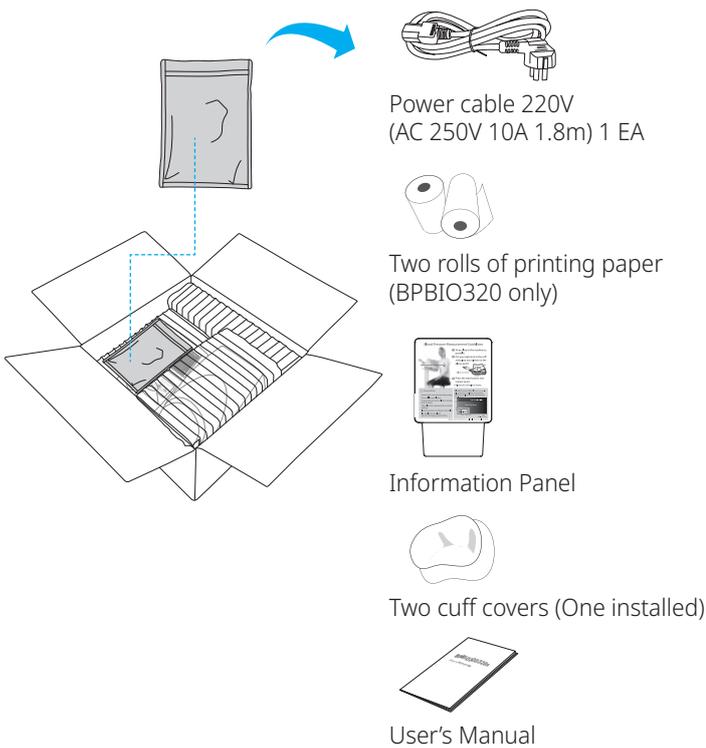
The BPBIO320/320n consists of the following components. Make sure the following components are present.

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

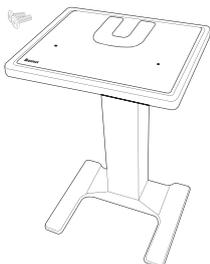
### Basic Components



BPBIO320/320n



### Optional components



Desk for BPBIO320/320n, and two screws



Chair for BPBIO320/320n

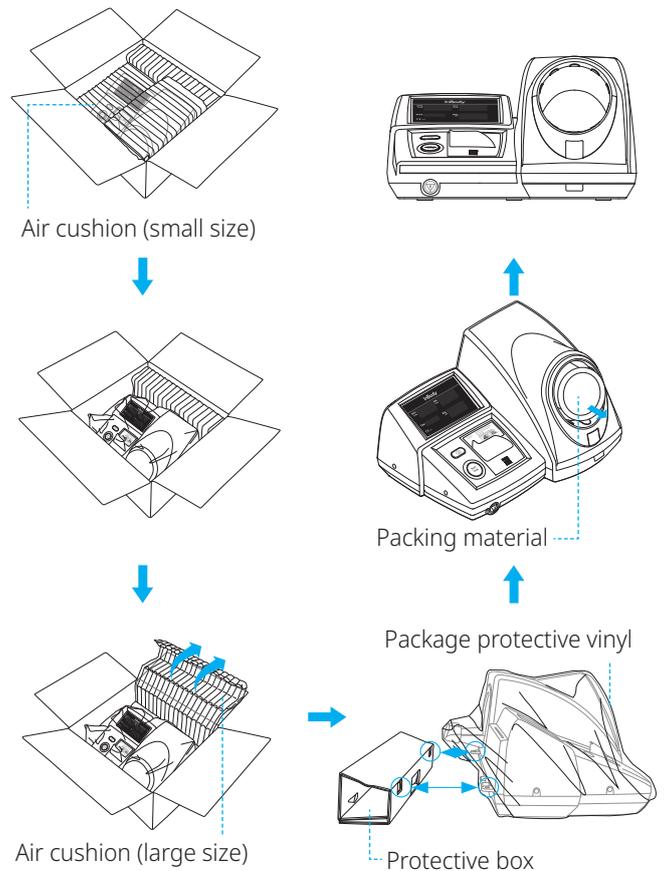
## B. Operating Environment

Please make sure the environment is appropriate 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	5 - 40 °C
Relative humidity	15 to 90% RH
Atmospheric pressure	70 to 106 kPa

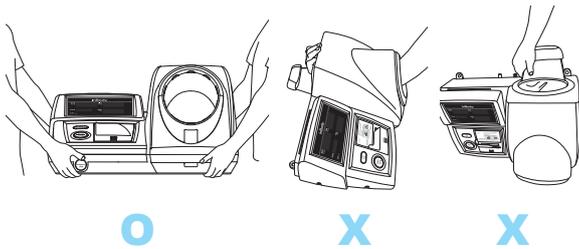
## C. Installation Instructions

- 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.



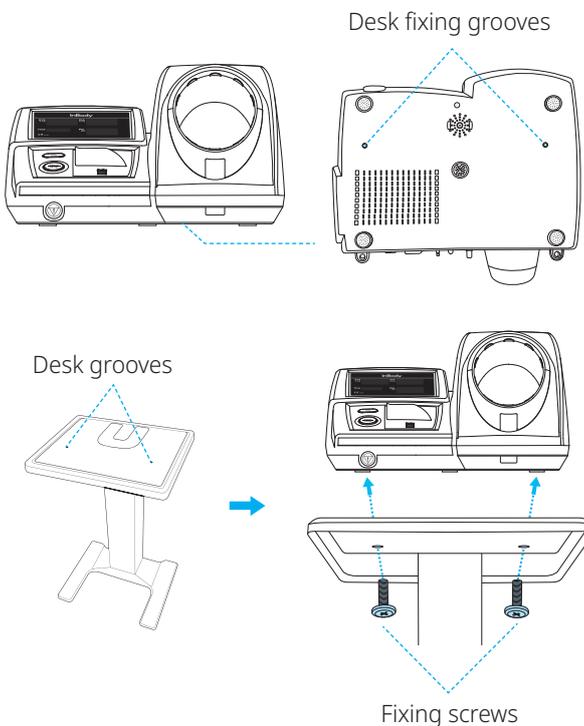
## ⚠ Caution

- 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.



- 2** 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

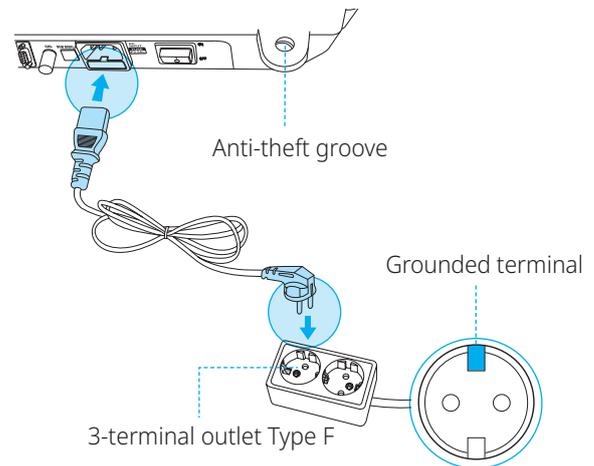
- Install the BPBIO320/320n on a flat, vibration-free floor. If the equipment is installed where the floor is not flat, it may topple during a test or the test results may be inaccurate.

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



- 4** 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.



## ⚠ Caution

- If you are not using a power plug type B or F, you must use a 3-prong plug type with a ground pin.

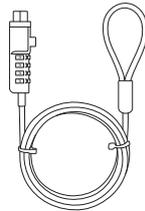
## ⚠ Warning

- Do not install the equipment where the power cable is difficult to disconnect.
- Always use an outlet designed for the correct power supply (AC100-240 V). An incorrect power supply may cause fire or equipment malfunction.
- If using a multiple tab, ensure it has a sufficient power capacity or use an extension cable.
- Do not disassemble the equipment arbitrarily. This may cause electric shock or injury, product malfunction, and/or inaccurate results. Unauthorized disassembly will void the manufacturer's warranty.
- Do not let the BPBIO320/320n touch other electronic devices when turned on. This may cause electric shock.

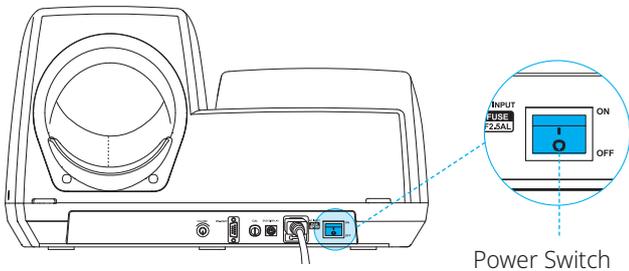
**Caution**

- Plugging the device into an ungrounded outlet may cause malfunction or electric shock.
- Always handle the equipment with care. Exterior impact may cause trouble when operating the equipment.

**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.



Power Switch

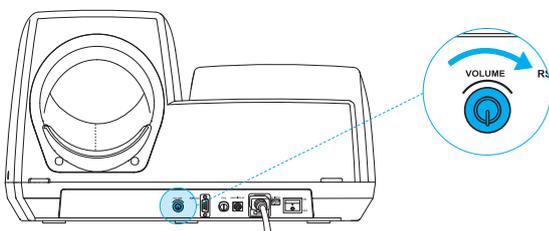
**7** When the BPBIO320/320n is turned on, the following screen is displayed and a calibration is automatically performed.



**Caution**

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

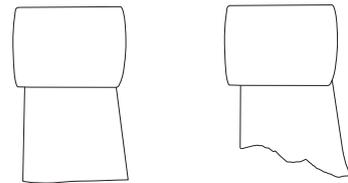
**8** Adjust the volume by turning the volume knob on the rear of the BPBIO320/320n



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

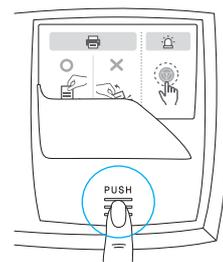
### 1 Loading Printer Paper

**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.



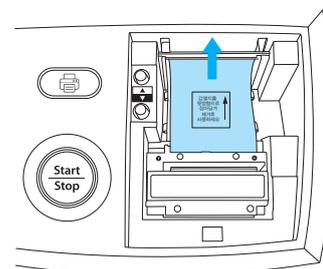
Paper cut with scissors      Ripped paper

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

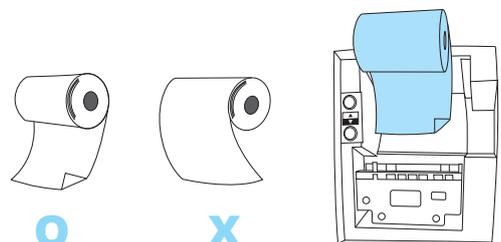


**3)** If the device is being used for the first time, remove the protective paper located inside.

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



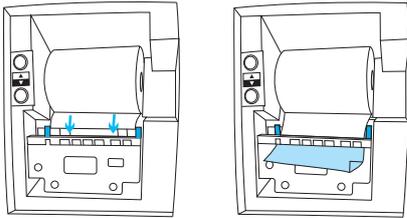
**4)** Fold one corner of the provided printer paper and insert it in the direction as shown.



**Caution**

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

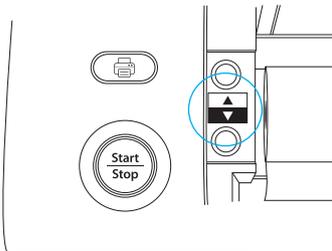
- 5) Insert the end of the paper through the feeder. The printer will automatically pull and cut the paper.



- 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.

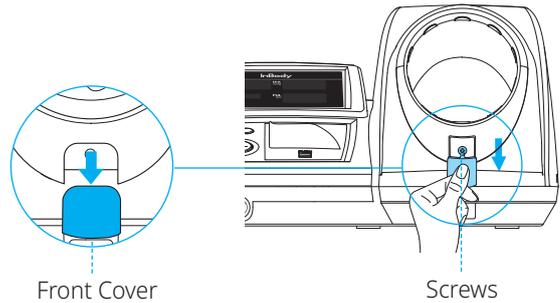
**Note**

- Two rolls of printer paper are provided with the BPBIO320/320n.
- If additional printer paper roll is needed, it must be purchased separately as it is a consumable item.

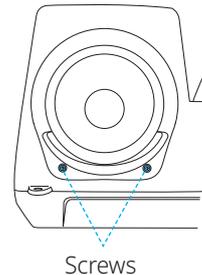
**E. Replacing Cuff Cover**

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

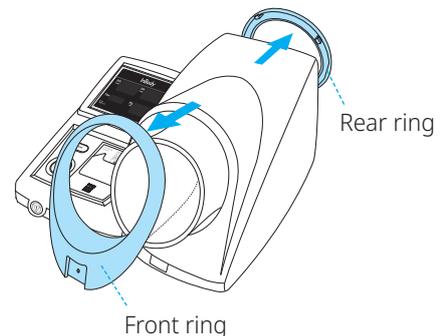
- 1) Remove the front cover of the BPBIO320/320n by pushing downward. Loosen the screw with a screwdriver.



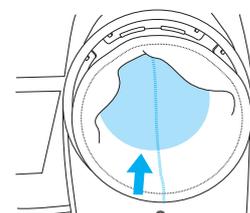
- 2) Loosen the two screws on the rear of the BPBIO320/320n with a screwdriver.



- 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.



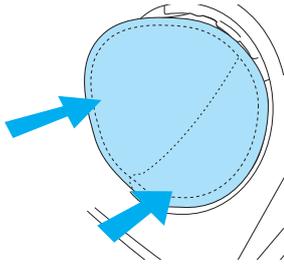
- 4) Place the seam of the new cuff cover down as shown, and align it with the front and rear ring.



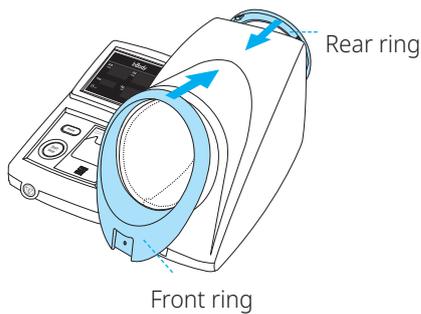
**Caution**

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

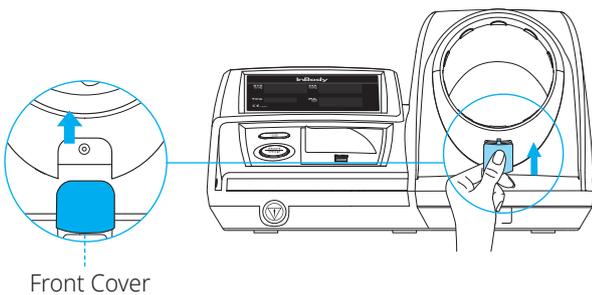
- 5** Secure the new cuff cover onto the grooves on the front and rear of the BPBIO320/320n.



- 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.)
- If additional cuff cloth is necessary, the user must purchase it separately as a consumable item.

**F. Setup**

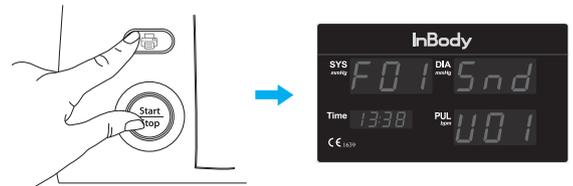
Setup consists of sound settings, motion sensor settings, elbow sensor settings, Automatic printing options, time stamps and Result sheet item(Outputting caution comment, Pulse Envelope).

**Note**

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

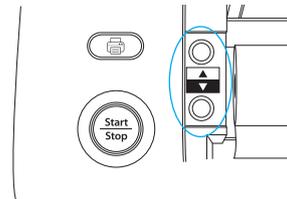
**1 Settings**

- 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.

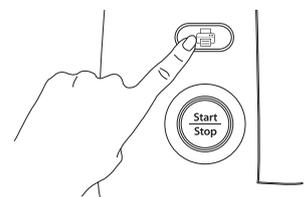


- 2) Use UP () and DOWN () buttons to change the settings.

\* 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.

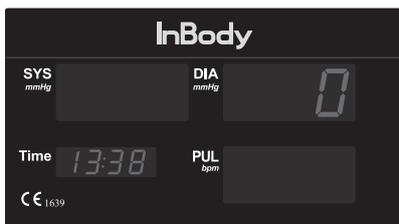
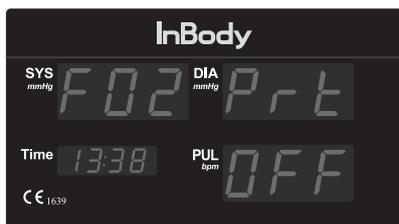


- 4) Press and hold button for 2 seconds to return to the home screen.

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

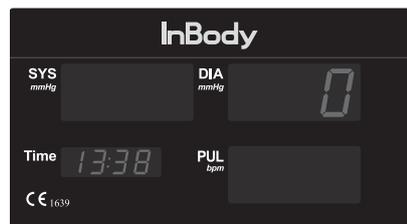
\* The following is an example showing how to change a 'manual output' Automatic printing options.

- 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 *F02 Prt* screen.
- 3 Press  button to select *OFF*.
- 4 Press and hold  button for 2 seconds to save changes and return to



\* 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 to move to *F08 Lcd* screen.
- 3 Press  button to select *10*.
- 4 Press and hold  button for 2 seconds to save changes and return to



## 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.

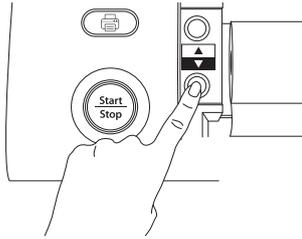
Function	Display			Description	
	Systolic	Diastolic	Pulse		
Sound	F01	Snd	U01	Reading test instruction and measurement results	
			U02	Reading test instruction only	
			U03	Reading measurement results only	
			bEF	Beep guide	
Outputting results sheet* (BPBIO320 only)	F02	Prt	On	Automatic printing of results sheet	
			OFF	Manual printing of results sheet	
Hour setting	F03	HOU		setting hour (0-23)	
Minute setting	F04	MIN		setting minute (0-59)	
Year setting	F05	YER		setting year (2000~2035)	
Month setting	F06	MTN		setting month (1-12)	
Day setting	F07	DAY		setting day (1-31)	
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	
Result sheet item (BPBIO320 only)	Caution comment	F09	BA	SIC	Output of caution comment
			SCH	00L	Not used
	PULSE Envelope	F10	GrP	On	Output of pulse envelope
				OFF	Not used
	QR code*	F11	Gr	On	Output of QR code*
				OFF	Not used
Measurement mode setting	3 consecutive measurements	F12	Avg	On1	The arithmetic mean of all three measurements
				On2	The arithmetic mean of the second and the third measurements
				OFF	One time measurement mode

\* Automatic printing options **F02** and Result sheet item **F09 ~ F12** are applicable only to BPBIO320, so they do not appear at BPBIO320n.

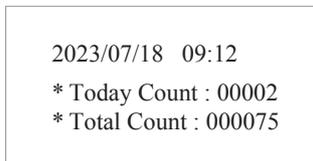
\* "QR Code" is registered trademark of DENSO WAVE INCORPORATED.

### 3 Test counts display

From the home screen, press and hold the DOWN (▼) button for more than two seconds. The total test count will be displayed in the diastolic blood pressure column, and today's test count will be displayed in the pulse column. Also, both total test count and today's test count will be printed out.



Total test counts  
Test counts for today



Test count printout

## G. 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.
- This device is designed for a long service life, and the accuracy of the device has been carefully tested. It is generally recommended to have the device inspected every 2 years to ensure correct functioning and accuracy because certain components (motor, gear, etc.) may need replacement as the device ages. Please contact the Product Support team at Support@inbody.com.
- In the event of an incident related to cybersecurity, side effect or accident, contact InBody Customer Service. It should be reported to the manufacturer and competent authority.

### 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.
- User's manual for InBT500 is provided separately.

The BPBIO320/320n calibrates automatically when it is turned on. If an error message appears during the calibration, please contact product support.

# II Blood Pressure Test

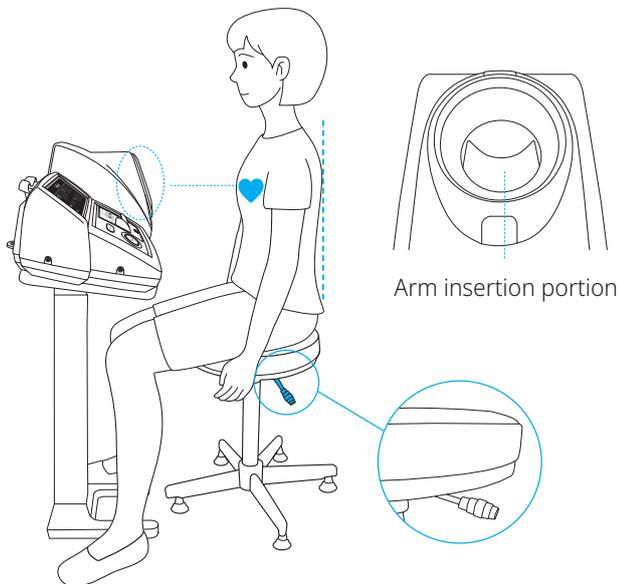
## A. Precautionary Steps

### 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.
- Do not push or pull the product excessively. It may cause injury or damage.

## B. Test Instructions

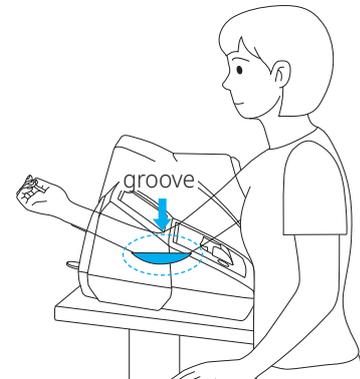
- 1 Adjust the height of the chair so that the inserted upper arm and the heart are horizontal.



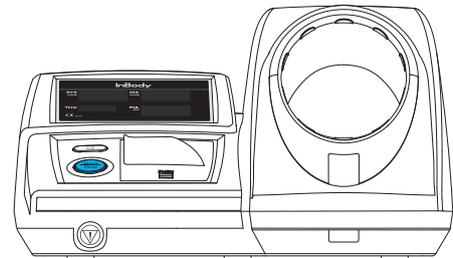
- 2 Rest for at least 5 minutes prior to taking the test

\* 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.

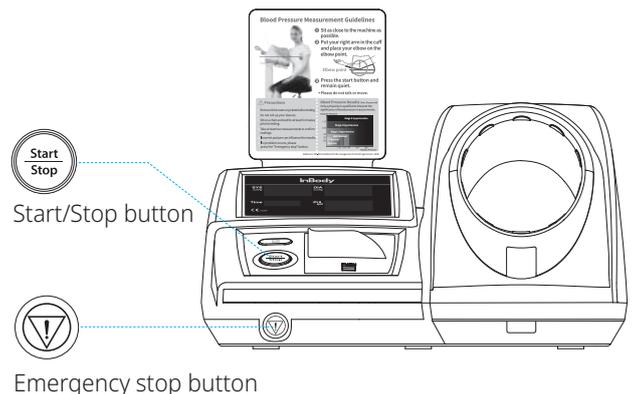


- 5 Pressure is automatically applied to the cuff, and the blood pressure is measured.

- \* 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



# Blood Pressure Test

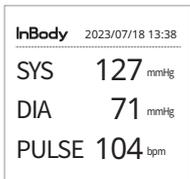
**6** The cuff is automatically released after completing the test. Wait for the cuff to fully loosen and pull out your arm.

**7** Check the results on the screen.

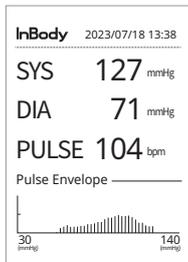
- \* The voice guide will be heard and the Result Sheet will be printed depending on settings.
- \* Do not pull the Result Sheet while it is printing. It will cut automatically.
- \* Example of test result screen



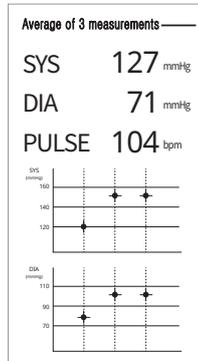
Systolic blood pressure      Diastolic blood pressure  
 Current time      Pulse rate



Pulse Envelope(F10): OFF



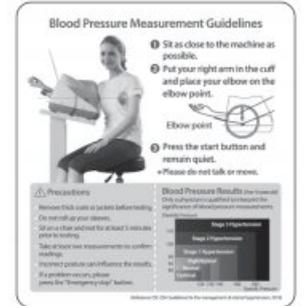
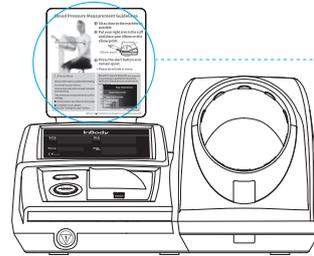
Pulse Envelope(F10): ON



3 consecutive measurements mode (F12 : ON1 or ON2)

\* 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



Check Blood Pressure Result

### Note

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

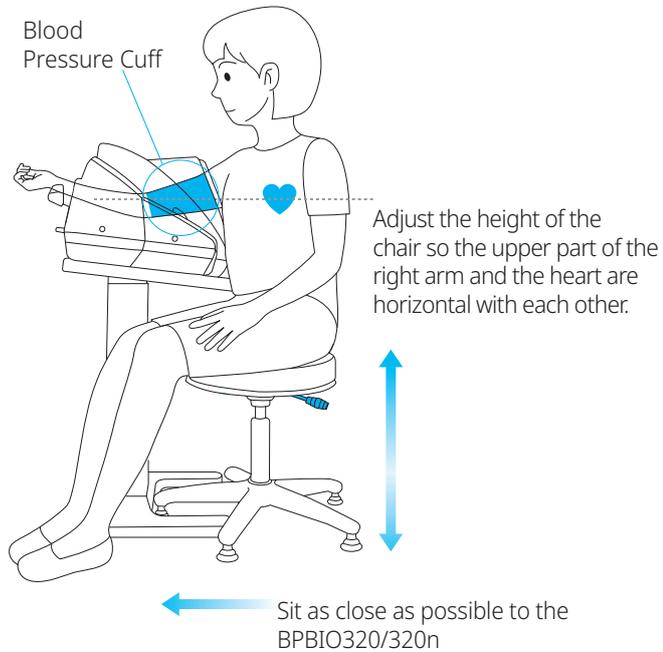
### Note

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

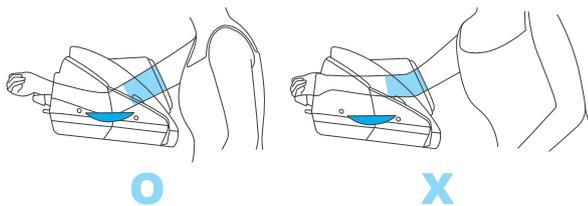
### C. Test Posture

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

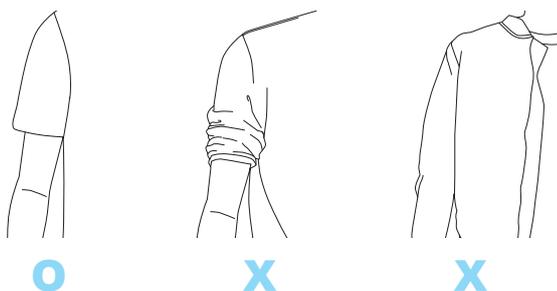
SYS	Systolic Blood Pressure [mmHg]
DIA	Diastolic Blood Pressure [mmHg]
PUL	Pulse rate per minute [bpm]



\* 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

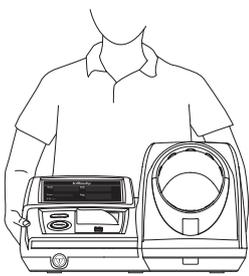
## A. Cautions during Transportation

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

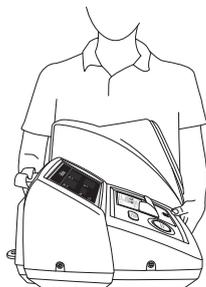


### Caution

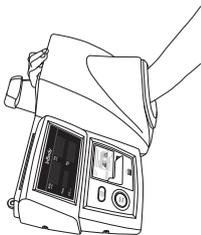
- When transporting the equipment alone, keep the device horizontal.



O



X



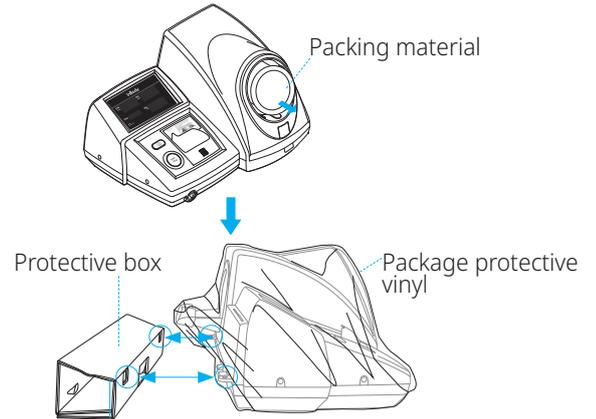
O



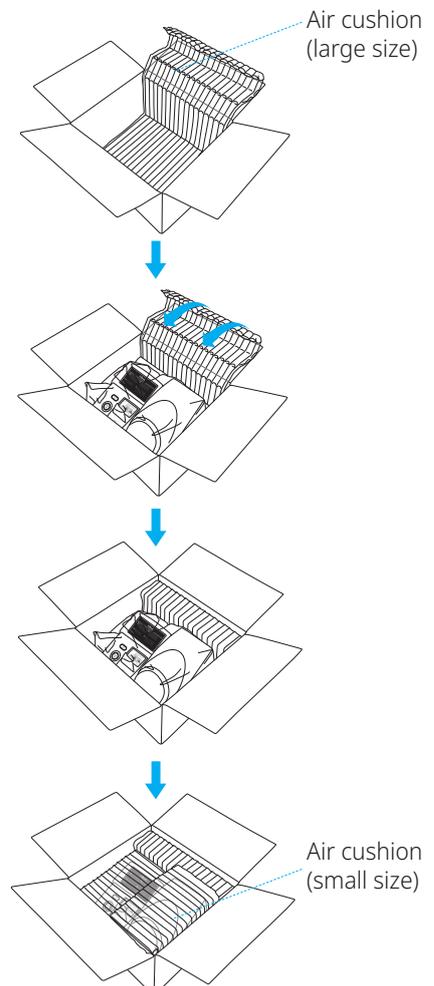
X

## 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 transporting the equipment alone, keep the device horizontal.
- 

## C. Transportation and Storage Environment

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

Temperatures range	-20 to 70°C
Relative humidity	10 to 95% 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 will display on the screen if they occur during the test.

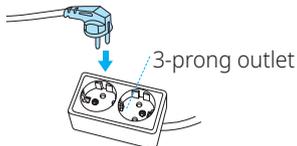


Please provide the error code to Product Support.

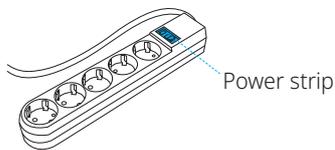
## B. Regarding the Equipment

If your technical issues cannot be resolved with the information below, please contact Product Support.

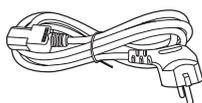
- Problem:** The device is not turning on.
- Cause:** This can occur when the power cable is not fully inserted into the power outlet
- Corrective measures:**
- Plug the power cable into a grounded 3-prong outlet.



- When using a power strip, make sure the switch is turned on.

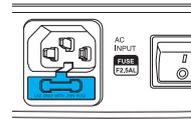


- Make sure the power cable (AC 250V 10A) provided by InBody is in use.

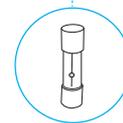
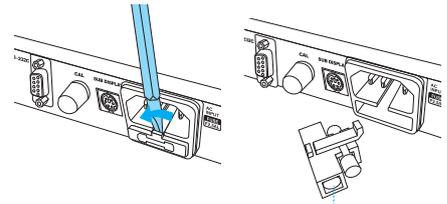


- Question:** The device is not turning on.
- Cause:** The fuse is blown.
- measures:**
- Turn off the BPBIO320/320n, and replace the fuse.

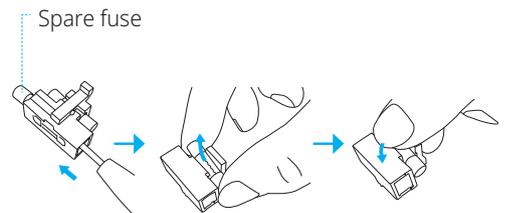
- 1 The fuse socket is located on the back of the device beneath the power plug.



- 2 Pull the fuse out by using a flathead screwdriver. Replace the fuse with the provided spare fuse. Additional fuses can be purchased if necessary.



TYPE: Fast-Acting  
Rated current: 2.5AL  
Rated voltage: 250V



### Warning

- Be sure to turn off the power when replacing the fuse.
- The correct rated fuse must be used. (250V, 2.5AL)

- Question:** Voice guide does not work.
- Cause:** The volume knob on the rear of the blood pressure monitor may be turned off.
- measures:**
- The volume knob on the rear of the blood pressure monitor may be turned off.

- Question:** Voice guide does not work
- Cause:** The sound setting may be set to 'Beep Guide' instead of 'Speaker'.
- measures:**
- Refer to Setup to change the sound settings. If the sound setting **FD 1** is set at **bEF**, only the 'beep' sound (alarm sound) will be heard. If you want the voice guide to be heard, set the sound setting to **UD 1**.
- Question:** The Result Sheet is not printing.
- Cause:** Printing may be disabled
- measures:**
- Check whether the settings for automatic printing option is on/off. If the setting is the result sheets will only be printed manually. (Manual printing: The result sheet is printed only when the button is pressed.)
  - \* Refer to 'F. Setup' section and change the automatic printing option
- Cause:** The printer may be out of paper
- measures:**
- Since the printer papers are consumables, the replacement cycles of the paper depend on the number of times result sheets have been printed.
- Cause:** Printer paper may be installed incorrectly.
- measures:**
- Open the cover, and check the direction of the printer paper
  - \* Refer to 'Loading and Reloading Printer Paper'

**Caution**

- The company is not liable for the problems occurred when others repair and inspect the equipment except employees of InBody Co., Ltd..
- \* Only compatible with other InBody products

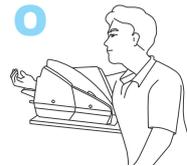
**Note**

- Since error messages and things of detail such as incorrect result sheets can be used as a basis for A/S, please record or keep all of them.

## C. Regarding the Test

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

- Question:** The test results are incorrect.
- Answer:**
- The arm and heart may not be aligned during the test. Adjust the height of the chair to align the arm and heart.



Correct testing posture. The height of the arm and the heart is aligned.

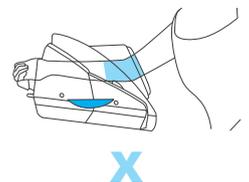
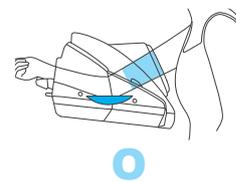


Incorrect testing posture. The arm is higher than the heart. Blood pressure value will be measured lower.

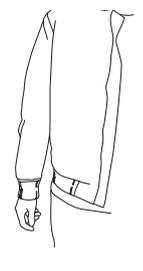
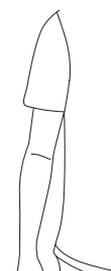


Incorrect testing posture. The arm is lower than the heart. Blood pressure value will be measured higher.

- Inserting the arm too far or not far enough may produce incorrect results. Place elbow in elbow groove for accurate results.



- Thick clothes or rolled up sleeves may produce incorrect results.



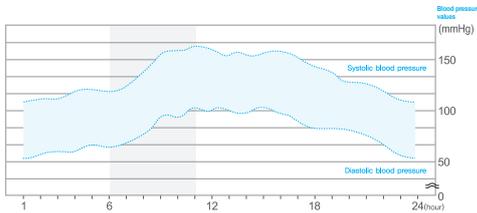
- The user may have tested without sufficient rest. Take the test after resting at least 5 minutes.
- Do not talk or move during the test.

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

**Question:** When should blood pressure be measured?

**Answer:**

- Blood pressure may vary throughout the day, as shown below.



Therefore, the best time to test is when examinees can measure regularly on a daily basis. It is recommended to test at the same time each day under the same conditions.

**Question:** How frequently can tests be done?

**Answer:**

- The automatic monitor applies pressure to the arm to measure blood pressure. Consecutive testing may put a strain on blood vessel. Rest for about 5 minutes between tests.

**Question:** Is there any case that I should not test?

**Answer:**

- If you had blood drawn or had an injection given in either arm, it is recommended to wait at least 1 hour before testing, or measure with another arm.

**Question:** Can results vary depending on the testing environment and temperature?

**Answer:**

- The BPBIO320/320n can operate at 5 ~ 40°C. However, if the examinee feels that the temperature is too low or high, the blood vessels expand or contract, which will affect the blood pressure results. It is recommended to test in a stable condition in an environment where the temperature is at a comfortable level.
- The examinee will not be able to perform a natural and stable test if they are testing in a loud or disruptive environment. It is recommended to test in an environment free from noise and disturbances.

**Question:** What are some factors that can change blood pressure?

**Answer:**

- The blood pressure reading may change:
  - Within 1 hour after meals
  - After having alcohol or caffeine
  - After smoking
  - After taking a bath
  - After exercise
  - After using the restroom
  - When testing in an unfamiliar location

**Question:** The blood pressure values are different when taken at home compared to the hospital.

**Answer:**

- Blood pressure can change depending on the environment. Test in the same environment for consistent results.
- Psychologically, people tend to feel more relaxed at home than the hospital. Blood pressure tends to be higher when measured at the hospital than at home.

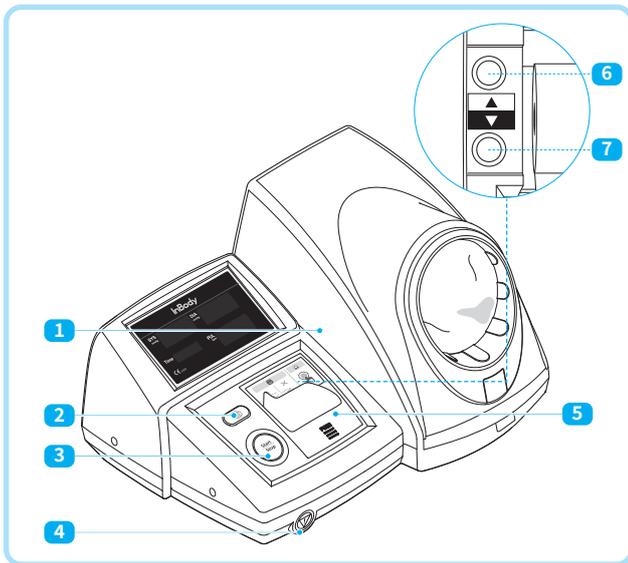
# V Others

- \* 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.

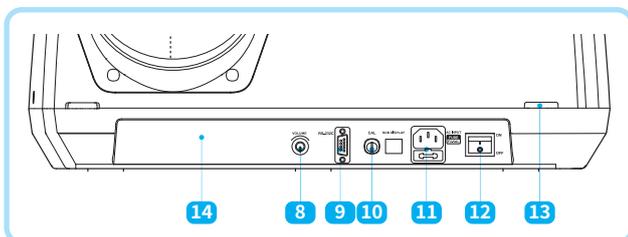
## A. Exterior and Functions

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 UP/DOWN buttons to adjust settings
- 7



- 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 cause malfunction. Use the 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 waste should be disposed of according to the relevant laws and regulations.
- Do not connect the unauthorized devices.

## Safety Symbols

	Danger: high voltage
	Warning / Caution
	Note
	BF-type equipment
	Power on
	Power off
	The User's Manual must be read
	Emergency Stop

## Etc. Symbols

	European Conformity
	Manufacturer
	Authorized representative in the EUROPEAN COMMUNITY
	Unique Device Identifier
	Serial number
	Alternating current

\* MET symbols apply to products sold in the United States and Canada.

## 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. Product Specifications

Test Instructions	Oscillometric
Test range	Pressure: 0 to 300 mmHg Pulse: 30 to 240 bpm
Degree of precision	Pressure: $\pm 2$ mmHg Pulse: Within $\pm 1.5\%$
Test result	Systolic blood pressure, diastolic blood pressure, PULSE rate
Test Time	Approx. 30 seconds on average (20-50 seconds depending on the pulse and blood pressure value)
Minimum scale unit	1mmHg
Screen Type	7-Segment LED
Results outputs	Result value, PULSE Graph , 3 consecutive measurements
Storage function	Can store the total results for up to 1 million tests
Energy saving	Automatically enters the energy saving mode after 2 minutes of the 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 guidance	Guides user through blood pressure measurement and results.
Printer	High-speed thermal printer with a built-in automatic cutter (width: 5.7 cm)
Rated voltage and power consumption	AC 100–240V, 50-60Hz, 30VA
Dimensions	489 (W) × 409 (D) × 284 (H) mm
Weight	9kg (BPBIO320n: 8.8 kg )

Operating environment	Temperature 5 ~ 40°C(41 ~ 104°F), Humidity 15 ~ 90% RH, Atmospheric pressure 70 ~ 106 kPa
Storage environment	Temperature -20 ~ 70°C(-4 ~ 158°F), Humidity 10 ~ 95% RH(No Condensation), Atmospheric pressure 50 ~ 106 kPa

- \* Specifications are subject to change without notice for purposes of product improvement.
- \* This product is a 'medical equipment'. Please read the guide and cautions before using this blood pressure monitor.

## E. EMC Declaration

Phenomenon	Basic EMC standard or test method	Operating mode	Port tested	Test Voltage	Test level/requirement
Mains terminal disturbance voltage	CISPR 11:2015 +A1:2016+A2:2019 EN 55011:2016 +A1:2017	Continuous operation mode	AC Mains	100 V, 50 Hz 100 V, 60 Hz 120 V, 60 Hz 220 V, 60 Hz 230 V, 50 Hz	Group 1, Class B
Radiated disturbance	CISPR 11:2015 +A1:2016+A2:2019 EN 55011:2016 +A1:2017	Continuous operation mode	Enclosure	100 V, 50 Hz 100 V, 60 Hz 120 V, 60 Hz 220 V, 60 Hz 230 V, 50 Hz	Group 1, Class B
Harmonic Current Emission	IEC 61000-3-2:2018 +A1:2020 EN 61000-3-2:2014	Continuous operation mode	AC Mains	230 V, 50 Hz	Class A
Voltage change, Voltage fluctuations and Flicker Emission	IEC 61000-3-3:2013 +A1:2017 EN 61000-3-3:2013 +A1:2019	Continuous operation mode	AC Mains	230 V, 50 Hz	Pst: 1 Plt: 0.65 dmax: 4% dc: 3.3%
Electrostatic Discharge Immunity	IEC 61000-4-2:2008 EN 61000-4-2:2009	Continuous operation mode	Enclosure	100 V, 50 Hz 100 V, 60 Hz 120 V, 60 Hz 220 V, 60 Hz 230 V, 50 Hz	± 8 kV/Contact ± 2, ± 4, ± 8, ± 15 kV/Air
Radiated RF Electromagnetic Field Immunity	IEC 61000-4-3:2020 EN 61000-4-3:2006 +A2:2010	Continuous operation mode	Enclosure	100 V, 50 Hz 100 V, 60 Hz 120 V, 60 Hz 220 V, 60 Hz 230 V, 50 Hz	3 V/m 80 MHz-2.7 GHz 80% AM at 1 kHz
Immunity to Proximity Fields from RF wireless Communications Equipment	IEC 61000-4-3:2020 EN 61000-4-3:2006 +A2:2010	Continuous operation mode	Enclosure	100 V, 50 Hz 100 V, 60 Hz 120 V, 60 Hz 220 V, 60 Hz 230 V, 50 Hz	Table 9 in IEC 60601-1-2: 2014
Electrical Fast Transient/Burst Immunity	IEC 61000-4-4:2012 EN 61000-4-4:2012	Continuous operation mode	AC Mains	100 V, 50 Hz 100 V, 60 Hz 120 V, 60 Hz	± 2 kV, 100 kHz repetition frequency ± 1 kV, 100 kHz repetition frequency
			SIP/SOP	220 V, 60 Hz 230 V, 50 Hz	
Surge Immunity	IEC 61000-4-5:2014 EN 61000-4-5:2014 +A1:2017	Continuous operation mode	AC Mains	100 V, 50 Hz 100 V, 60 Hz 120 V, 60 Hz 220 V, 60 Hz 230 V, 50 Hz	Line to Line ± 0.5 kV, ± 1 kV
				Line to Ground ± 0.5 kV, ± 1 kV, ± 2 kV	
Immunity to Conducted Disturbances Induced by RF fields	IEC 61000-4-6:2013 EN 61000-4-6:2014	Continuous operation mode	AC Mains	100 V, 50 Hz 100 V, 60 Hz 120 V, 60 Hz	3 V 0.15-80 MHz 6 V in ISM bands Between 0.15 MHz and 80 MHz 80% AM at 1 kHz
			SIP/SOP	220 V, 60 Hz 230 V, 50 Hz	
Power Frequency Magnetic Field Immunity	IEC 61000-4-8:2009 EN 61000-4-8:2010	Continuous operation mode	Enclosure	100 V, 50 Hz 100 V, 60 Hz 120 V, 60 Hz 220 V, 60 Hz 230 V, 50 Hz	30 A/m 50 Hz & 60 Hz
Voltage dips	IEC 61000-4-11: 2020 EN 61000-4-11:2004 +A1:2017	Continuous operation mode	AC Mains	100 V, 50 Hz 100 V, 60 Hz 240 V, 50 Hz 240 V, 60 Hz	0 % UT: 0.5 cycle At 0°, 45°, 90°, 135°, 180°, 225°, 270° and 315° 0 % UT; 1 cycle and 70 % UT; 25/30 cycles Single phase: at 0°
				220 V, 60 Hz	
Voltage interruptions	IEC 61000-4-11: 2020 EN 61000-4-11:2004 +A1:2017	Continuous operation mode	AC Mains	100 V, 50 Hz 100 V, 60 Hz 240 V, 50 Hz 240 V, 60 Hz 220 V, 60 Hz	0 % UT; 250/300 cycle

## Electromagnetic immunity

The [BPBIO320/320n] is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. Portable RF communications equipment should be used no closer than 30 cm (12 inches) to any part of the [BPBIO320/320n]. Otherwise, degradation of the performance of this equipment could result.

Immunity test	Band a)	Service a)	Modulation b)	IEC60601 test level	Compliance level
Proximity fields from RF wireless Communications IEC61000-4-3	380 - 390 MHz	TETRA 400	Pulse modulation b) 18Hz	27 V/m	27 V/m
	430 - 470 MHz	GMRS 460 FRS 460	FM c) ±5 kHz deviation 1 kHz sine	28 V/m	28V/m
	704 - 787 MHz	LTE Band13, 17	Pulse modulation b) 217 Hz	9 V/m	9 V/m
	800 - 960 MHz	GSM800:900 TETRA 800 iDEN 820 CDMA 850 LTE Band 5	Pulse modulation b) 18 Hz	28 V/m	28 V/m
	1700 - 1990 MHz	GSM 1800 CDMA 1900 GSM 1900 DECT LTE Band 1,2,4,25 UMTS	Pulse modulation b) 217 Hz	28 V/m	28 V/m
	2400 - 2570 MHz	Bluetooth WLAN 802.11b/g/n RFID 2450 LTE Band 7	Pulse modulation b) 217 Hz	28V/m	28 V/m
	5100 - 5800 MHz	WLAN 802.11a/n	Pulse modulation b) 217 Hz	9 V/m	9 V/m

NOTE : If necessary to achieve the IMMUNITY TEST LEVEL, the distance between the transmitting antenna and the ME EQUIPMENT or ME SYSTEM may be reduced to 1m. The 1m test distance is permitted by IEC 61000-4-3.

a) For some services, only the uplink frequencies are included.

b) The carrier shall be modulated using a 50% duty cycle square wave signal.

c) As an alternative to FM modulation, 50% pulse modulation at 18 Hz may be used because while it does not represent actual modulation, it would be worst case.





CE 1639