

KAIXIN

BVT03 Handheld Bladder Scanner

Smart Terminal Application APP

User's Manual

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Introduction

Thank you for purchasing BVT03 Handheld Bladder Scanner Smart Terminal Application APP.

Users shall carefully read through this manual and fully understand the text before operating the product.

The user's manual preparation date: March 4, 2024, Version: V1.00

Software release version: V1

1 Overview

The Smart Terminal Application APP (hereinafter referred to as the "APP") developed by our company needs to be used in conjunction with the BVT03 handheld bladder scanner, and the user needs to install the APP on an Android mobile phone or tablet computer (hereinafter referred to as the "mobile device").

The APP can display synchronously with the BVT03 main unit through Wi-Fi, and transfer the data from the main unit to the APP; Use APP as terminal to synchronize patient information, setting information, etc.

This article mainly uses Android mobile phone as an example to illustrate.

1.1 Performance indicators of mobile computing terminals

1.1.1 Software operating environment

Android version ≥ 10.0

Running memory $\geq 8\text{GB}$

1.1.2 Performance requirements

1. Detection depth
Detection depth $\geq 160\text{mm}$
2. Lateral resolution
Lateral resolution $\leq 3\text{mm}$ (depth $\leq 80\text{mm}$)
3. Axial resolution
Axial resolution $\leq 2\text{mm}$ (depth $\leq 80\text{mm}$)
4. Urine volume measurement range: $0\text{mL}-999\text{mL}$
5. Urine volume measurement accuracy: $0\text{mL}-99\text{mL}$ measurement error $\pm 7.5\%$;
 $100\text{mL}-999\text{mL}$ measurement error $\pm 7.5\%$
6. The results of urine volume measurement should be displayed in milliliters (mL).
7. Cybersecurity capability
User access control
User identity authentication method: user name and password.
User type: operator.
Permissions: the operator uses a username and password to access.
8. Display limits
 - a) Screen size: ≥ 6.4 inch
 - b) Resolution: $\geq 2310 \times 1080$
 - c) Brightness: $\geq 600\text{nits}$
9. Impact of ambient light
It has the function of environmental light detection and display brightness correction.
10. Limited battery capacity
Battery life
 - a) Capacity: $\geq 4000\text{mAh}$
 - b) Battery life: $\geq 2.5\text{h}$
 - c) There is a reminder of remaining power.
11. Operating environment self-check
The smart terminal application APP should have the function of startup self-checking the operating environment (software version, software running memory).

2 Installation





2.1 Preparation before using the APP

2.1.1 Software installation and Permission settings

1. Obtain the apk file and install it on the Android phone.
2. When installing apk, if the installation block or dialog box appears, always click Allow to complete the APP installation.

If the installation is not successful, uninstall and reinstall it.

2.1.2 Connecting the main unit and the APP

1. Turn on the main unit to ensure that the scanning result interface is displayed.
2. Set the WLAN of the phone. Go to Settings of phone, open WLAN, select the network identifier of the main unit in the available WLAN list, such as "KXBBVT000001", and tap Connect.
3. After the WLAN connection is successful, tap the APP icon " " to enter the APP interface. When the Wi-Fi icon at the top changes from a blinking white " " icon to a steady green " " icon, it indicates that the APP is successfully connected to the main unit. The Wi-Fi icon  is displayed in the lower right corner of the main unit screen.

 **Attention:** After the main unit is connected to the mobile device, if appear “No Internet access” when you open the APP for the first time, please choose to continue to use the current network connection.

2.1.3 Connecting the main unit, multifunctional dock, and APP

1. Connection sequence: main unit, multifunctional dock, APP.
2. Connection steps:
 - a) Turn on the main unit to ensure that the scanning result interface is displayed;
 - b) Multifunctional dock connects to the main unit through code scanning;
 - c) Open the WLAN of the phone and connect the main unit to the APP.

3 Operation guide

3.1 Login


3.1.1 Login

1. Open the APP, the register screen is displayed. Enter the user name, password, confirmed password, tap OK to complete the register and enter the login screen;
The user name and password are composed of letters "A-z" and digits "0-9" and can contain up to 14 characters.
2. On the login screen, enter the correct user name and password, and tap OK to enter the main screen.

3.1.2 Modify user info


1. On the login screen, first enter the correct user name and password, then tap Modify user info to enter modify screen;
2. On the modify screen, enter the user name, password, confirmed password, tap OK to enter the login screen;
The user name and password are composed of letters "A-z" and digits "0-9" and can contain up to 14 characters.
3. On the login screen, enter the changed user name and password, and tap OK to enter the main screen.

3.2 System Setup


On the scanning result screen, tap  to enter the System Setup screen. On the System Setup screen, you can perform the following settings, also view the software full version, release version, and instructions.

Note: Except for the theme, the system information of the APP will be directly synchronized with the main unit after setting.


3.2.1 Mode selection

1. Tap  to enter the System Setup screen;
2. In the Basic Setup option, tap the "Easy", "EXP" or "Inte" menu ("Easy", "Expert" or "intelligent"), the menu is highlighted for selected state;
3. Tap OK to save the settings and exit the System Setup screen;
4. Tap Quit to exit the System Setup screen without saving the settings.

3.2.2 Language setting

1. Tap  to enter the System Setup screen;
2. In the Basic Setup option, tap the Language drop-down menu to select the language;
3. Tap OK to save the settings and exit the System Setup screen;
4. Tap Quit to exit the System Setup screen without saving the settings.


3.2.3 Volume tip setting

1. Tap  to enter the System Setup screen;
2. In the Basic Setup option, tap the Vol Tip input box to enter the volume tip value. The range of volume tip is from 0 to 999 (unit: mL). The default value is 300mL;
3. Tap OK to save the settings and exit the System Setup screen;


4. Tap Quit to exit the System Setup screen without saving the settings.

Note: When the measured bladder volume exceeds the set tip volume, the main unit will issue continuous “Didi” tip tone; if not exceeds the set tip value, the tip tone will not appear.


3.2.4 Voice setting

1. Tap  to enter the System Setup screen;
2. In the Basic Setup option, tap the Voice drop-down menu to select a voice state;
The voice state can be "Off", "Low", "Middle", and "High".
3. Tap OK to save the settings and exit the System Setup screen;
4. Tap Quit to exit the System Setup screen without saving the settings.


3.2.5 Theme setting

1. Tap  to enter the System Setup screen;
2. In the Basic Setup option, tap the Theme drop-down menu to select a user interface theme;
The theme can be 0 or 1. 0: dark theme 1: light theme
3. Tap OK to save the settings and exit the System Setup screen;
4. Tap Quit to exit the System Setup screen without saving the settings.


3.2.6 Date format setting

1. Tap  to enter the System Setup screen;
2. In the Time Setup option, tap the Format drop-down menu to select the "Y/M/D", "M/D/Y" or "D/M/Y" date format;
3. Tap OK to save the settings and exit the System Setup screen;
4. Tap Quit to exit the System Setup screen without saving the settings.


3.2.7 View software version


1. Tap  to enter the System Setup screen;
2. Tap About option;
3. In software versions, view the full and release versions of the software.

3.2.8 View instructions

1. Tap  to enter the System Setup screen;
2. Tap About option;
3. Tap "Instruction Manual" to view the instructions.


3.3 Enter Patient Information

On the scanning result screen, tap  to enter the Patient Information screen. On the Patient Information screen, you can set the patient ID, name and age.


1. Tap  to enter the Patient Information screen;
2. Tap the input box and enter "ID, Name, Age" with the keyboard at the bottom of the screen;
ID is composed of digits "0-9" and up to 10 characters.
Name is composed of uppercase letters "A-Z" and digits "0-9" and can contain up to 10 characters.
The age range is 1 to 100.
3. Tap OK to save the settings and exit the Patient Information screen;
4. Tap Quit to exit the Patient Information screen without saving the settings.










3.4 Bladder volume measurement

1. After the measurement results of the main unit are synchronized to the APP, confirm the scanning results.
 - 1) If the measured result shows “0000”, it indicates no detectable result, you need to re-measure.
 - 2) Check the bladder projection. If the projection was approximately ellipse, basically in the center, it indicates that the position of probe is correct and the measurement result is valid; otherwise it should adjust the position of acoustic head and re-measurement.
2. Automatic tracing

In the easy mode, if the bladder projection has a long spike or open notch, tap  to automatically retrace, the projection will be closer to the ellipse and the bladder volume value will be updated automatically.


3. Manual tracing

In the expert mode, if there is a large error in the measurement results, observe which group of images has the wrong bladder trace, tap  to manually trace, and the bladder volume value will be automatically updated after correction. The manual tracing method is as follows:

- 1) Selecting a image: tap  and  to switch the previous/next image, select the image with large trace error;
 - 2) Start drawing: tap , select the icon , that is, enter the editing state of manual tracing, start manually drawing;
 - 3) Manual drawing: In editing state, trace points clockwise along the boundaries of the bladder region. You cannot cross the line, the number of points should be between 3 and 32, and the automatic line between points;
 - 4) Undo the drawing: if the position of the point is incorrect, tap  to gradually undo the previous step;
 - 5) Finish drawing: tap  again to close the editing state, and the first and last point in the bladder area are automatically connected to form a closed area to complete the drawing;
 - 6) Exit: tap  to exit the work interface of manual tracing.
4. Store the results
Tap  to store patient measurement results.
 5. Print the results
Tap  to print patient measurement results.

Note: Print function, need to configure a multifunctional dock.

3.5 Store Files

1. On the scanning result screen, tap  to enter the Store Files screen;
2. In the file name input box, the automatically generated file name is displayed;
 - 1) If no patient ID is entered, enter the file name manually.
 - 2) If the patient ID has been entered (for example, the ID is 123), the file name defaults is ID+N. (For example, if the ID is 123 and the file name is 123N by default, enter 1





manually for the first check and the file name is 123N1).

- 3) Customize the file name. The maximum string length of the supported file name is up to 14 characters.
3. After entering the file name, tap OK to pop up the dialog box for saving the data successfully, tap OK to save the measurement data and exit the file storage screen;
4. Tap Quit to exit the Store Files screen without saving the measurement data.

3.6 Data Management

Data management can realize file browsing, USB flash drive storage, print file, batch transfer, delete file, delete all files.

3.6.1 Browse File

1. On the scanning result screen, tap  to enter the Date Management screen;
2. In the file list, select the target file, for example, "N2.DAT", the selected file name "N2" is displayed in the text box below the list;
3. Tap the "Browse File", the "N2.DAT" file is displayed on the screen;
4. Tap  and  to browse the saved files;
5. Tap  to exit the file browsing screen.

3.6.2 USB Flash Drive Storage



● Identify the USB flash drive

The identification process of the USB flash drive will vary depending on the mobile device model and the USB flash drive manufacturer, and the display interface will be slightly different.


1. Insert the USB flash drive into the USB port of the mobile device and allow BVT03 to access the USB device;
2. If the USB flash drive identifier is displayed in the APP, the USB flash drive is successfully identified.

Note: It takes 5-10 seconds to mount the USB flash drive. Pay attention to the pop-up message. If the mounting fails, insert and remove the USB flash drive again.

● Import/Export

1. On the scanning result screen, tap  to enter the Date Management screen.
2. On the data management screen, select the target file.
3. Tap the "Browse File" to enter history files display screen.
4. On the history file display screen, tap  to pop-up "Import/Export" menu.
5. Import: tap "Import", the history data stored on the USB flash drive are imported to the APP in batches.
6. Export: tap "Export", the current single file is exported to the KXBVT03 folder in the root directory of the USB flash drive.

3.6.3 Print file


1. Print the current measurement result: on the scan result interface, tap .
2. Print the stored measurement results: enter the data management screen to print.

3.6.4 Batch transfer


1. Insert the USB flash drive into the USB port of the phone;
2. On the scanning result screen, tap  to enter the Date Management screen;

3. Tap the "Batch Trf." to export all files in the list to the KXBVT03 folder in the root directory of the USB flash drive to realize the transfer of all APP data to the USB flash drive;
4. Tap Quit to exit the data management screen.

3.6.5 Delete File

1. On the scanning result screen, tap  to enter the Date Management screen;
2. Select a file to be deleted from the file list and tap "Delete File" to pop up a warning dialog box. If you tap OK in the warning dialog box, the file will be deleted; tap Quit to give up deleting a file.
3. Tap Quit to exit the data management screen.

3.6.6 Delete All Files

1. On the scanning result screen, tap  to enter the Date Management screen;
2. Tap the "Del All" to pop up a warning dialog box, if you tap OK in the warning dialog box, all files will be deleted; tap Quit to give up deleting all files.
3. Tap Quit to exit the data management screen.

4 Troubleshooting

If the following problems occur, please try to make corrections following the below methods. If the problem remains unsolved, contact our company for support.

Troubles	Correction
The mobile device is not connected to the main unit, and the white Wi-Fi icon in the APP keeps blinking.	<ol style="list-style-type: none">1. Check whether the main unit is displayed on the scanning result interface. You need to start the APP on the scanning result interface.2. Check whether the WLAN is enabled on the mobile device.3. Check whether the mobile device is properly connected to the main unit's Wi-Fi.4. Close the WLAN and then open WLAN, reconnect to the main unit's Wi-Fi, and open the APP again.5. The main unit only connects to the mobile device: restart the main unit, connect the mobile phone to the Wi-Fi of the main unit, exit the APP completely from the background, and then open the APP again.6. The main unit connects to the mobile device and the multifunctional dock at the same time: Restart the main unit, first the dock scans the QR code to connect to the main unit, then the mobile phone connects to the main unit's Wi-Fi, completely exits the APP from the background, and then re-opens the APP.