

Spot-Check Monitor

User Instruction Manual

This manual is written for the PC-200 Spot-Check Monitor.

The manual describes, in accordance with the Spot-Check Monitor's features and requirements, the main structure, functions, specifications, correct methods for transportation, installation, usage, operation, repair, maintenance and storage, etc. as well as the safety procedures to protect both the user and equipment. Refer to the respective chapters for further details.

The manual is published in English and Creative has the ultimate right to explain the Manual.

For the user's convenience, we provide the latest version of PC software for the Spot-Check Monitor, which can be downloaded from our website (www.creative-sz.com). Please consult the manufacturer or local distributor for any issue about the software downloading.

Version of This User Manual: Ver1.3

Product expectancy life: 5 years (no warranty)

Issued Date: December 1st 2016

Manufacturing date: See label on device

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Marks in the Manual:

 **Caution: instructions must be followed to avoid causing harm to the user or patient.**

 **Attention: must be followed to avoid causing damage of the Spot-Check Monitor.**

 **Note: contains important information and advice about operations and application.**

3502-2600005

Instructions for User

Dear Customers,

Thank you for purchasing the PC-200 Spot-Check Monitor. Please read the following information before using the device.

These instructions describe the operating procedures which are to be strictly followed, read these instructions carefully before using the Spot-Check Monitor. Failure to follow these instructions can cause monitoring abnormalities, damage to the monitor and personal injury. The manufacturer is NOT responsible for the safety, reliability and performance issues or any monitoring abnormalities, personal injury and equipment damage due to user's negligence of the operation instructions. The manufacturer's warranty service does not cover such faults.

Contraindication: NO.

Cautions:

- * **To avoid any harm during charging, it is recommended that the device shall not be in use while the battery is charging.**
- * **Check the device, accessories including cable and cuff before use. Stop use if any damage and aging is found.**
- * **Do NOT use the device under flammable gas condition or in any environment that may lead**




to explosion.

- * **The doctor or patient is the intended operator.**
- * **Do not modify this equipment without authorization from the manufacturer.**
- * **The SpO₂, NIBP, Temperature, and ECG (optional) measurements are the frequently used functions.**
- * **Please check the monitor before use to verify that the accessories can function safely and correctly.**
- * **If the user is connected with other devices, the total leakage current may exceed the limitation and as a result this can cause potential danger to the user as a result.**
- * **All combinations of equipment must be in compliance with the standard of IEC 60601-1-1 medical and electric system requirements.**
- * **Although biocompatibility tests have been performed on all the applied parts, under exceptional circumstances, allergic patients may have anaphylaxis. Do NOT use the monitor or patients with anaphylaxis.**
- * **All connecting cables and rubber tubes of the applied parts should be kept away from the patient's neck to prevent suffocation.**
- * **All the parts of the monitor should NOT be replaced at will. If necessary, please use the components provided by the manufacturer or those that are of the same model and**

specifications as the accessories along with the monitor which are provided by the same factory, otherwise, negative effects concerning safety and biocompatibility etc. may be caused.

- * If the monitor falls off accidentally, please do NOT operate it before its safety and technical performance have been tested minutely and positive testing results obtained.
- * When disposing of the monitor and its accessories, national regulations should be followed.
- * The device is forbidden to be used together with other equipments not specified in this Manual.

Attentions:

-  Please store and operate the device in specified temperature, humidity and atmospheric pressure. The excessive ambient environment may affect the measuring result.
-  To avoid damaging device, if the monitor gets wet, please do not start it until it is air-dry.
-  ONLY monitor one person at a time.

Note:


-  In this Manual, "long press" means press and hold key for about 3 seconds; "short press" means press key for less than 1 second.

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CHAPTER 1 OVERVIEW

1.1 Features

- ◇ Small in size, light in weight, easy to carry and operate;
- ◇ Blood pressure, oxygen saturation, pulse rate and temperature etc. can be measured;
- ◇ The device transmits measuring data to the host device via wireless communication;
- ◇ The measured data can be displayed, stored and managed on the host device, such as smart phone, tablet, and computer, which can be Android, iOS and Windows system.

1.2 Product Name and Model

Name: PC-200 Spot-Check Monitor

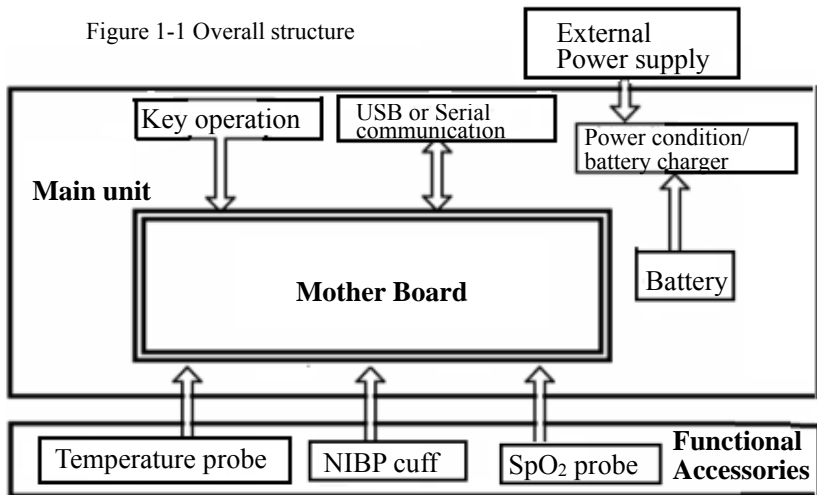
Model and Configuration:

Model	Configuration				Remark
	NIBP	SpO ₂	Pulse Rate	Temperature	
PC-201	√	--	--	--	
PC-202	√	√	√	--	
PC-203	√	√	√	√	
PC-204	√	√	√	√	PC-204 can receive the data from Blood Glucose Meter.

1.6 Overall structure

The Spot-Check Monitor is a device consisting of several physiological parameter measurement modules, so as to perform all-in-one measuring function. The measurement module for each physiological parameter locates at either smart sensor or main unit. The measured data is collected on the mother board, then transmitted to the host device for display and further processing.

Figure 1-1 Overall structure



NIBP measurement: the NIBP measurement module inside the main unit and the related pneumatic system perform NIBP measurement and send data to the mother board.

SpO₂ measurement: the SpO₂ probe contains the measuring circuit to perform the pulse rate and oxygen saturation measurement. The result data is sent to the mother board.

TEMP measurement: the temperature probe contains the measuring circuit to perform the temperature measurement. The result data is sent to the mother board.

CHAPTER 2 INSTALLATION AND CONNECTION

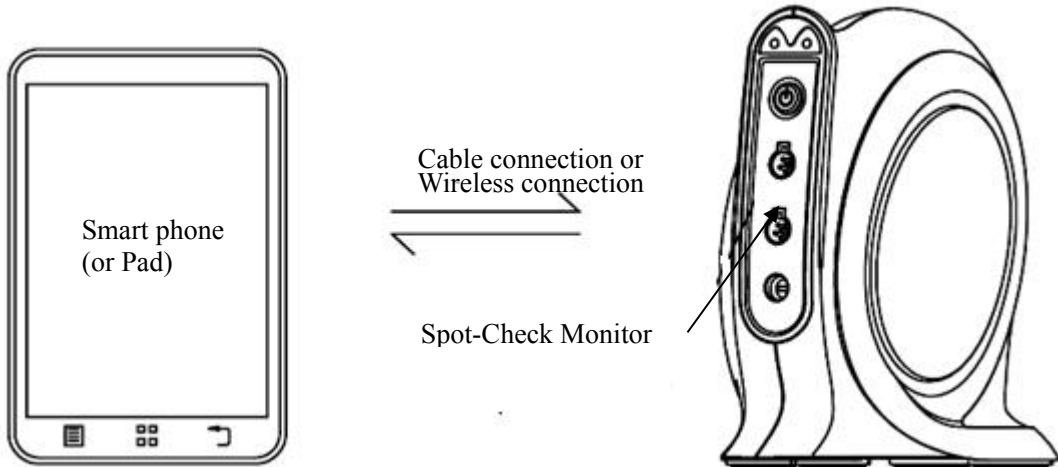


Figure 2.1 Illustration for connection

The measurement result of Spot-Check Monitor can be displayed, stored and managed via the APP software (or the PC software) installed in a host device (such as smart phone, pad, computer etc.), so before making measurement, please install APP software firstly and make sure the APP software connects to the Spot-Check Monitor via wireless successfully. Note: refer to the preface of this User


Manual for details about downloading the PC software.

For the host device with Android system, the APP software is installed in the following procedure:

1. Install an APP software for scanning QR Code by smart phone, such as QuickMark, I-Nigma etc..
2. Run this APP software to scan the QR Code image in Figure 2.2 please focus the QR Code frame while scanning.
3. If successfully scanned, the web link for downloading the APP software "@health.apk" will be displayed on the smart phone.
4. Open this web link by a web browser and download the APP software "@health.apk".



For the host devices with iOS system (such as iPhone, iPad), please follow this procedure to download:

1. On the App Store of the device, type "Shenzhen Creative" into the search bar. Note: if you use an iPad to search, please select "iPhone only" while searching.
2. Once the search results are listed, select the result with @health icon "", then download the corresponding APP software.

Instruction for Measurement

☞ Make sure the APP software successfully connects with the Spot-Check Monitor.

☞ Refer to the manual of the APP software for more detailed information for operation.

You can also download this APP software from the following web link:

<http://www.creative-sz.com/software/SMARTPHONE%20SOFTWARE/Spot%20Check%20Monitor/>

CHAPTER 3 OPERATION INSTRUCTION

3.1 Appearance

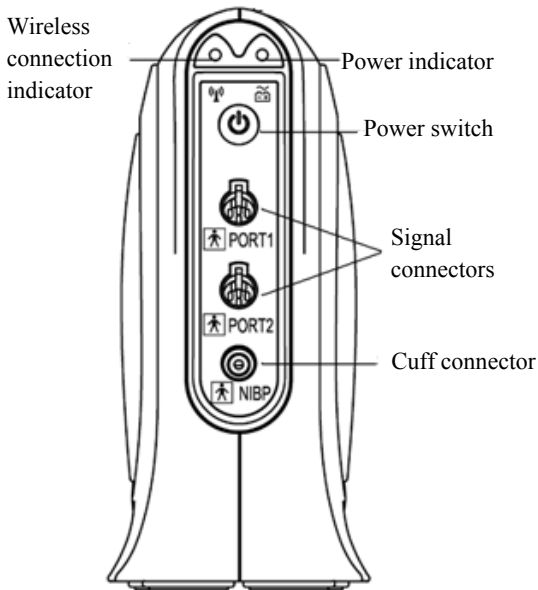


Figure 3.1A Front panel

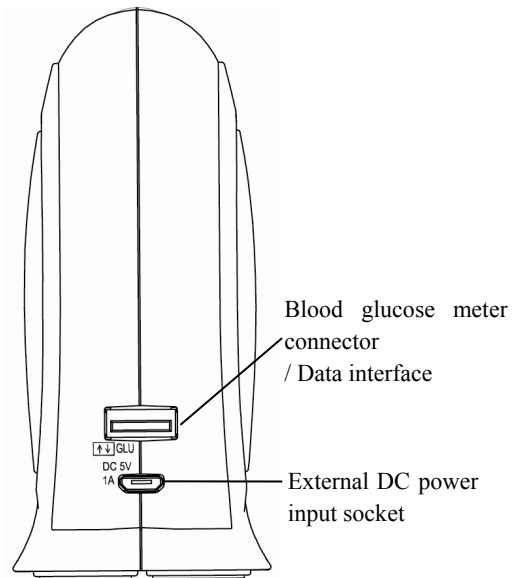


Figure 3.1B Rear panel

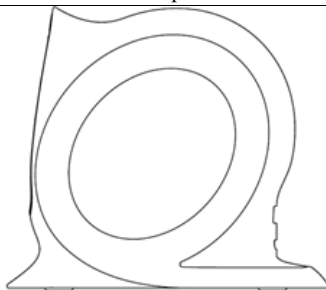




Figure 3.1C Side view

Description:

1. **Indicators:** details see the below table:

Power supply by built-in battery	Wireless connection indicator	Blue flashing	Wireless link is not connected
		Blue light	Wireless link is connected
	Power supply indicator	Yellow light	Battery voltage is normal
		Orange light	Battery voltage is low
Power supply by external DC power (connect to AC power adapter)	Wireless connection indicator	Blue flashing	Wireless link is not connected
		Blue light	Wireless link is connected
	Power supply indicator	Yellow light	Battery is fully charged
		Orange light	Battery is charging

2. **Power switch** : long time press it to power on/off Spot-Check Monitor. When wireless link is connected, short press the power switch can start/cancel NIBP measurement. If the wireless connection fails for over 5 minutes, the device will power off automatically.

 **Attention:** when the device is powered by external DC power adapter, long press the power switch is useless, and the device will power off automatically if disconnecting the power adapter.

3. **Signal connectors:** they are used to connect the SpO₂ sensor, temperature probe and Easy ECG Monitor etc.


4. **Cuff connector:** connecting to cuff for NIBP measurement.

5. **Blood glucose meter connector / data interface:** used to connecting to the Blood Glucose Meter, or as the data interface for real-time data transmission when using together with the PC software.

6. **External DC power input socket:** used to connect to the external AC power adapter, the adapter specification see Section 1.5.

3.2 Taking Measurements

Safety instruction before making measurement:

 Make sure the APP software (or PC software) is successfully connected to the Spot-Check Monitor. Otherwise, the measured result will not be displayed or stored.

- ☞ Please refer to the APP software (or PC software) for displaying the measured result.
- ☞ When using the PC software for displaying measured result, please see the PC software (Spot-Check Monitor Data Manager) User Manual in the software package.

3.2.1 Blood Pressure Measurement

1. Applying the cuff: unfold the cuff and wrap it around the upper arm evenly to the appropriate tightness. The correct cuff position is as shown in figure 3.2.

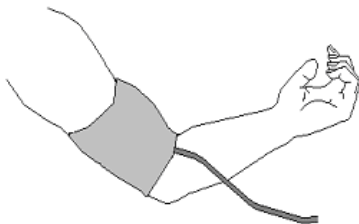












Figure 3.2 Cuff position

2. Connect the hose from the cuff to the connector on the lower-side of the device where marked “NIBP”.
3. Make sure the Spot-Check Monitor is well connected to APP software, then short press the Power switch (on Spot-Check Monitor), or short press NIBP icon "  " (APP software icon on host device),

or short press NIBP icon "" (on PC analytic software) to start blood pressure measurement.

4. The measured result will be displayed by APP software (or PC software) on the screen of the host device.

Safety Instructions for blood pressure measurement

-  Blood pressure measurement is prohibited to those who have severe hemorrhagic tendency or with sickle cell disease, for partial bleeding may cause.
-  Continuous measurements may result in purpura, neuralgia and lack blood.
-  Do NOT wrap the cuff on limbs with transfusion tube or intubations or skin lesion area, otherwise, damages may be caused to the limbs.
-  Measurements should be taken at appropriate intervals. Continuous measurements with too short intervals may lead to pressed arm, reduced blood flow low blood pressure, and result in inaccurate reading of blood pressure.
-  Before use, empty the cuff until there is no residual air inside it to ensure accurate measurement.
-  Locate the cuff marked "ARTERY" at a location where the clearest pulsation of brachial artery is observed.
-  Do NOT allow the cuff to twist or bend.
-  The patient should sit or lay down with calm condition and make the cuff and the patient's heart on

the same level to get accurate measurement. Other positions may lead to inaccurate measurement.

3.2.2 SpO₂ Measurement

Operation procedure:

1. Connect the smart SpO₂ probe to the connector on the signal connector (with mark of "PORT1" or "PORT2").
2. The red light blinking light inside the clip of the SpO₂ probe indicates successful connection.
3. Insert one finger (index finger is preferred, the nail should be not too long) into the clip of the probe according to the finger mark shown as below.
4. The device will begin to take the measurement.
5. The measured result will be displayed by APP software (or PC software) on the screen of the host device.

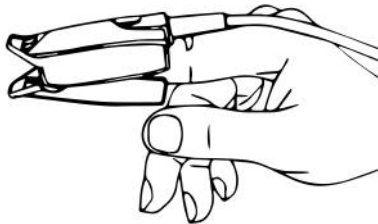



Figure 3.3 demonstration for SpO₂ probe

Safety instruction for SpO₂ measurement

- Do NOT put the SpO₂ probe and pressure cuff on the same limb, otherwise the blood pressure measurement may affect the SpO₂ measurement.
- 🔔 Please do NOT use nail polisher or other cosmetic product on the nail.
- 🔔 The fingernail should be of normal length.

 The SpO₂ sensor cannot be immersed into water, liquid or cleanser.

3.2.3 Temperature Measurement

The Spot-Check Monitor is provided with an infrared temperature probe which is a delicate transducer. To operate please follow these steps and procedures in operation. Failure to accurately operate may cause damage to the probes.

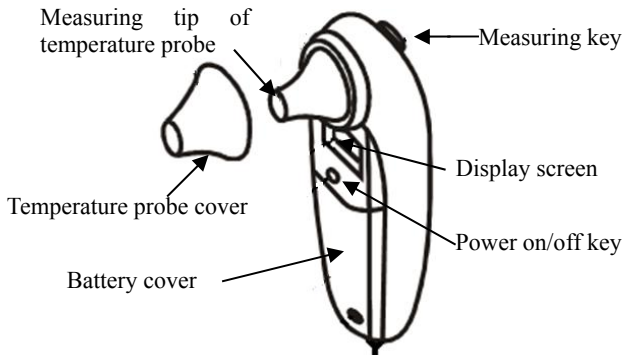


Figure 3.4A the infrared temperature probe

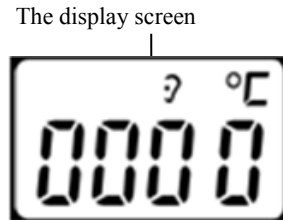


Figure 3.4B

Operation procedure:

1. Connect the infrared temperature probe to the signal connector (marked "PORT1" or "PORT2").
2. When the screen shows as figure 3.4B, a short beep and the blinking temperature unit "°C" means the user can begin to take the measurement.

3. Insert the tip of the temperature probe into the earhole and press the measuring key to start the measurement. A short beep means the measurement has finished and the result will be displayed on the local screen and the screen of the host device.

Description:

- When inserting measuring tip of temperature probe into the earhole, please put it deep enough to the ear, then short press the measuring key.
- If the temperature probe detects a hardware failure, the display screen on the infrared temperature probe will show "Err" and will not enter into measuring mode.
- If you need to make a measurement once more, please press the measuring key and repeat step 2 and step 3.
- Normal body temperature varies depending on the position/area the measurement is taken from. The following table shows the varying = range of the different body positions.

Temperature varying range at different body positions:

Arm	34.7 ~ 37.3 °C
Oral	35.5 ~ 37.5 °C
Rectal	36.6 ~ 38.0 °C
Ear	35.8 ~ 38.0 °C

Besides, each person has his/her own normal temperature value, and the normal temperature value also changes at different time within a day. Therefore, it's recommended to report your doctor not only the temperature value, but also the measuring position, if possible you may provide your own

normal temperature range to your doctor for reference.

Safety Instruction for Temperature Measurement

- 🔔 Do NOT take a measurement when the patient is moving.
- 🔔 Patients with tympanitis and otitis problems should NOT use this device for measuring.
- 🔔 When the infrared temperature probe is connected to the device, the infrared temperature probe will consecutively be at power-on status, therefore pressing the power on/off key on the temperature probe will not cause any effect.

3.2.4 Blood Glucose Measurement (Optional)

Note: there are two models of Blood Glucose Meter for optional: Super Check (Smartest Persona) Glucose Meter and Yicheng Glucose Meter, please see the below description for details.

Preparing:

1. Wash the hands with soap and waiting for drying.
2. Take out the glucose meter, blood-collecting needle (lancing device), blood-collecting pinhead (blood lancet) and test strip, install the pinhead to the blood-collecting needle.

Description for Yicheng Glucose Meter

Take out the blood-collecting needle and install the pinhead, select level 3 of the prick depth (there are 5 levels in total, the level 5 is deepest). Then pull the shuttle of the needle slightly. As shown in figure 3.5.

User Manual for Spot-Check Monitor

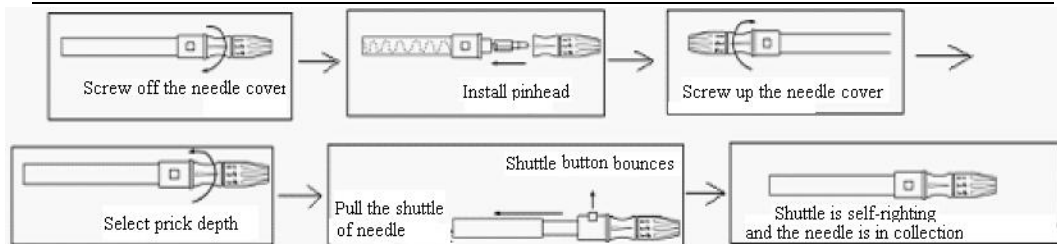


Figure 3.5A Install the pinhead

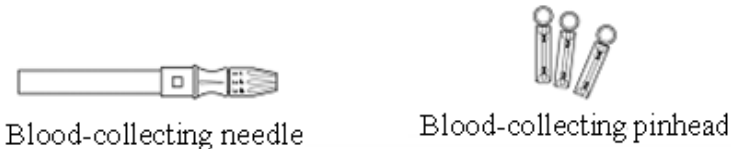



Figure 3.5B Blood-collecting needle and pinhead

Operation procedure for Yicheng Glucose Meter:

1. Connect the **Yicheng** Glucose Meter to the signal connector on the Spot-Check Monitor with the mark of "GLU" ("").
2. Power on the Glucose Meter, then the "Calibrating" message blinks on the screen which reminds the user to check if the calibration code on device is the same as what on the packaging. If not, please

long pressing the switch key of the Glucose Meter to shut off it, and change the calibration code.

3. Taking a new test strip to insert into the testing port of the device when the "Insert" message appears on the screen. Please do not touch the reaction area of the test strip and testing port.
4. Disinfect the finger needed to test with alcohol and waiting for drying.
5. Touch the pinhead on the finger and press the shuttle button of the needle. Do not use force to press the finger when collecting blood.
6. Please put the blood sample on the reaction area of the test strip when the "Receive" message appears on the screen. Please note that the reaction area should be full of blood at one time. It is forbidden to put blood on the reaction area repeatedly.
7. The test result will be displayed in 5 seconds on the screen of APP software (or PC software) of the host device. The default unit is mmol/L.

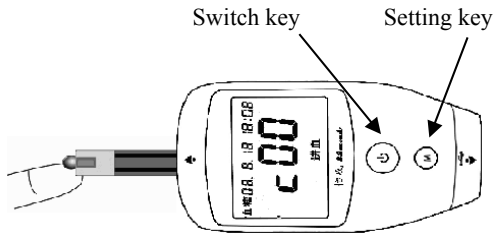



Figure 3.5C Blood glucose measurement

Description for Super Check (Smartest Persona) Glucose Meter

By use of the optional link cable for Glucose Meter, connect the Glucose Meter to the signal connector on the Spot-Check Monitor with the mark of "GLU" ("  ").

Appearance and key functions of the Glucose Meter:

1. Test strip slot: when the strip is inserted into the slot, the meter will automatically turn on.
2. LCD display.
3. M key: power on/off, also for memory recalling mode.
4. C key: Setting mode. Please refer to User Guide for "Blood Glucose Monitoring System" for detailed function descriptions.
5. Data interface: can be used to connect the Spot-Check Monitor for data transmitting.
6. Battery compartment: insert 2 AAA size batteries with the correct polarities.
7. Ejector: remove the used strip.

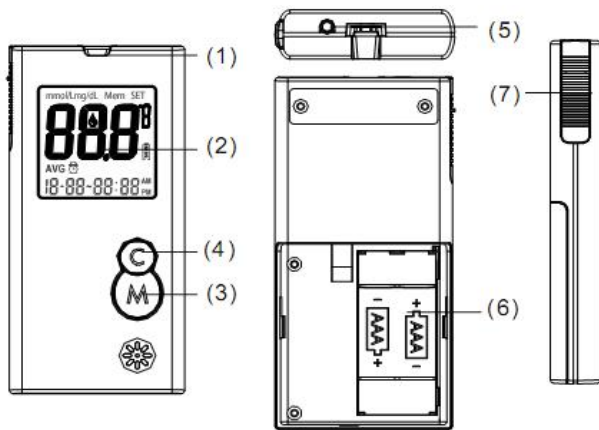


Figure 3.6A Appearance and functions of the Glucose Meter

Operations for the Lancing Device and Blood Lancet

1. Unscrew the lancing device by turning the end cap counter clockwise.
2. Insert a new lancet firmly into the lancet holder.
3. Twist off the protective tip of the lancet.
4. Close the end cap of the lancing device. Slide into the locking position. Refer to figure 3.6B

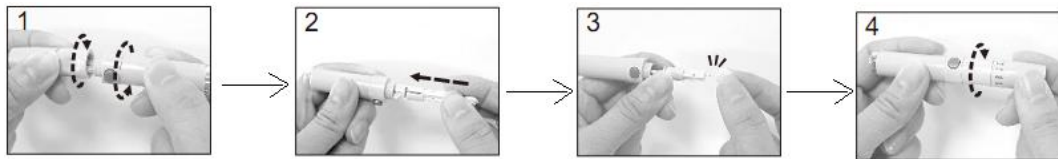


Figure 3.6B Operation for Lancing Device and Blood Lancet

Operation procedure for Super Check (Smartest Persona) Glucose Meter:

1. While the meter is off, insert a new test strip into the meter. The Meter will automatically turn on and a blinking blood icon will be displayed on the screen.
2. Lance the finger and let a blood drop form.
3. When the blood drop icon is still blinking on the meter, apply the blood drop to the front edge of the test strip. The meter will display the test result after 6 seconds.
4. Remove the used strips by hand or by pushing the ejector and the meter will turn off and display "OFF" on the screen.

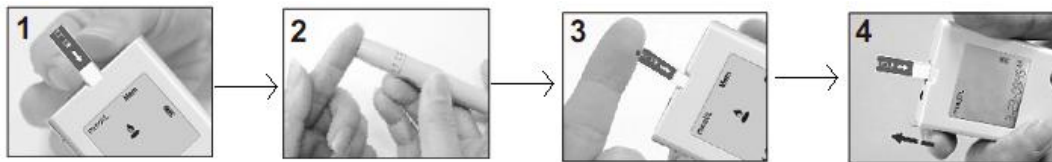


Figure 3.6C Testing instruction


Refer to the provided user guide for the "Blood Glucose Monitoring System" for further detailed instructions.

Safety Instruction for Blood Glucose Measurement

- 🔔 The provided test strips should be used with the corresponding Glucose Meter.
- 🔔 Do NOT clean or disinfect the finger with iodine.
- 🔔 The calibration code must be the same with that on the packaging.
- 🔔 The Glucose Meter will automatically switch to stand-by mode if a test strip is not inserted for 1minute.
- 🔔 The test strip will draw blood at one end automatically.
- 🔔 Do NOT press or scrape the bleeding finger.
- 🔔 The test strip should be used as soon as possible after unpacking, and the unused strips should be kept in an airtight bottle.
- 🔔 Only take one measurement per minute.
- 👉 The blood-collect pinhead is a disposable item. It's recommended to insert it back to the plastic

cover and throw it into the specific dustbin.

3.2.5 ECG Measurement (Optional)

1. Connect the Easy ECG Monitor to the signal connector.
2. Choose one of the methods (refer to figure 3.7B/C/D/E) to take the ECG measurement.
3. When the Easy ECG Monitor and Spot-Check Monitor are successful connected, hold the Easy ECG Monitor as shown in figure 3.7B, press the "Start" button on the Easy ECG Monitor or press ECG icon"  "(APP software icon on the host device, or icon on PC software) to activate the ECG measurement.
4. 30 seconds later, the result will display on the screen of the host device.

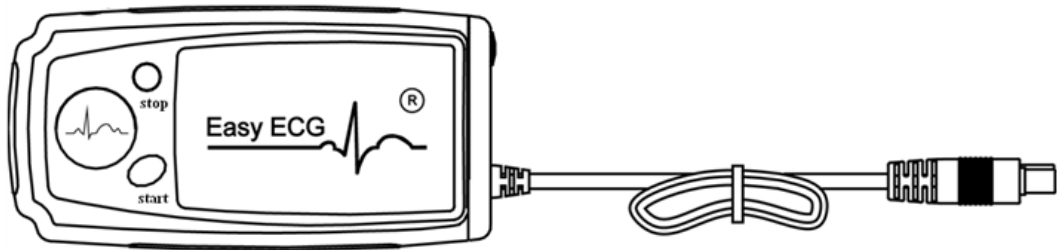


Figure 3.7A Easy ECG Monitor

- Start / Stop: Start/Stop ECG measurement.



Figure 3.7B
Palm measurement

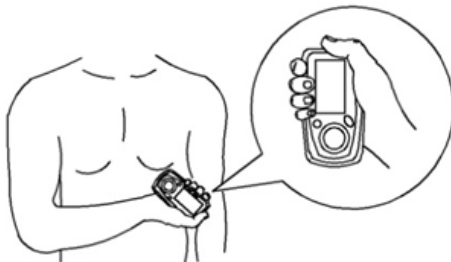


Figure 3.7C
Chest measurement



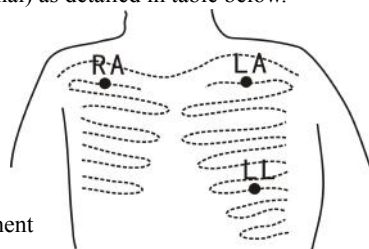
Figure 3.7D
Leg measurement

To obtain a clear and high quality ECG signal, the lead wire measurement can be used. Connect the lead wire firmly to the lead wire socket of the device. Place the electrodes and connect the lead wires as shown in Figure 3.7E to obtain the Lead II ECG signal. If you want to measure Lead I and Lead III ECG signal, connect the lead wires to the electrodes (note: lead wire is optional) as detailed in table below.

➤ **Safety Instructions for ECG Measurement**

1. Check the device to make sure that there is no visible damage that may affect the user's safety and the measurement performance. , If there is obvious damage, stop using the unit.
2. Do NOT make a diagnosis of oneself according to the

Figure 3.7E Lead wire measurement



measurement and measurement results, always consult a doctor if abnormal information is presented frequently.

3. If poor ECG signal is obtained when making palm measurement, then try it again after washing hand with water wipe it up.
4. Do NOT use the device in a bathroom or humid environments.

Table 1 ECG Leads Configuration and Electrodes Location

Electrode Name& Color Electrode Location	Lead	Lead I	Lead II	Lead III
The intersection between the centerline of the right clavicle and Rib 2.	R (Red)/ RA(White)	R (Red)/ RA(White)	L (Yellow)/ LA(Black)	
The intersection between the centerline of the left clavicle and Rib 2.	F (Green)/ LL(Red)	L (Yellow)/ LA(Black)	R (Red)/ RA(White)	
Between the left edge of the breast bone and Rib 5	L(Yellow)/ LA(Black)	F (Green)/ LL(Red)	F (Green)/ LL(Red)	

3.3 Pressure Precision Verification Method

Operation procedure:

1. Pneumatic Path Connection

- A). Remove the 4 black rubber pads from the battery compartment on the back of the Spot-Check Monitor, as shown in figure 3.8A. The air connector plugs are under the black rubber pads, as shown in figure 3.8B. (Note: there are two plugs and two screws under the black rubber pads).
- B). Take an air connector plug from the battery cover. (Note: there are two plugs but you will only need one.)
- C). Take the tube plug from cuff connector, and put the air connector plug into the front of tube plug, as shown in figure 3.8C.
- D). Take a piece of air tube (0.5~1m long, $\Phi 8.0\text{mm}/\Phi 4.0\text{mm}$ diameter).
- E). Attach the air connector with a connector plug on to one end of the air tube. Connect the other end to the 3-way connector. Connect the other 2 ends of the 3-way connector to a pressure meter as shown in Figure 3.8D.

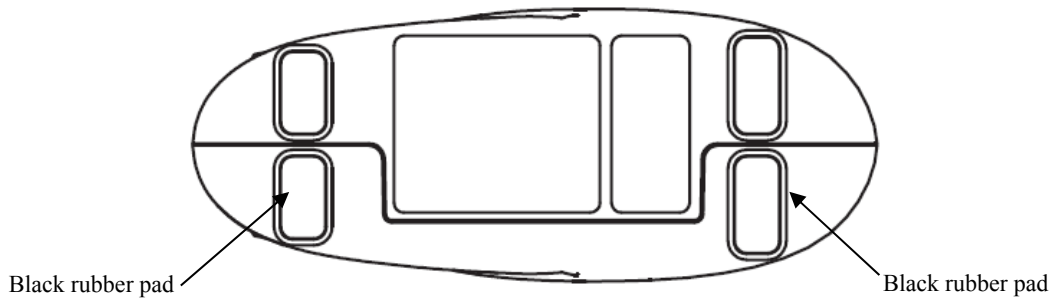


Figure 3.8A

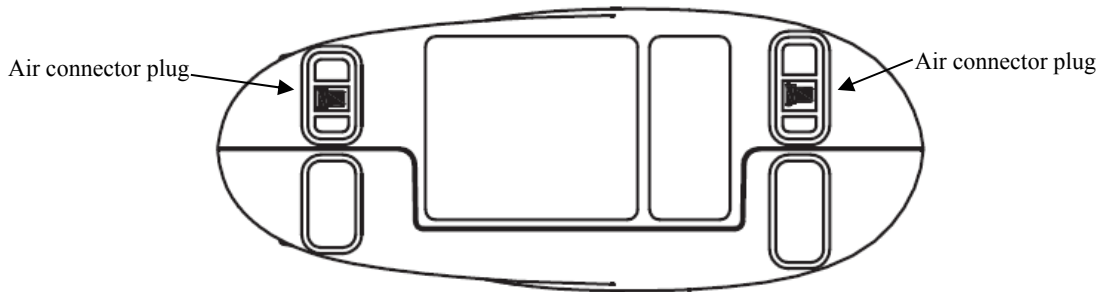


Figure 3.8B

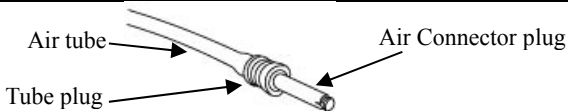


Figure 3.8C Connection among air tube, tube plug and Air connector plug

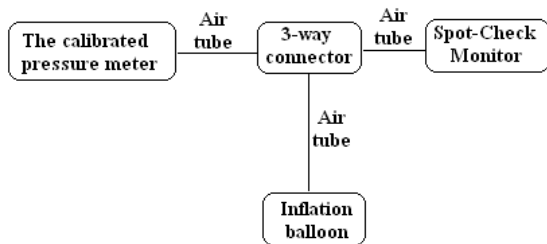
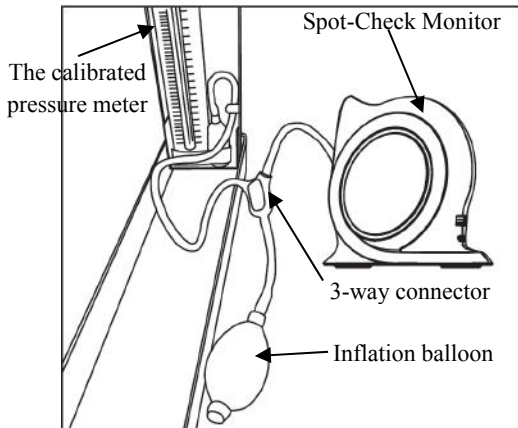



Figure 3.8D Pneumatic path connection

2. Press "  " button on data receiving screen of PC software to enter the Pressure Precision Check Mode.

Note: Pressure Precision Check can be only performed by the professional technician.

Start inflation, and check if the pressure reading on screen of PC software matches the pressure meter reading. The tolerance is $\leq \pm 3\text{mmHg}$.

CHAPTER 4 TECHNICAL SPECIFICATIONS

4.1 Blood Pressure Measurement

1. Technique: Oscillometric
2. Pressure measuring rang: 0mmHg~300mmHg(39.9kPa)
3. Blood pressure measurement range:
SYS: 60mmHg~240mmHg DIA: 30mmHg~180mmHg

4.2 SpO₂ Measurement

1. Technique: optical with dual-wavelength
Wavelength: Red light: 663nm, Infrared light: 890nm
Maximal optical output power: less than 2mW maximum average
2. SpO₂ displayed range: 35%~100%
3. SpO₂ measuring accuracy: A_{rms} is not greater than 3% for SpO₂ range from 70% to 100%
Note: A_{rms} is defined as root-mean-square value of deviation according to ISO 9919

4.3 Pulse Rate Measurement

1. PR measuring range: 30bpm~240bpm
2. Pulse rate measuring accuracy: ± 2 bpm or $\pm 2\%$, which is greater

4.4 Temperature Measurement

1. Measuring range: $32.0^{\circ}\text{C}\sim 43.0^{\circ}\text{C}$
2. Measuring accuracy: $\pm 0.2^{\circ}\text{C}$ is for TEMP range from 35.0°C to 42.0°C , and $\pm 0.3^{\circ}\text{C}$ is for the rest.

4.5 Blood Glucose Measurement (Optional)

1. Technique: Amperometric, glucose oxidase
2. Measuring range: $1.1\text{mmol/L}\sim 33.3\text{mmol/L}$ ($20\sim 600\text{mg/dL}$)
3. Measuring time: 6 seconds

4.6 ECG Measurement (Optional)

1. Heart Rate measuring range: 30bpm~240bpm
2. Heart Rate measuring accuracy: ± 2 bpm or $\pm 2\%$ whichever is greater
3. Display scale: $5.0\text{mm/mV}\pm 10\%$

4. Common-mode rejection ratio (CMRR): $\geq 60\text{dB}$

4.7 Dimension and Weight

Dimension: $117.6\text{mm(L)} \times 104.1\text{mm(H)} \times 46.8\text{mm(W)}$

Gross Weight: 220g

CHAPTER 5 TROUBLESHOOTING

Trouble	Possible reason	Solution
Cannot turn on the device	The built-in battery is drained	Recharging by connecting the power supply adapter
	Some parts provided by others are inserted to the connector	Remove the related parts and try again.
No blood pressure result	The cuff is wrapped around the arm incorrectly	Wrap the cuff around the arm correctly
	The windpipe is not correctly inserted to the NIBP jack	Insert the windpipe to the NIBP jack
No SpO ₂ result	The SpO ₂ probe is not plugged to the general used connector	Plug the SpO ₂ probe into the general used connector
No TEMP result	The Temperature probe is not well plugged to the general used connector	Plug the temperature probe into the general used connector
	Taking measurements before "READY" appears on the temperature probe screen	Do not take a measurement until "C" appears on the temperature probe screen

CHAPTER 6 PACKING LIST

Item	Description	Quantity	Check
1	Spot-Check Monitor	One piece	OK
2	Handbag	One piece	OK
3	User Manual	One piece	OK
4	Cuff	One piece	OK
5	USB cable	One piece	OK
6	Charger (with USB socket)	One piece	Optional
7	Temperature probe	One piece	
8	Smart SpO ₂ probe	One piece	
9	Glucose Meter (with lancing device and link cable)	One set	
10	Blood glucose test strips (with blood lances)	One pack	
11	Spot-Check Monitor Data Manager Software	One set	
12	Easy ECG Monitor	One piece	
13	ECG lead wire (snap)	One piece	
14	Disposable adhesive ECG electrodes	Six pieces	

CHAPTER 7 MAINTENANCE AND SERVICE

The Spot-Check Monitor should be properly maintained to ensure its maximum performance and long service life. In addition to the warranty period, the company also offers long-term service for each customer. It is important that the user reads and follows the operation instructions, important information and maintenance measures.

7.1 Technical Maintenance

7.1.1 Daily Examination

Before using the monitor, the following checks should be carried out:

- Check the monitor for any mechanical damage;
- Inspect the exposed parts and the inserted parts of all the leads, and the accessories;
- Examine all the functions of the monitor that are likely to be used for patient monitoring, and ensure that it is in good working condition.

If there is any indication of damage, or if damage is accurately proven, do not use the device. Contact your supplier for advice and to reach a satisfaction solution.

7.1.2 Routine Maintenance


- ☛ If the hospital fails to carry out a satisfactory maintenance program on the monitor, it may be disabled and cause harm to the patient.

- If there is any indication of cable and transducer damage or they deterioration or damage, please do not use.
- The accuracy of SpO₂ function has been calibrated before vending, it is not unnecessary to recalibrate it. If the user needs to verify the SpO₂ function the SpO₂ simulator can be used, such as the “Index 2” series from Fluke Biomedical Inc.
- 🔔 Any adjustable units in the device such as potentiometer are not allowed to adjust without permission to avoid unnecessary failures that affect normal application.
- 🔔 It's recommended to use the battery at least once a month to ensure a strong power capacity and long service life, and recharge once the power has completely run out.









7.1.3 Battery Maintenance







- Please pay attention to the polarity of the battery, do NOT insert into the battery compartment with reversed polarities.
- Do NOT use the battery manufactured by other companies, if being inserted, the device may be damaged.
- In order to avoid damaging the battery, do NOT use other power supply device to charge the battery.
- After use, dispose of the battery according to local regulations, do NOT throw into fire.
- Do NOT hit or strike the battery with force.
- Do NOT use this battery in other devices.
- Do NOT use this battery below -20°C or above 60°C .
- 🔔 In order to maintain the battery power and prolong the battery lifetime, please charge the battery routinely. Regularly, charge the battery every 3 months even if the device has not been used for more than 3 months.
- 🔔 Only use the battery with the specification recommended by the manufacturer.
- 🔔 Whether the monitor is on or off, the built-in battery will charge as long as the monitor is connected to an AC adapter and the AC power is on. When the battery is full, it will stop charging to avoid causing any damage. If the monitor is connected to an AC adapter and the AC power is on,

it will use the AC power, but when the AC power is off, the battery power will be used. Priority of using the AC power and power switch between AC and battery is automatic and seamless.

 If the battery is damaged, please replace it with a battery with "CCC" or "CE" mark. The model and specifications of the battery should be the same as the original battery. The user must ensure that the battery meets all applicable safety codes. The user can also contact the distributor for service.








7.2 Cleaning and Disinfection of the Main Unit

-  Switch off the monitor and disconnect the power cord before cleaning.
-  Keep the monitor free from dust.
-  It is recommended to regularly clean the outer shell and screen of the monitor. Only use a non-corrosive cleanser such as clear water.
-  Wipe the surface of the monitor and transducers with an alcohol impregnated wipe, and dry with a clean cloth or just air-dry.
-  Dilute the cleaner.
-  Do NOT use scrubbing materials.
-  The monitor can be disinfected. To avoid damage do not let liquid cleaner flow into the connector jack of the monitor.
-  Clean the exterior of the connector only.

-  Do NOT let any liquid flow into the shell or any other parts of the monitor.
-  Do NOT leave any residue liquid or disinfectant on the surface of the monitor.
-  Do NOT perform high pressure sterilization on the monitor.
-  Do NOT immerse any parts of the monitor or its accessories in the liquid.
-  If the monitor accidentally becomes wet, it should be thoroughly dried before use. The rear cover can be removed by a qualified service technician to verify the absence of water.
-  Do NOT pour disinfectant on the monitor's surface while disinfecting.

7.3 Cleaning and Disinfection of Accessories

It is recommended to clean and disinfect the accessories (excluding the SpO₂ probe) with a piece of gauze soaked in 75% Alcohol or 70% Isopropanol before using.

-  Do not use damaged accessories.
-  Accessories cannot be entirely immersed into water, liquid or cleanser.
-  Do NOT use radiation, steam or epoxyethane to disinfect accessories.
-  Wipe off any remaining residue of alcohol or isopropanol after disinfection.
-  Disinfect the temperature sensitive probe with alcohol.
-  Wipe the thermometer clean with a mild cloth if it is dirtied.
-  Wipe the thermometer clean and keep it in the packaging for maintenance after using.

7.4 Storage

If the equipment will not be used for a long time period of time, wipe it clean and return it to the packaging. Store in a dry well ventilated place free from dust and corrosive gases.

Storage environment: Ambient temperature: $-20^{\circ}\text{C}\sim 60^{\circ}\text{C}$

Relative humidity: $\leq 93\%$

Atmospheric pressure: $53.0\text{kPa}\sim 106.0\text{kPa}$

7.5 Transportation

The monitor should be transported by land (vehicle or railway) or air in accordance with the contractual terms. Do NOT hit or drop with force.

Quality Certificate

Name: Spot-Check Monitor








Model: _____

Date: _____

QA: _____

This product has been inspected in accordance with
the standards specified in the User Manual
Shenzhen Creative Industry Co., Ltd.

Symbols

Symbol	Description	Symbol	Description
	Power switch / Shortcut key for NIBP measurement	DC 5V 1A	External DC power input
	Type BF applied parts	GLU 	Blood glucose meter connector
	Refer to Manual		Power supply
	Wireless	SN	Serial Number
NIBP	NIBP cuff connector		Class II device
PORT1 / PORT2	The signal connector (for connecting to temperature probe, SpO ₂ probe)		

Warranty Clause

1. This monitor has a warranty of 12 months (including rechargeable battery) and 6-month for all accessories, from the date of purchase.
2. It is recommended to use the original packing boxes and packing materials when returning for repair or maintenance
3. Please send the device to the specified place for repair.
4. The following will invalidate the warranty:
 - ◇ If the monitor is damaged due to misuse or incorrect operation (i.e. without the user manual instruction) The monitor is damaged due to incorrect connection with another instrument
 - ◇ The monitor is accidentally damaged, dropped or immersed into water
 - ◇ If the user modifies or changes the monitor without written authority of the company
 - ◇ If the serial number is deliberately damaged, torn off or unreadable
5. If the monitor is non-functional outside of the warranty period, the manufacturer or distributor will offer an estimate for repair.

Warranty

Device Information:			
Name		Model	
Serial Number:			
Date		Shop	
User Information:			
Name		Postcode	
Tel:			
Add:			
Repair Record			
Date	Repairing Item	Personnel	

Patent

State Intellectual Property Office of the P.R.C. patented and certificated Creative Spot-Check Monitor on March 26th, 2014.

Patent Number: ZL 2013 2 0615696.X

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