



BLE Upper Arm Blood Pressure Monitor

Model: BPU321

User Manual

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INTRODUCTION

Thank you for selecting the Oregon Scientific™ BLE Upper Arm Blood Pressure Monitor (BPU321). The BPU321 features multi-language voice announcement and playback of blood pressure measurements for added convenience and has been designed to provide you with many years of reliable service. The monitor can help you measure and track the following metrics:

- Systolic pressure
- Diastolic pressure
- Average morning / evening blood pressure
- Heart rate

The monitor is able to store up to 100 measurements per user (maximum 2 users) and equipped with the latest Bluetooth Smart technology to achieve reliable transmission linkage with a mobile device or tablet PC that is with the logo  and corresponding application. From now on, you can easily track your health on a daily basis.

Readings taken by the blood pressure monitor are equivalent to those obtained by a trained observer using the cuff and stethoscope

auscultation method. Clinical performance were successfully done against ANSI/AAMI SP10 and international protocol, and the B.H.S.(British Hypertension Society) has rated this product “recommended for clinical and home use”, the highest grading available for blood pressure monitors.

NOTE Please keep this manual handy as you use your new product. It contains practical step-by-step instructions, as well as technical specifications and warnings you should know about.

PACKAGE CONTENTS

This package should include the following items:

- 1 x BPU321 BLE Upper Arm Blood Pressure Monitor
- 1 x Cuff wrap
- 1 x Cuff holder
- 4 x AA (1.5V) batteries

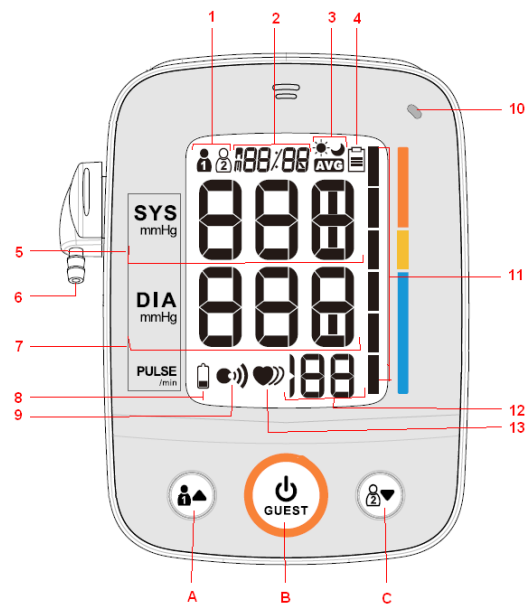
ACCESSORIES – SEPARATE PURCHASE REQUIRED

This product comes with below optional accessories which can be purchased separately. For more information, please contact your local retailer. *




- Replacement Arm cuff
- Storage pouch
- 6V adaptor

* Features and accessories will not be available in all countries.

PRODUCT VIEW / KEY FEATURES



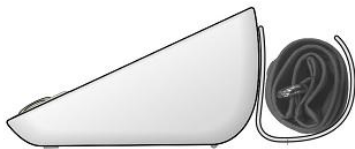
- A.** : start taking blood pressure for user 1; view user 1 measurement records, view additional / older records; increase value of the setting; toggle setting options
 - B.** GUEST: turn monitor on/off; enter setting mode; confirm settings; start taking measurement for guest (no record stored); cancel measurement; confirm deletion of individual or all data for user (1 or 2).
 - C.** : start taking blood pressure for user 2; view user 2 measurement records, view additional / older records; decrease value of the setting; toggle setting options
- : indicates which user (1 or 2) has been selected (no icon appears for guest)
 - mmHg/mmHg** Pairing status (bLE / Err / donE); Clock; calendar; date and time stamp
 - AVG**: Average morning / evening blood pressure
 - : memory is full; memory mode selected
 - Systolic pressure
 - Air outlet
 - Diastolic pressure

8. : monitor battery low
9. : voice activation
10. Synchronizing status indicator light
11. Blood pressure classification bar
12. Heart rate counter
13. : irregular heart beat detected

SETTING UP THE MONITOR

ASSEMBLE THE UNIT

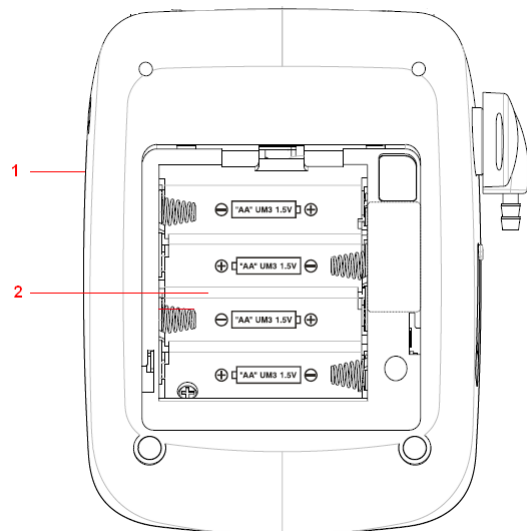
1. Insert the small end of the air tube into the air outlet on the monitor.
2. Snap cuff holder into place at the back of the monitor.
3. Place cuff into holder.



INSTALLING AND REPLACING THE BATTERIES


This monitor can work with a 6V adaptor which has to be purchased separately.

1. Slide off the battery cover.
2. Install the batteries by matching the correct polarities. Always use the correct battery
3. Align the cover flat against the battery compartment, and then slide it upwards.



Above diagram displays:

1. Adaptor outlet
2. Battery compartment

NOTE Flashing  indicates monitor batteries are low.


NOTE Replace batteries promptly to ensure accurate readings. Replace all the batteries at the same time; it is dangerous to mix old and new batteries.




NOTE Contact your local waste disposal authority for instructions on how to dispose of used batteries. Used batteries can be harmful to the environment, and should not be thrown out with household trash.




MONITOR SETTINGS



IMPORTANT As blood pressure measurements are recorded in the memory with date and time stamp for easy analysis, set the monitor prior to first use to ensure measurements are correctly marked.

To set the monitor:

1. When monitor is off, press and hold  to enter setting mode.

2. Set the monitor by pressing the following:
 1. Press  to increase value or toggle options
 2.  to decrease value or toggle options
 3.  to confirm
 - 4.
 5. The screen display will turn off once setting has been completed.

Settings	Setting options (Press  or  and  to confirm)
Date	Year, month, date
Time	Hour format, hour, minute
Audio function	On / off Volume control (HI / Lo) when function enabled Language: (En) English (CH) Putonghua (Fr) French (CH ^{HK}) Cantonese (SP) Spanish
Measurement reminder alarm*	On / off ALM 1 time ALM 2 time

*To inform you if the **set** alarm time falls within the time frame for calculating average morning / evening blood pressure, these icons   will be displayed.

6.

POSITIONING THE ARM CUFF

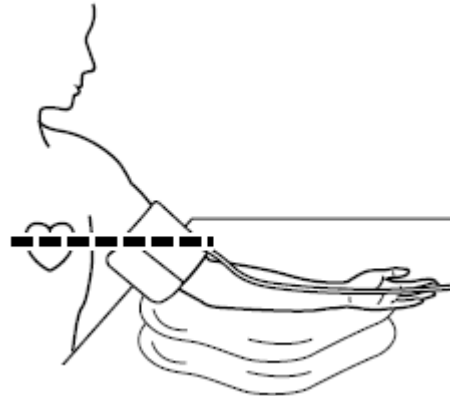
Ensure the arm cuff is correctly placed to obtain an accurate reading.

NOTE If your physician has diagnosed you with poor circulation in your left arm, use your right arm.

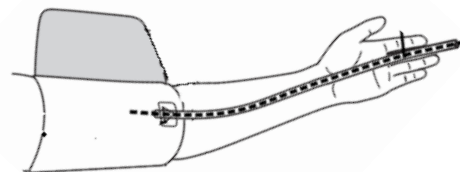
1. Choose the position from which you wish to measure, sitting or lying down.
2. Roll or push up your sleeve to expose the

skin.

3. Put arm through the cuff loop.
4. Place cuff about an inch (1-2 cm) above your elbow.



Use cushions or other supports if necessary to adjust.



The air tube should run down, between the inside of your forearm and the side of your chest, in line with your middle finger.

5. Fasten the arm cuff so it fits snugly. If the cuff is too loose, the measurement will not be accurate.

PREPARING TO TAKE BLOOD PRESSURE MEASUREMENT

You can choose to take blood pressure while sitting or lying down. Below are some helpful tips for taking a measurement.


- Be sure to set the clock before taking your first measurement, or whenever you replace the batteries, so that the date and time are stored in the memory with your history. For instructions, refer to **Monitor Settings** section.




- It is important to relax when taking your blood pressure. Try to take a 15-minute rest before you begin.
- Do not lean backward or bend your wrist inward while taking a measurement.
- Do not sit cross-legged and avoid talking or moving your fingers and hand while taking a measurement. Rapid movements or other activities may alter your reading.
- Wait at least an hour before taking your blood pressure if you have just eaten a large meal.
- Do not smoke or drink alcohol before taking your blood pressure.
- Do not measure your blood pressure if you are under stress.
- Remove all accessories from your arm.
- Wait at least 3 minutes between measurements. This allows your blood circulation to recover.

For a meaningful comparison, try to measure under similar conditions. For example, take daily measurements at approximately the same time, on the same arm, or as directed by a physician.


TAKING A MEASUREMENT


If you want the monitor to synchronize with the application of your mobile device. Please do preparation before starting a measurement.

1. Relax your arm.
2. Press  to turn on the unit.
3. Select user, then a voice prompts you to sit in the correct position and to remain still :

Button	User	Memory
 GUEST	Guest	No records stored
	1	Record stored under User 1
	2	Record stored under User 2

4. Arm cuff will begin inflating automatically. Digits will appear on the screen.
5. Once the pressure reaches a certain level, it will slowly deflate until the results are displayed on the LCD.

NOTE To stop the measurement process at any time, press .

6. The monitor automatically attempts to send the record wirelessly to your mobile device. If data transmission fails, **Err 1** will appear while a voice prompts.
7. To conserve battery life, monitor will turn off 1 minute after taking a measurement. Alternatively, press  to manually turn off monitor.

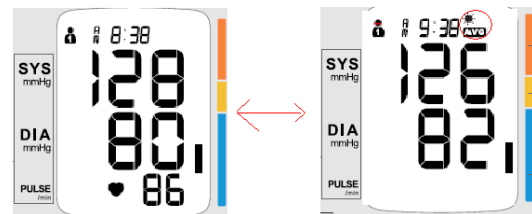
UNDERSTANDING THE READING

For reference material, please refer to **Useful Reference** section which can be found at the end of this manual.

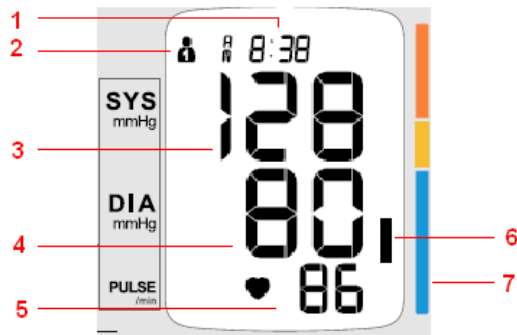
DISPLAY

Current reading & Average morning / evening reading

If there is an average reading, the screen display will toggle between current reading and average morning or evening reading (depending on which section of the day the current reading was taken).



Example:



1. Date / Time stamp (automatically toggles)
2. User selected
3. Systolic pressure
4. Diastolic pressure
5. Heart rate
6. Blood pressure classification segments
7. Hypertension indicator bar

HYPERTENSION

The monitor will visually display by segments under which WHO classification the measurement falls under.

Bar	Classification	Reading
Orange	Grade 3 Hypertension	High
	Grade 2 Hypertension	
Yellow	Grade 1 Hypertension	Slightly high
Blue	High Normal	Normal
	Normal	
	Optimal	

IRREGULAR HEARTBEAT / ARRHYTHMIA


Apart from blood pressure and heart rate, heartbeat is also an indicator of your general health condition.

With a normal heartbeat, the beats are steady at regular intervals.



An irregular heartbeat is one where there is a variance and the intervals vary.



NOTE If an irregular heart beat has been detected during the measurement,  will be displayed. We highly recommend you consult your physician.


MOVEMENT / READING ERROR

If **Err 1** is displayed, please loosen the arm cuff and relax 2-3 minutes before taking another measurement.

Refer again to **Preparing to Take Blood Pressure Measurement** section and **Positioning the Arm Cuff** section if required.

VOICE ANNOUNCEMENT

If audio function is enabled, the following will be announced:

- Measurement results (Systolic, Diastolic, Heart rate) ;
- WHO classification;
- Low battery;
- Error detection
-  displays when audio function is enabled.

VIEW RECORDS

This monitor can store up to 100 records per user. The most recent record (1) is shown first. Each

new measurement is assigned to the first (1) entry in the user record selected. All other records are pushed back one digit (e.g., 2 becomes 3 and so on), and the last record (100) is dropped from the list.

For average morning / evening blood pressure readings to be displayed, blood pressure has to measure for three consecutive days at least twice in each time period (morning / evening).



For ease of reference, the date and time when the measurement was taken is shown with each record.

Memory is kept even when the batteries become exhausted and subsequently replaced.



RECALLING MEASUREMENTS STORED IN MEMORY



Ensure the monitor is off.

Select user:

- Press  to view a history of User 1's records
- Press  to view a history of User 2's records

View more records for the same user:


- Press the corresponding user button repeatedly ( or ) to see additional records (average morning / evening if available or next record).

TIP Press and hold corresponding user button ( or ) to quickly toggle through all the entries.

To alternate between different user's records:





Press  or .

CLEAR RECORDS




When memory is full,  flashes.

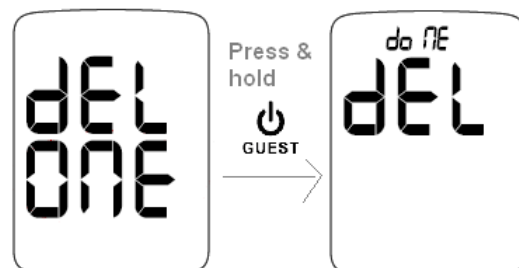
Apart from deleting an entire measurement history, there is also an option to delete the latest measurement record. This is useful if measurements have not been accurately recorded and need to be recorded again.

DELETING A SINGLE RECORD

1. When monitor is off, press  or  to select user.
2. Press the corresponding user button repeatedly ( or ) to navigate to the record to be deleted.



NOTE The most recent record (1) is shown first.





3. Press and hold . **dEL ONE** displays and flashes.
 - Press  to exit to the deletion mode.
 - Press and hold  again to confirm deletion.

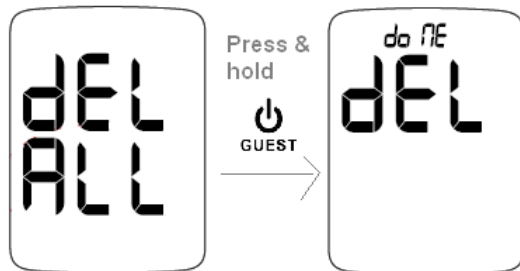


4. **doNE dEL** indicates the record has been deleted.

DELETING ALL RECORDS



1. When monitor is off, press  or  to select user.

2. Press and hold  **GUEST**. **dEL ONE** will be displayed.
3. Press  or  to toggle to **dEL ALL**
4. Press and hold  **GUEST** again to confirm deletion.



This screen indicates all records have been successfully deleted and there are no records left for that user.



5. Press  or  to navigate to the other user's records.

DATA TRANSMISSION

To help users keep track of their results, the measurements recorded by the monitor can be easily uploaded and reviewed

For added convenience, the unit is programmed to send data automatically:

- At the same time as taking measurement
- After viewing records and unit detects there is data which was not sent successfully
- At midnight everyday.

MANUALLY SEND DATA

To prevent records from being erased, we

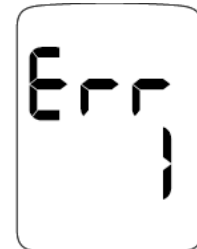
recommend users send data to their mobile device periodically.

When viewing records:

- Press and hold  or .



Successful transmission




Unsuccessful transmission

8. The screen display will turn off once synchronization attempt (whether successful or not) has been completed.

Synchronizing status indicator light (located above the top right corner of the screen)

Description	Meaning
Flashing green	Communicating
Continuous red	No connectivity

IMPORTANT During transmission, pressing  **GUEST** does not have any function.

UNIQUE DEVICE ID


Each unit has a unique device ID which can be found on the device. You can find it on the battery compartment.

APPLICATION

You can find the instructions in the application or contact your local retailer of the product.

TROUBLESHOOTING

This section includes a list of error messages and frequently asked questions for problems you may encounter with your blood pressure monitor. If the product is not operating as you think it should, check here before arranging for servicing.

Problem	Symptom	Check This	Remedy
No power	Display is dim or will not light up	Batteries are exhausted	Replace with new batteries
		Batteries incorrectly inserted	Reinsert batteries
Low batteries		Batteries low	Replace with new batteries
Error message	Err 1	Data transmission failed	Move closer and Reattempt to send data manually
	Llg LOW	External Measurement Reminder battery low	Replace with new batteries

SAFETY AND CARE INSTRUCTIONS

SAFETY PRECAUTIONS

Please observe the following safety precautions when setting up and using your blood pressure monitor.


- This device is intended for adult use only.
- This device is intended for non-invasive measuring and monitoring of arterial blood pressure. It is not intended for use on extremities

other than the wrist or for functions other than obtaining a blood pressure measurement.

- Do not confuse self-monitoring with self-diagnosis. This unit allows you to monitor your blood pressure. Do not begin or end medical treatment based solely on the measurements of this device. Consult a physician for treatment advice.

- If you are taking medication, consult your physician to determine the most appropriate time to measure your blood pressure. Never change a prescribed medication without consulting your physician.

- This unit is not suitable for continuous monitoring during medical emergencies or operations.

- If the cuff pressure exceeds 40 kPa (300 mmHg), the unit will automatically deflate. Should the cuff not deflate when pressures exceeds 40 kPa (300mmHg), detach the cuff from the wrist and press the  button to stop inflation.

- To avoid measurement errors, carefully read this manual before using the product.

CARING FOR YOUR BLOOD PRESSURE MONITOR

To ensure you receive the maximum benefit from using this product, please observe the following care guidelines.

- When not in use, store the unit in a dry place away from direct sunlight.
- Do not immerse the unit in water. If it comes in contact with water, dry it immediately with a soft lint-free cloth.
- Use a soft, slightly moistened cloth to wipe the unit and cuff. Do not use abrasive or corrosive cleaning agents, as these may cause damage.

- Remove the batteries whenever you are planning to store the unit for a long period of time.
- When replacing batteries, use new batteries as specified in this user manual. Do not mix new and old batteries.
- Do not place objects such as stickers on the wrist cuff or unit, as these may impair the measurement.
- Do not subject the unit to excessive force, shock, dust, temperature changes, or humidity. Such treatment may result in malfunction, a shorter electronic life span, damaged batteries, or distorted parts.
- Do not tamper with the internal components. Doing so will terminate the product warranty and may cause damage.
- The unit contains no user- serviceable parts.
- If you no longer need to use this product, protect the environment by bringing it to your dealer or designated collection point for proper disposal.

USEFUL REFERENCE

ABOUT BLOOD PRESSURE

What is blood pressure?

Blood pressure is the force generated by the blood against the walls of arteries during cardiac contraction and relaxation (e.g., the pumping action of the heart).

What are systolic pressure and diastolic pressure?

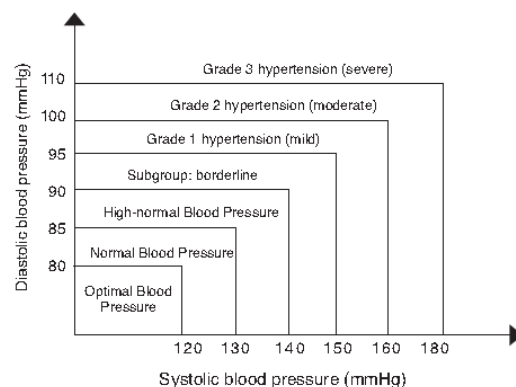
When ventricles contract and pump blood out of the heart, blood pressure reaches its maximum value. This highest pressure in the cycle is known as systolic pressure. When the heart relaxes between heartbeats, the lowest blood pressure is diastolic pressure.

Why measure your blood pressure?

Blood pressure measurement can highly reflect one's health condition. High blood pressure is potentially linked to serious illnesses such as stroke, heart disease and kidney failure. Since there is no symptom most of the time, many hypertensive people do not realize they are at risk until their health is seriously threatened.

What is the standard blood pressure classification?

The figure illustrates the blood pressure classification made by World Health Organization (WHO) and International Society of Hypertension (ISH) in 1999.



Reference material: *1999 World Health Organization - International Society of Hypertension Guidelines for the management of hypertension, Journal of Hypertension, 1999, 17(2): 151-183.*

This is used as the basis for the coloured hypertension indication bar to the right of the screen.

NOTE

- Blood pressure is considered high when either the diastolic or systolic blood pressure

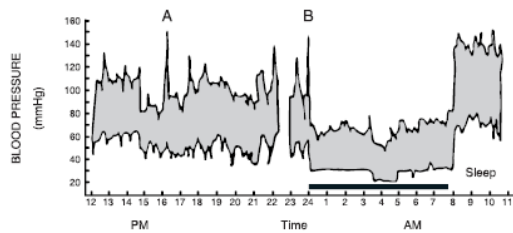
value exceeds the normal range. When a patient's systolic and diastolic blood pressures fall into different categories, the higher category should apply.

- Only a physician can tell you your normal blood pressure range and the point at which you are at risk. Consult your physician to obtain these values. If the measurements taken with these products fall outside the range, consult your physician.

Why does my blood pressure fluctuate throughout the day?

Individual blood pressure varies greatly both on a daily and a seasonal or temperature basis. These variations may be more pronounced in hypertensive patients. Normally the blood pressure rises while at work and is at its lowest during sleep.

The graph below illustrates the variations over a single day with measurement taken every 5 minutes. The thick line represents sleep time. The rises in blood pressure at 4PM (A in the graph) and 1 2AM (B in the graph) correspond to an attack of pain and sexual intercourse (*Beven, Honour & Stott, Clin. Sci. 36:329, 1969*).



HOW THE BLOOD PRESSURE MONITOR WORKS

This product uses the Oscillometric Measuring method to detect your blood pressure. Before every measurement, the unit establishes a “zero pressure” equivalent to the air pressure.

Then it starts inflating the arm cuff to 180mmHg or higher until it senses that it has blocked your blood in the artery.

After that, the deflation process starts, during which time the unit detects pressure oscillations generated by beat-to-beat pulsatile, which is used to determine the systolic, mean and diastolic pressure, and also your pulse rate. Any motion during this period will result in an incorrect measurement.

After all readings are determined and displayed on the LCD, the measurement is finished and the arm cuff automatically deflates.

SPECIFICATIONS

Application	
Measuring method	Oscillometric / non-invasive
Application	For adult use only
Measurement location	Upper arm
Maximum number of users	2 and guest
Memory	Maximum 100 per user
Dimensions	
Dimensions L x W x H	148 x 103 x 75 mm (5.8 x 4.1 x 3.0 in)
Weight	450g (0.99lb)
Cuff circumference	22-32 cm
Transmission range	6 meters (19.7 feet)
Measuring range	
Pressure	30 to 280 mmHg (4.0 to 37.3 kPa)
Pulse	40 to 199 pulse/min
Power	

Power supply	4 x UM-3 (AA) 1.5V batteries 6V adaptor (separate purchase required)
Power save	Auto power off after 1 minute of no key press or after synchronisation attempt
Operating environment	
Operation	10° C to 40° C (50° F to 104° F)
Storage	-20° C to 60° C (-4° F to 140° F)
Humidity	10% to 83% relative humidity

ABOUT OREGON SCIENTIFIC

Visit our website (www.oregonscientific.com) to learn more about Oregon Scientific products.

For any enquiry, please contact our Customer Services at info@oregonscientific.com.

INFORMATION ABOUT THE CE MARK

This device complies with the European regulations based on the Medical Products Code, and bears the CE mark “CE0120”. The device has been quality inspected according to EU guideline 93/42/EEC and tested in compliance to the “EN1060-1 Non-invasive sphygmomanometers – Part 1, General requirements” and “EN1060-3 Non-invasive sphygmomanometers - Part3: Supplementary requirements for electromechanical blood pressure measuring systems”.

The CE mark further indicates that this blood pressure monitor meets the general requirements for electronic products as regards to resistance to electromagnetic interference. Malfunctioning may however occur in the proximity of extremely strong electromagnetic fields. In accordance with the “Ordinance for Operators of Medical Products”, a technical inspection must be carried out if this device is used for industrial or commercial purposes.

SYMBOL DESCRIPTION(S)



Type B Equipment

Reference

Enterprise Production License No.	Guangdong Food and Drug Monitoring Machinery Production License No. 20010422
Standard Registration Serial No.	YZB/ Guangdong 0108-2008
Standard Enterprise Serial No.	Q/SZK 01-2006

CE 0120

Protected by US. Patent no. 7,211,047

EU-DECLARATION OF CONFORMITY

Hereby, Oregon Scientific, declares that this BLE Upper Arm Blood Pressure Monitor (model: BPU321) is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC. A copy of the signed and dated Declaration of Conformity is available on request via our Oregon Scientific Customer Service.



COUNTRIES RTTE APPROVED COMPLIED
All EU countries, Switzerland **CH**
N

FCC STATEMENT

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

WARNING Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio / TV technician for help.

WARNING This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

DECLARATION OF CONFORMITY

The following information is not to be used as contact for support or sales. Please call our customer service number (listed on our website at www.oregonscientific.com), or on the warranty card for this product) for all inquiries instead.

We

Name: Oregon Scientific, Inc.
Address: 19861 SW 95th Ave. Tualatin,
Oregon 97062 USA
Telephone No.: 1-800-853-8883

declare that the product

Product No.: BPU 321
Product Name: BLE Upper Arm Blood
Pressure Monitor
Manufacturer: IDT Technology Limited
Address: Block C, 9/F, Kaiser Estate,
Phase 1, 41 Man Yue St.,
Hung Hom, Kowloon,
Hong Kong

is in conformity with Part 15 of the FCC Rules.

Operation is subject to the following two conditions: 1) This device may not cause harmful interference. 2) This device must accept any

interference received, including interference that may cause undesired operation.