RFID handheld terminal

C6100 User Manual

Contents

Chapter 1: Introduction and Appearance

1.1 Introduction

The C6100 is an industrial-grade, highly expandable data collection terminal that combines high-performance 2D barcode scanning with UHF RFID read/write capabilities in one rugged device. Powered by a flagship octa-core processor and running Android 10 / Android 13, it features high-speed memory and large storage capacity to ensure smooth, stable operation in demanding workloads.

With long-range UHF performance, the C6100 supports multi-tag bulk reading and fast inventory processing. In open outdoor environments, the reading range can exceed 20 meters, with a throughput of up to 2,000 tags per 10 seconds. The device also adopts an aerospace-grade aluminum rear shield cover with enhanced heat dissipation, delivering near-zero performance drop even during extended high-load operation.

The C6100 is ideal for industries that require efficient and reliable data capture, including defense, utilities, retail, linen & laundry management, and asset tracking.

1.2 Appearance and Equipment Diagram Explanation

The high-expandability smart handheld terminal is equipped with multiple types of control keys, including physical buttons, on-screen function keys, and left/right side shortcut keys, to accommodate different operating preferences and application scenarios.

1) Front Panel:
   The front panel features four programmable function keys (from left to right: F1, F2, F3, F4), allowing users to quickly launch commonly used functions based on their workflow.

2) Left Side Keys:
   Two keys are provided on the left side: Volume Key and Scan / Programmable Key.

3) Right Side Keys:
   Two keys are provided on the right side: Power Key and Scan / Programmable Key.


Type-c
Customiz ableScan keys
Volume key
USB
VOL
F1
F2
F3
F4

Chapter 2: Safety Precautions

2.1 Laser Warning

Do not look directly at the scanning laser to avoid eye injury!

2.2 Battery Safety

1) **Charger Usage Requirements**
   Only the official charger supplied with the device must be used for charging.
   The use of mobile phone fast chargers, power bank USB ports, or any non-official charging devices is strictly prohibited.
   Incompatible voltage or current may cause battery overcharging, overheating, permanent damage, or potential safety hazards.

2) **Daily Charging and Battery Level Management**
   To extend battery lifespan, it is recommended to keep the battery level between 30% and 80% during daily use.
   Once the battery is fully charged, promptly disconnect the charger to avoid prolonged exposure to a high-voltage saturated state at 100%.

3) **Long-Term Storage of Idle Devices**
   If the device will remain unused for more than one month, power it off and store it with the battery charged to approximately 50%.
   Check the battery level every two months and recharge it back to 50% if necessary to prevent deep discharge caused by self-discharge, which may result in irreversible battery damage or charging failure.

4) **Operating and Charging Temperature Requirements**
   Operate and charge the device only within an appropriate ambient temperature range.
   Avoid extremely low or high temperatures, as well as direct sunlight.
   Extreme temperatures can significantly accelerate battery capacity degradation and may trigger device protection mechanisms.

5) Prohibition of Charging During High-Load Operation

During high-load operations—such as bulk card reading, continuous data transmission, or running large applications—the device generates substantial heat. Long-term charging while operating under such conditions is strictly prohibited, as accumulated heat may rapidly increase battery temperature, accelerate aging, and pose safety risks.

6) Handling Battery Abnormalities

If battery swelling, leakage, abnormal heating, unusual noise, or charging failure is detected, immediately stop using the device and disconnect the charger.

Do not disassemble or attempt to repair the device yourself. Contact authorized after-sales technical support for inspection and replacement.

7) Physical Safety and Storage Warnings

Avoid strong impacts, punctures, or disassembly of the device.

Store the device in a cool, dry place, away from flammable materials, heat sources, and humid environments.

8) Warranty Disclaimer

Battery performance degradation or device damage caused by the use of non-standard chargers, operation in non-compliant environments, or failure to follow the above guidelines may not be covered under the product warranty.

Chapter 3: Quick Start

3.1 Battery Installation

Note: Before removing the battery, be sure to turn off the device and disconnect the external power supply. It is strictly prohibited to remove the battery while the device is powered on, as this may damage the device.

1) Push the battery cover latch to the right to unlock it.

2) Remove the battery cover, place the battery flat into the battery compartment, and align the contacts correctly.

3) Close the battery cover and push the latch back to the left until it locks.

Figure 3-1

Figure 3-2

Note: To avoid frequent disassembly which may affect the lifespan of the components, it is recommended not to remove or install the battery unnecessarily.

3.2 Powering On and Off

Power on

1) Press and hold the Power button to turn on the device. When the device is in deep sleep mode, briefly press the Power button to wake up the system.

Power Off

2) When the device is powered on and not in sleep mode, briefly press the Power button until a slight vibration is felt and an option menu appears on the right side of the screen.
Select Power Off to shut down the device normally.

3.3 Installing SIM and Micro SD (TF) Cards

1) Remove the device battery, then insert the card into the corresponding card slot in the direction shown in the illustration, as shown below：

Figure 3-3

3.4 Direct Charging / Battery Charging Instructions

1) Always use the original power adapter and data cable supplied by the manufacturer to charge the device.
   Using adapters or cables from other brands may cause charging abnormalities or damage to the device.

2) If the battery needs to be charged separately, use the original charging cradle provided by the manufacturer.

3) Connect the charger to a power source, then plug the data cable into the device's Type-C port to start charging.

4) Note: During operation, avoid pulling or forcibly unplugging the Type-C connector to prevent damage to the device or charger.

5) The battery supplied with the device must be fully charged before first use.

6) Do not remove the battery while charging.

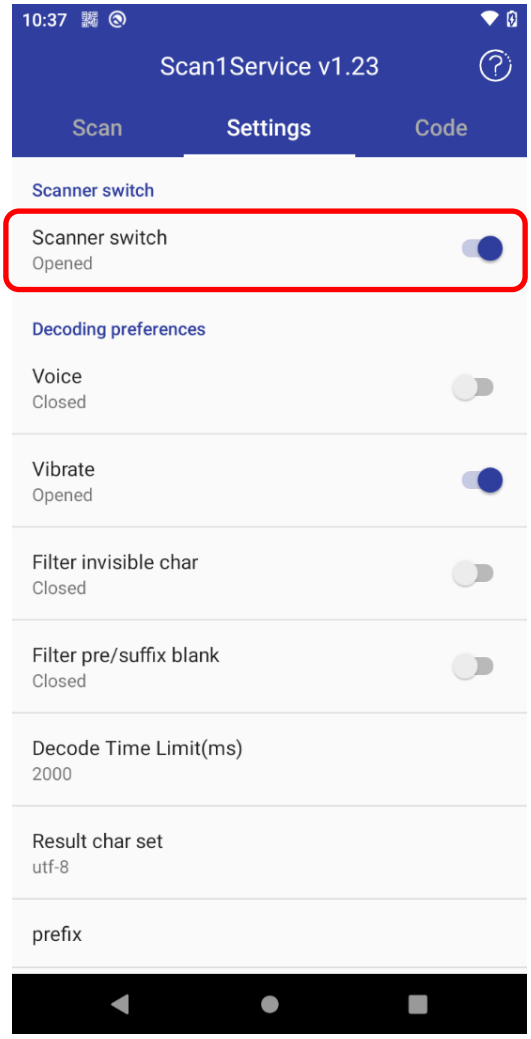
7) When the battery is completely depleted, the device will automatically power off.

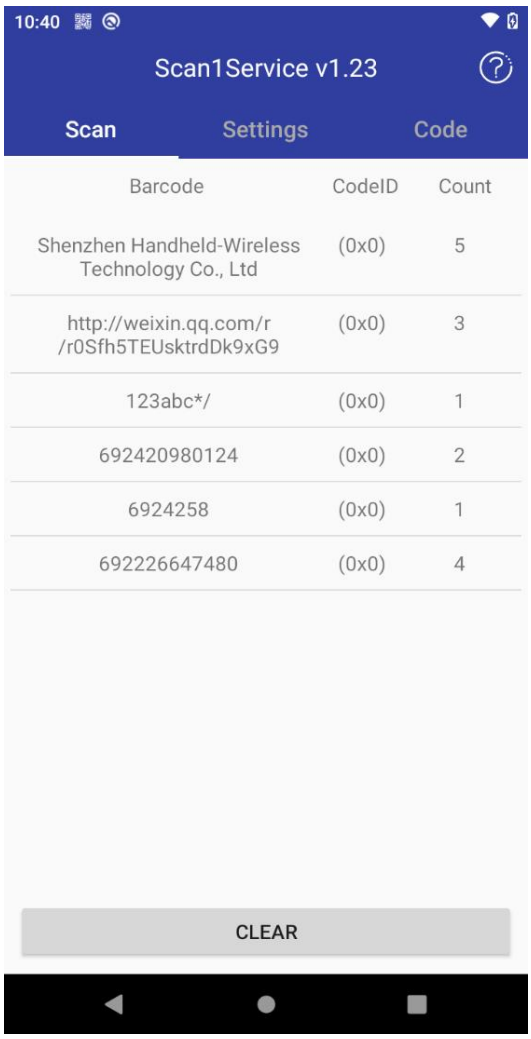
Chapter 4: Data Collection

4.1 Scanning Service

1) On the PDA home screen, locate the Scanning Service icon  , and enter the application.After enabling the scanning switch, press the left or right scan trigger on the device to perform scanning.

2) Tap the Settings button to configure basic scanning parameters.

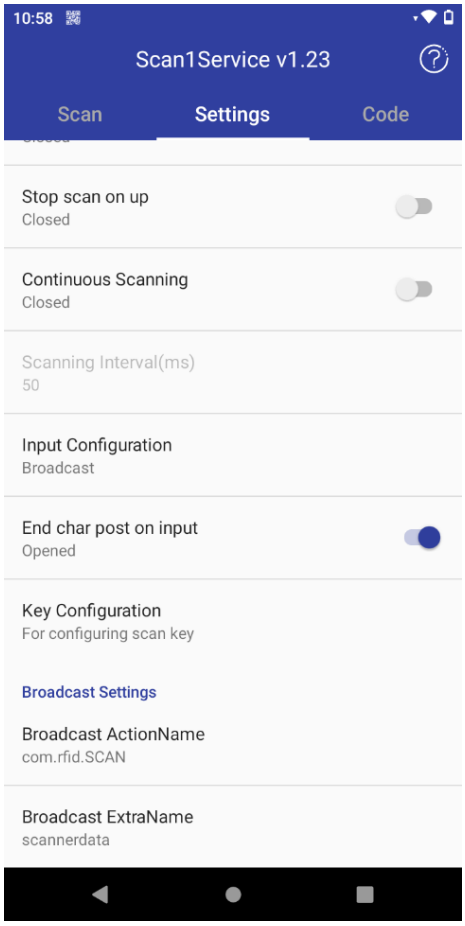


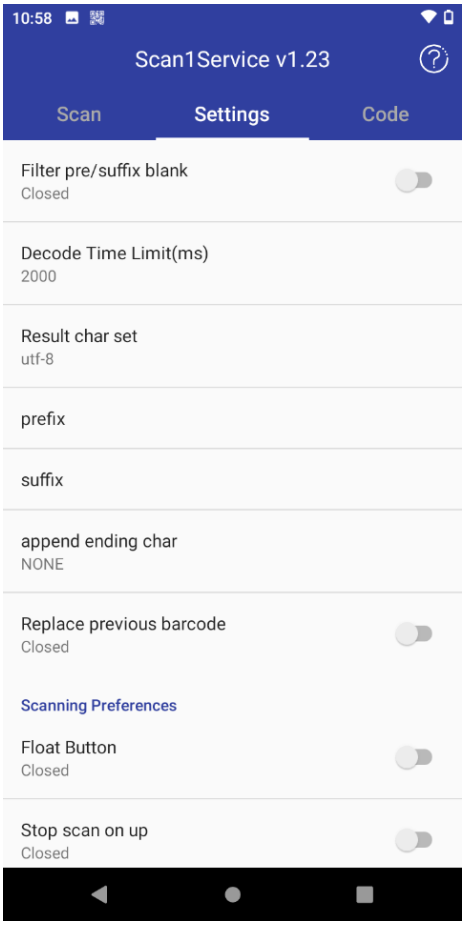


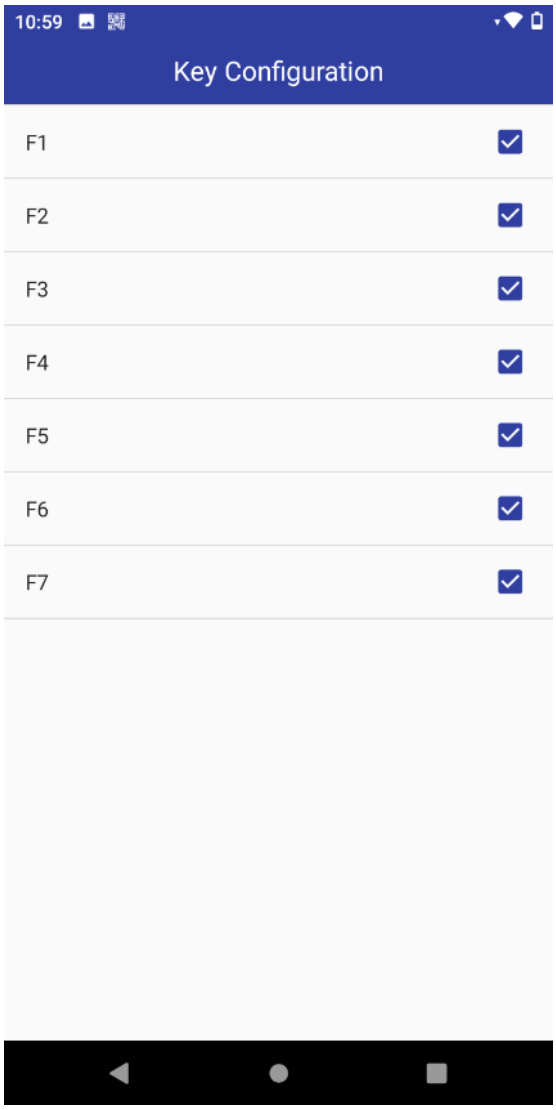
For more detailed feature descriptions, please contact the relevant technical support personnel, who will provide the corresponding user documentation.

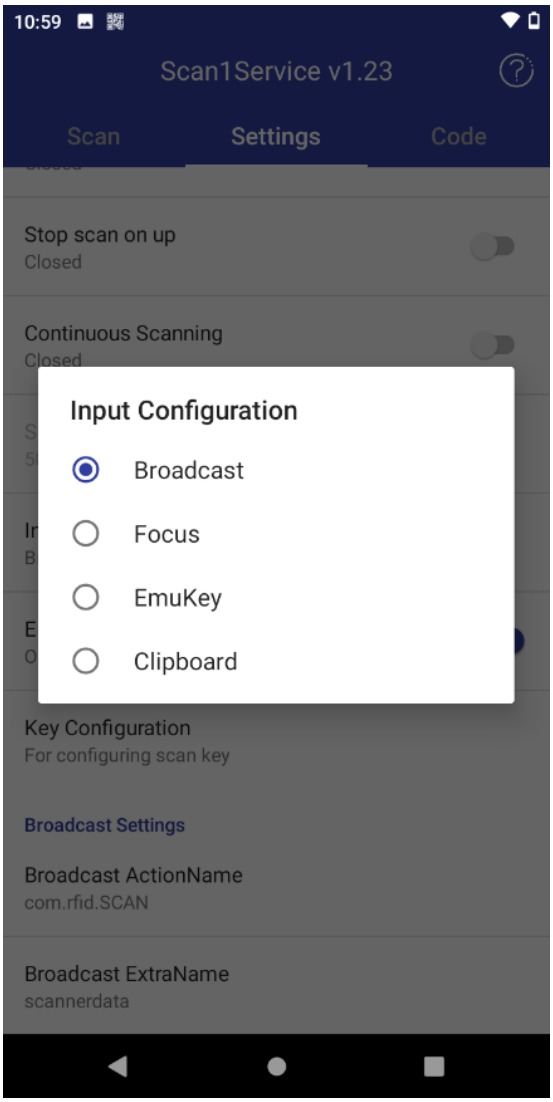
Turn to [Settings] page to set the basic scanning details,

1) Voice: When turned on, there will be a sound prompt when scanning;
2) Vibrate: When turned on, scanning will give a vibration prompt;
3) Filter pre/suffix blank: You can filter spaces before and after the barcode by yourself;
4) Prefix: You can add your own barcode output prefix (which can be numbers, letters, special characters, etc.);
5) Suffix: You can add your own barcode output suffix (which can be numbers, letters, special characters, etc.);
6) append ending char: You can choose the barcode end output symbol yourself, including Enter, Tab, Space, None;
7) Continuous scanning: When turned on, the scanning will automatically continue scanning;
8) Input configuration: You can choose to send in Broadcast, Focus, Emukey, or Clipboard mode (Emukey"Emulate key" requires selecting an input method that supports hard keyboard),
9) Key settings: You can set the scanning buttons by yourself, including F1, F2, F3, F4, F5, F6, F7, (the handheld trigger can be used for scan controlling when the F4 is chosen)

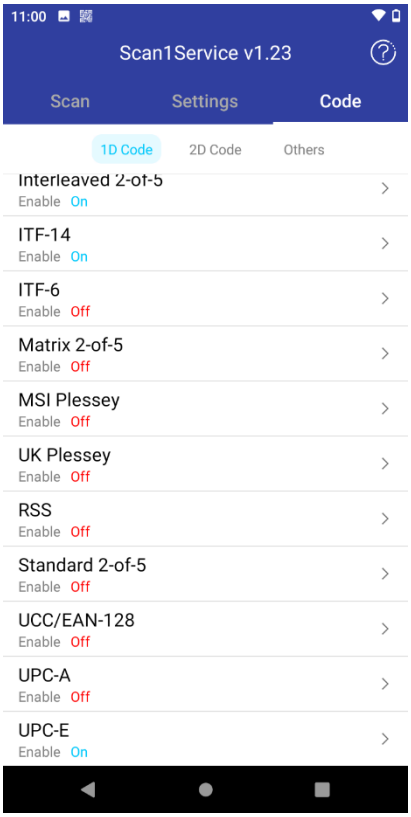


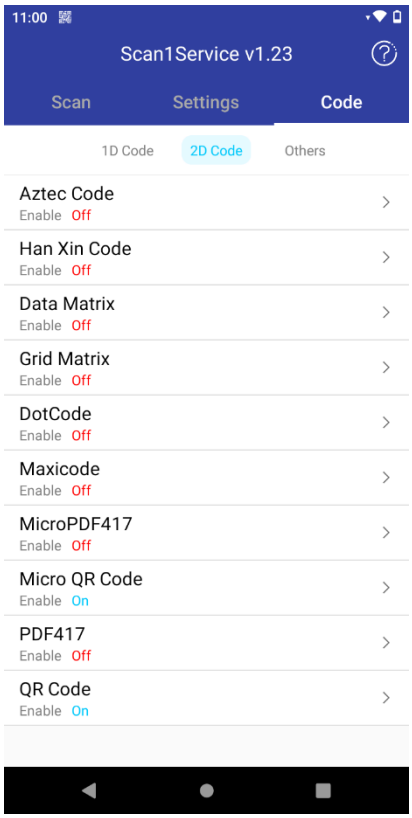


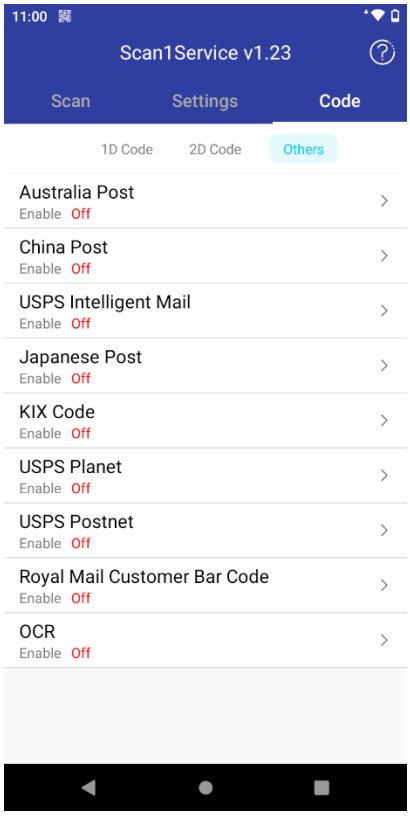

10:59
Key Configuration
F1
F2
F3
F4
F5
F6
F7


10:59
Scan1Service v1.23
Scan
Settings
Code
Stop scan on up
Closed
Continuous Scanning
Closed
Input Configuration
Broadcast
Focus
EmuKey
Clipboard
Key Configuration
For configuring scan key
Broadcast Settings
Broadcast ActionName
com.rfid.SCAN
Broadcast ExtraName
scannerdata

Trun to [Code] to choose the required barcode type and trun on;



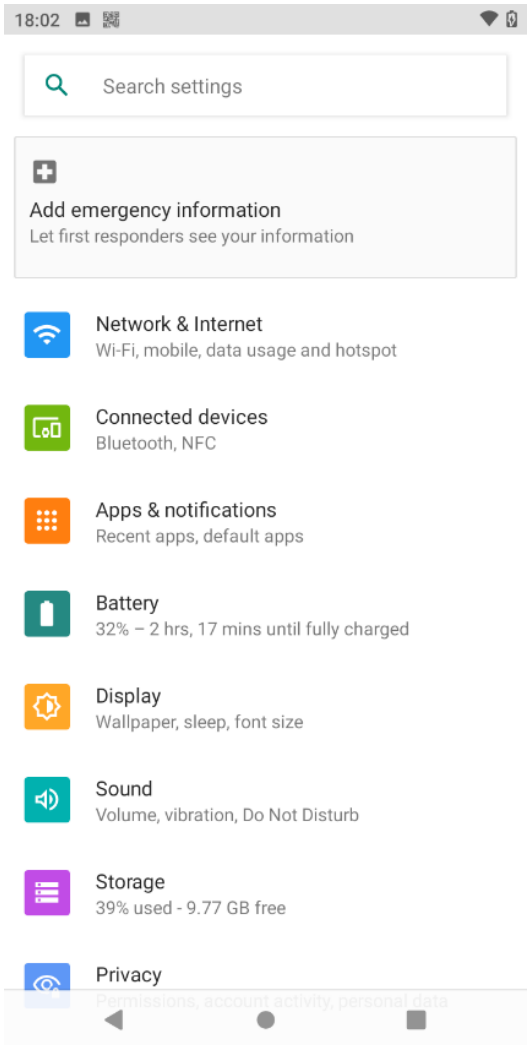




Tips: The scanned page may be slightly different due to different scanning engines. If you have any questions in operation, please contact us directly.

4.2 NFC

Turn on the nfc function in the settings,find this icon  in the desk and click to enter the NFC application. and then put the nfc card close to the nfc area . there will be a sound or text prompt.



4.3 UHF

4.3.1 Menu Overview

1) On the home screen after powering on, locate the UHF application icon  , and tap it to enter the UHF application.

2) Clicking the UHF icon  or  , will bring up a menu containing options such as disk storage, LED tag storage, tag reading and writing, settings, temperature tags, help, and about. Selecting any option will take you to the corresponding interface, as shown in Figures 4-1 and 4-2.

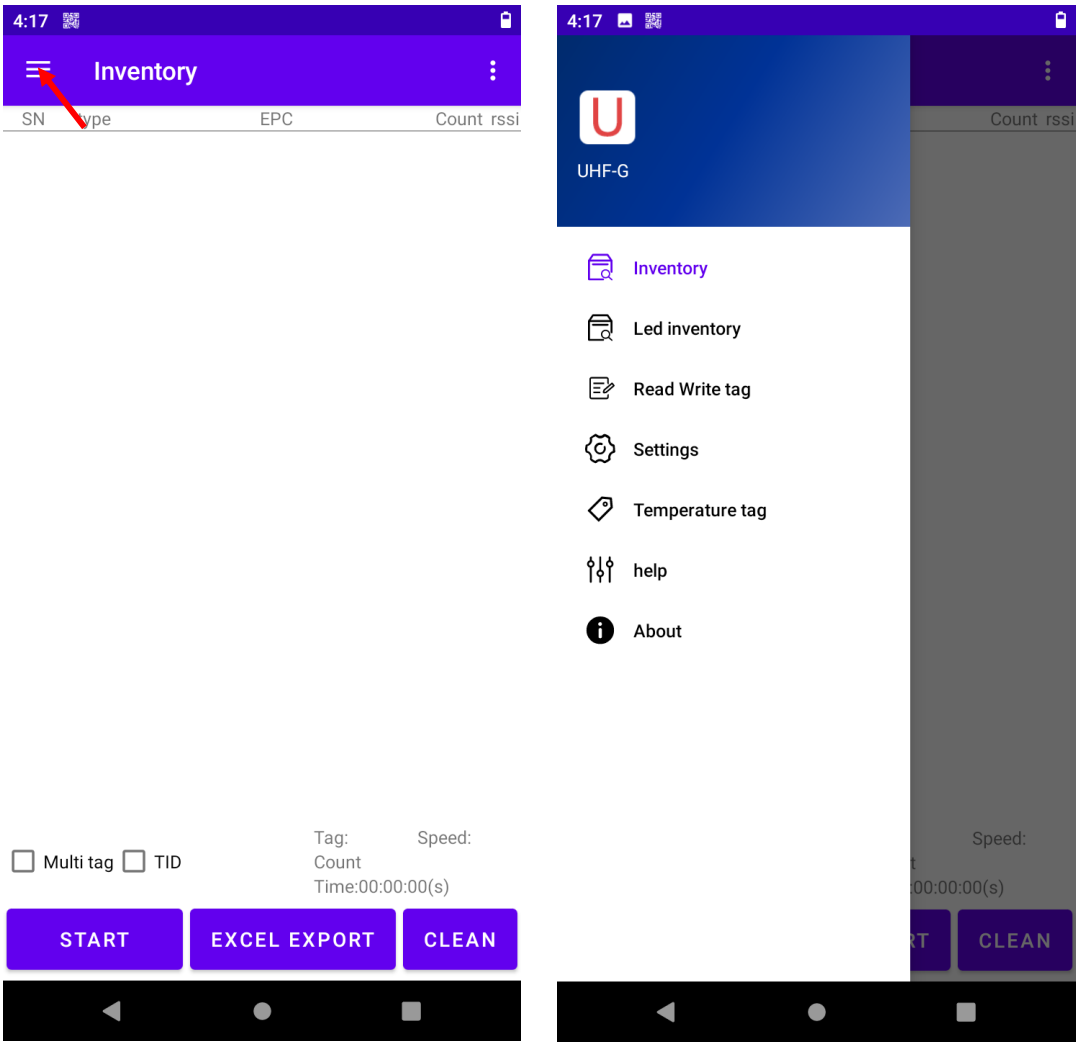


Figure 4-1

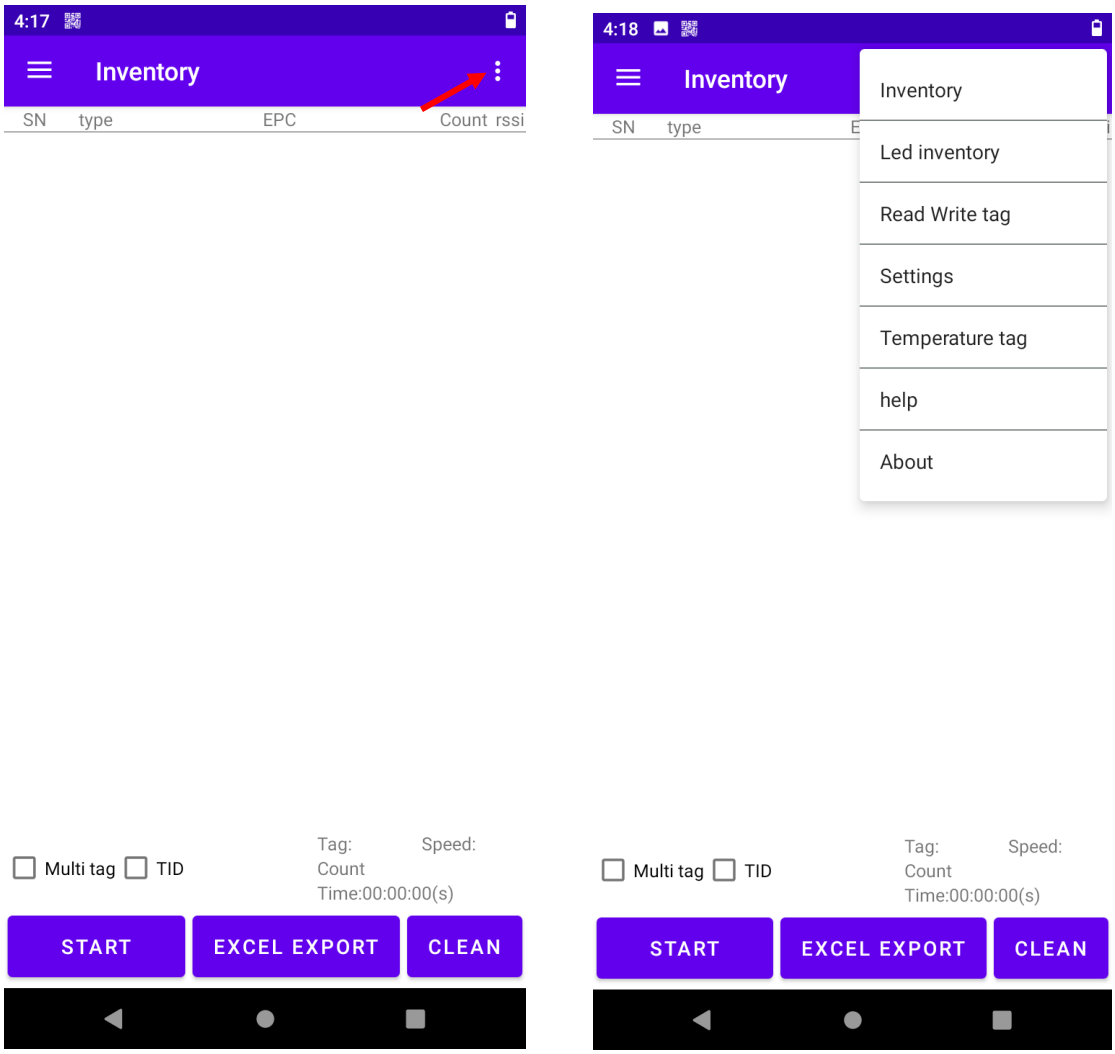

4:17
Inventory
SN type EPC Count rssi
Multi tag TID
Tag:
Speed:
Count
Time:00:00:00(s)
START
EXCEL EXPORT
CLEAN
4:18
Inventory
SN type
Inventory
Led inventory
Read Write tag
Settings
Temperature tag
help
About
Multi tag TID
Tag:
Speed:
Count
Time:00:00:00(s)
START
EXCEL EXPORT
CLEAN

Figure 4-2

4.3.2 Inventory

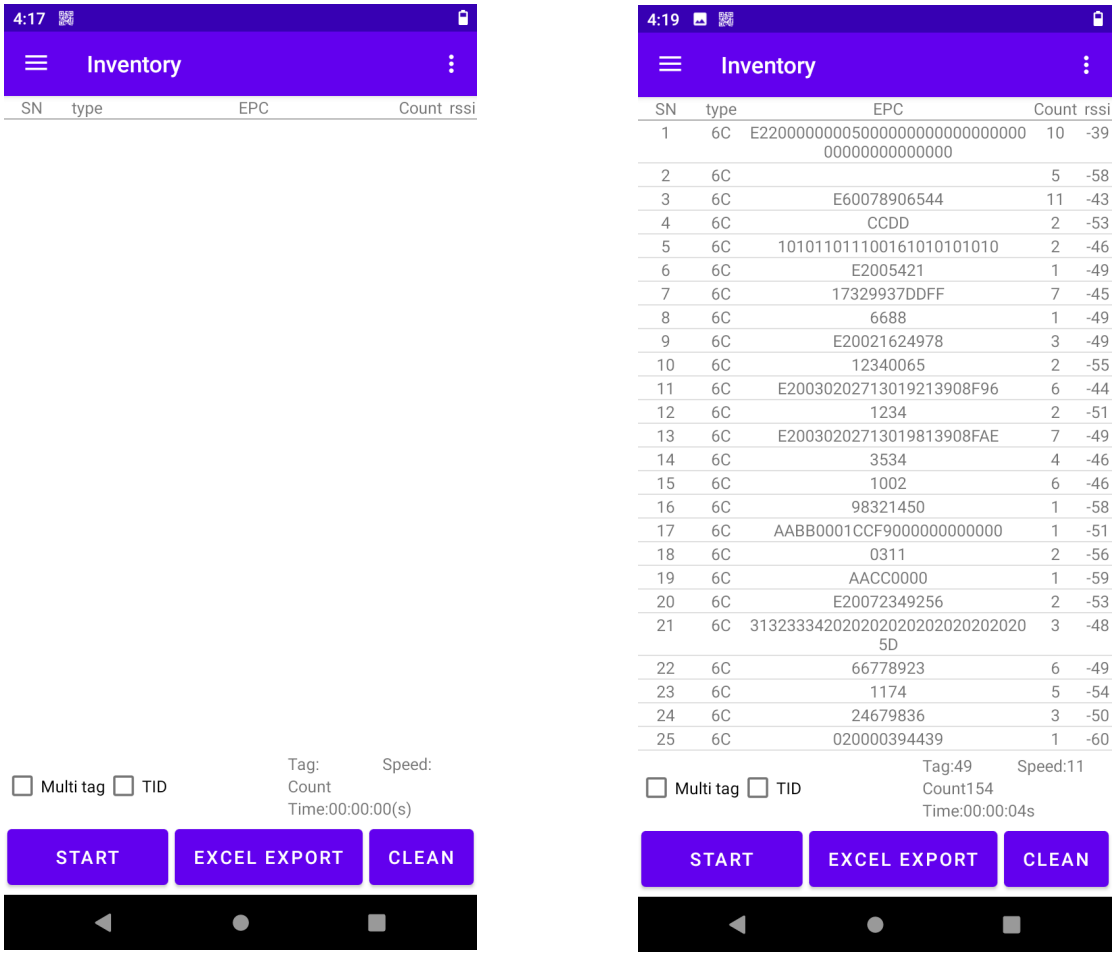


Figure 4-3

1) Multi-Label: Selecting this option initiates multi-label tag reading of the EPC.
2) TID: Selecting this option allows the device to display the TID code while reading the tag, as shown in Figure 4-4.
3) Start Inventory: Clicking "Start Inventory" begins reading tag information; the default is to retrieve the EPC code. (Starting and stopping inventory can also be done using the buttons on the handle.)
4) EXCEL Export: After obtaining the EPC code, clicking "EXCEL Export" saves the EPC information as an XLS document. Successful saving will display the document's save path, as shown in Figure 4-5.
5) Clear Screen: Clicking this option clears the current tag retrieval data.
6) Number of Tags: Displays the total number of tags currently retrieved.
7) Speed: Displays the current tag retrieval speed.
8) Number of Attempts: Displays the total number of tag retrieval attempts, as shown in Figure 4-6.
9) Time: Displays the total time taken to retrieve the current tag.
10) Number of Times: Displays the current number of times the tag has been

found, as shown in Figure 4-7.

11) RSSI: Displays the signal strength when the tag is found.

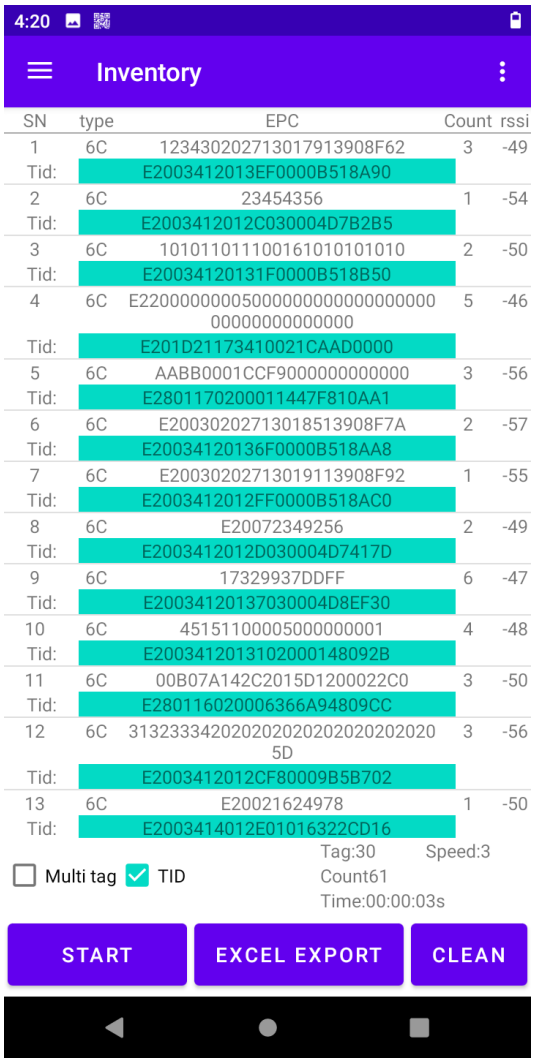


Figure 4-4

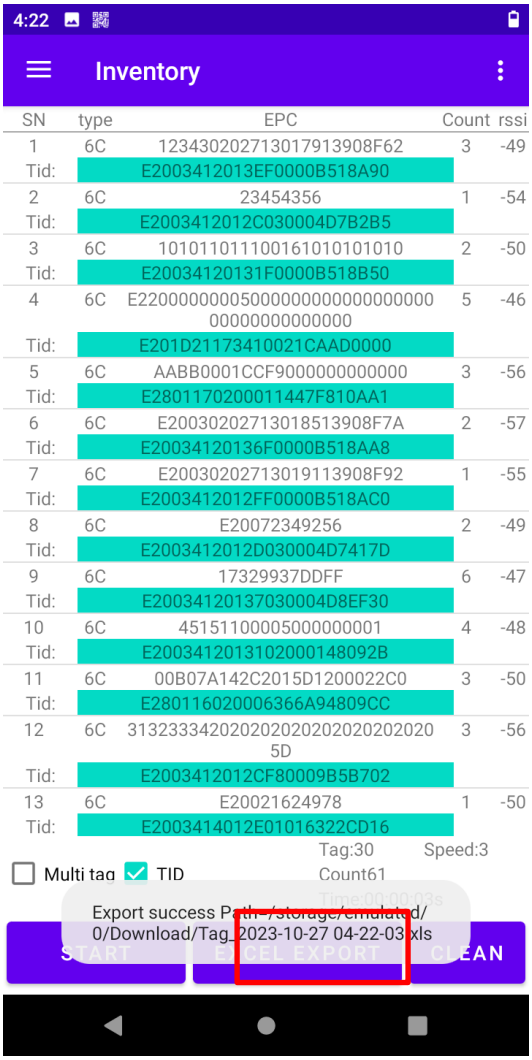


Figure 4-5

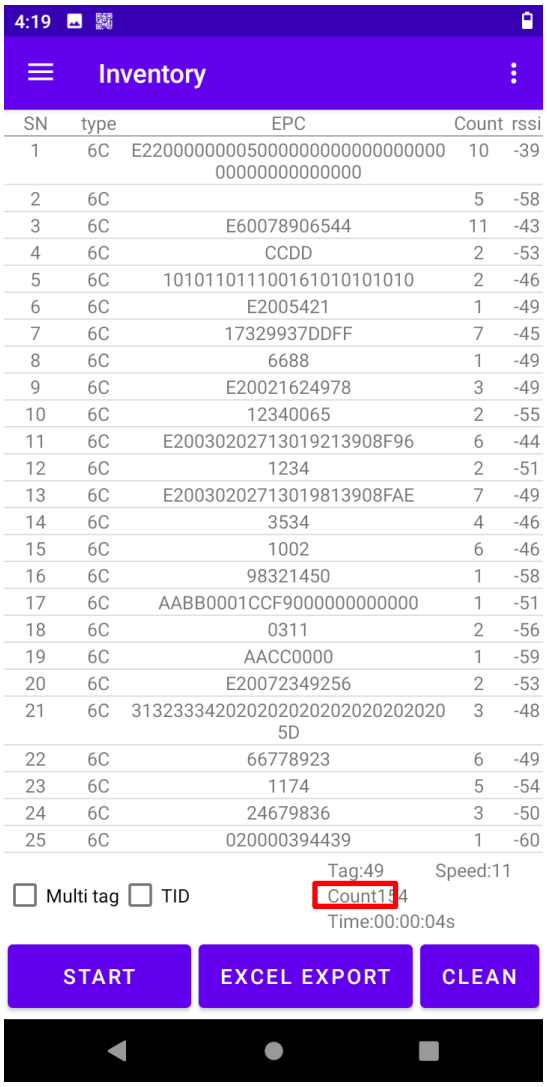


Figure 4-6

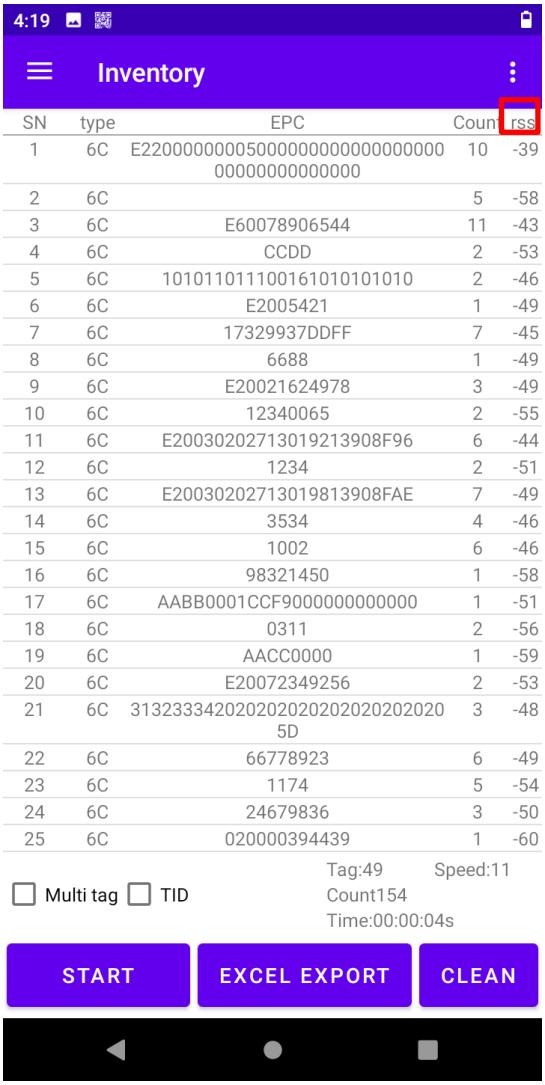
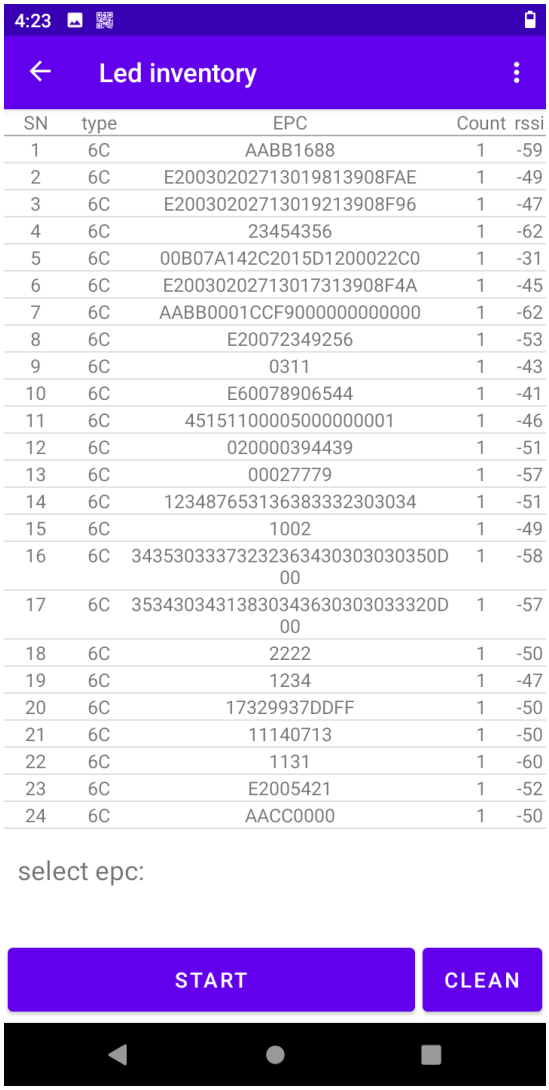


Figure 4-7

4.3.3 LED Label Inventory

1) Click "Start Inventory," and the device will search for cards according to the set operating method.
2) Start Inventory: Clicking "Start Inventory" will begin reading LED tag information; the default is to obtain the EPC code. (Start and stop inventory can also be done using the buttons on the handle.)
3) Clear Screen: Clicking this will clear the current card search data.
4) Single Illuminated EPC Number: Displays the EPC number of the currently illuminated tag.
5) Number of Times: Displays the number of times the tag has been searched.
6) RSSI: Displays the signal strength when the tag was found.



4.3.4 Read and write tags

1) Tag Selection:
Allows you to select read tags for reading and writing operations.

2) Read/Write Tag:
Select a found tag, choose the read/write tag area, enter the corresponding read/write tag conditions, and click the read/write tag to complete the read/write tag operation.

a) Select Read/Write Tag Area: You can select the PASSWORD area, User area, EPC area, or TID area.

b) Start Address: Used in conjunction with the read/write tag to select the address to read or write.

c) Length: Used in conjunction with the read/write tag to select the length to read or write.

d) Access Password: Used in conjunction with the read/write tag to specify the password used when reading or writing to the card.

e) Write Data: Used in conjunction with the write tag to display the currently written tag content. (Tag data format requirements: Each string must be 4 characters long. The length entered must correspond to the string being written. For example, entering a length of 2 means writing 8 strings: 12345678.)

f) Read Data: Used in conjunction with the tag reader to display the currently read tag data.

g) Read Tag: Reads data from a specified position. The read data is displayed in the "Read Data" field above the "Read Tag" button.

h) Write Tag: Writes data to a specified position. Enter the data to be written in the "Write Data" field above the "Write Tag" button.

i) Clear Screen: Clears the contents of the "Read Data" box above the "Read Tag"/"Write Tag" button.

j) The RFID tag storage is divided into four independent storage blocks (Banks): Reserved, EPC (Electronic Product Code), TID (Tag Identification Number), and User.

i. RESERVER area: 8 bytes (4 words) in size. The first 4 bytes (2 words) are the destroy password (used to destroy tags, generally not used), and the last 4 bytes (2 words) are the access password (used for writing data and locking operations). The default value is: 0000 0000 (destroy password) 0000 0000 (access password). The destroy password cannot be destroyed by default and needs to be changed.

ii. TID Area: 12 bytes (6 words) in size, "read-only, not writable," pre-written at the factory, serving as the tag's unique identifier and product category identification number. Each manufacturer's TID number is different.

iii. EPC Area Read/Write Precautions:

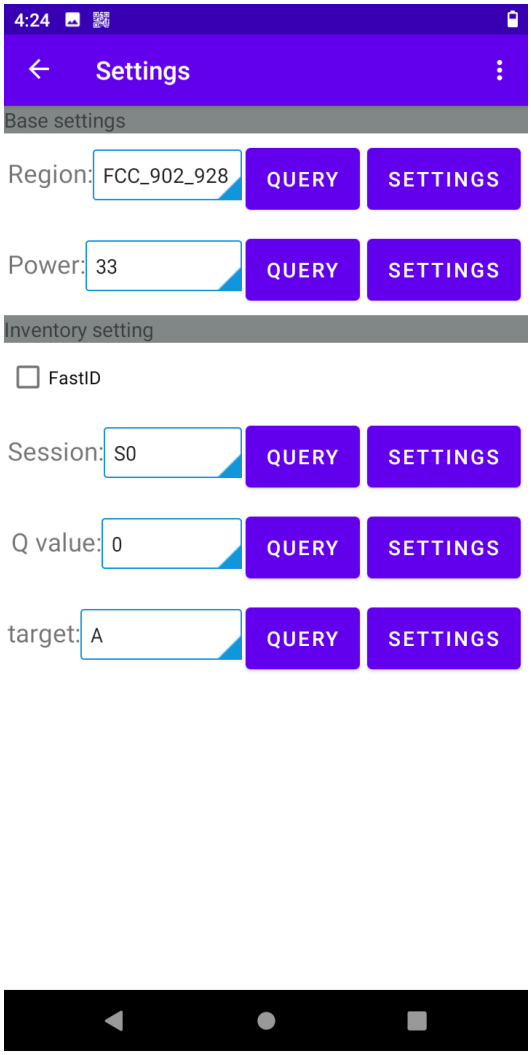
a) EPC is the Electronic Product Code for identifying the tag object. The difference between EPC and TID is that EPC can be manually written and modified by the user (modifying the EPC changes the tag's EPC, requiring a re-entry of the tag).
b) The EPC area's data structure is as follows: the first word is the check digit, the second word is the length control, and the subsequent words are the data storage location. During entry, the EPC is displayed based on the length indicated by the length control digit.
c) When actually writing data to the EPC, the starting address is filled with 1, meaning data is written starting from the length control digit. The check digit is automatically calculated and does not need to be manually written.
d) Calculation of length control bits: EPC data length * 2 = i; Convert i to hexadecimal representation, then add 00 to the end of the converted result. The final result is the data of the length control bits.
For example: 0001, i = 4 * 2 = 8 ---> 08 ---> 0800, the length control bit is 0800. The program calculates: byte[] newEPCByte = Tools.HexString2Bytes(newEPC); byte[] pcByte = new byte[] { 0x00, 0x00 }; pcByte[0] = (byte) (newEPCByte.length * 4); String pc = Tools.Bytes2HexString(pcByte, 2));
e) The length is filled according to the actual length of the data to be written. For example: 0001, the length is 1 word, 4 bits (note that the data bit length must be a multiple of 4), plus the length control bit 0800, the length is filled in as 2 in the software; Example: 0001 Starting Address: 1, Length: 2, Data: 08000001
iv. USER Area: The length of this memory is determined by each electronic tag manufacturer. User-defined data (in hexadecimal format) can be written to the USER area.

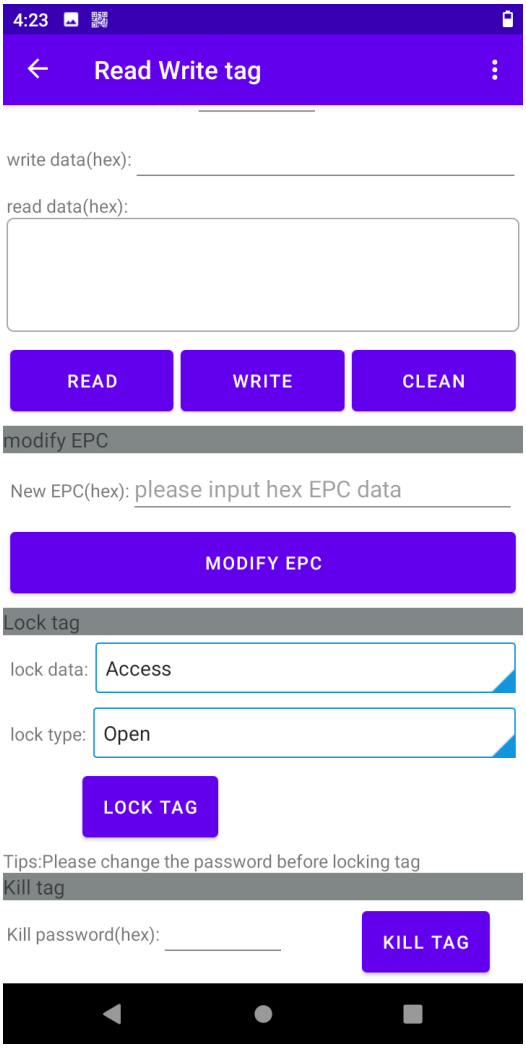
3) Modify EPC:
Enter a two-byte EPC number and click the "Modify EPC" button. A message will appear indicating that the new EPC number has been successfully modified.

4) Lock Tag:
Once the tag is locked, the default password (eight zeros) cannot be used to write to the tag; only a user-defined password can be used.
a) Locked Area: Locks a specific area of the tag. Options include the EPC area, TID area, and USER area.
b) Access Password & Destroy Password: Locks the tag password. The default password is eight zeros. The first four bytes of the password area are the destroy password, and the last four bytes are the access password.
c) Lock Type: Locks the tag. Options include Open, Locked, and Permanent Lock (cannot be unlocked after the operation).

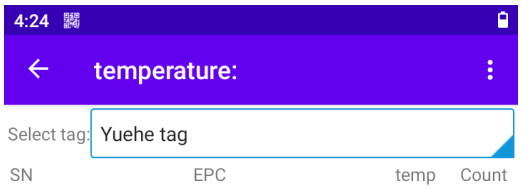
5) Destroy Tag Destroy

this tag (a destroyed tag is permanently invalid and cannot be recovered; please use with caution).
a) Destroy Password: (First 4 bytes of the password area) First, modify the destroy password in the password area to a non-zero value, then use the modified password to perform the operation. (The destroy password must be non-zero to take effect).



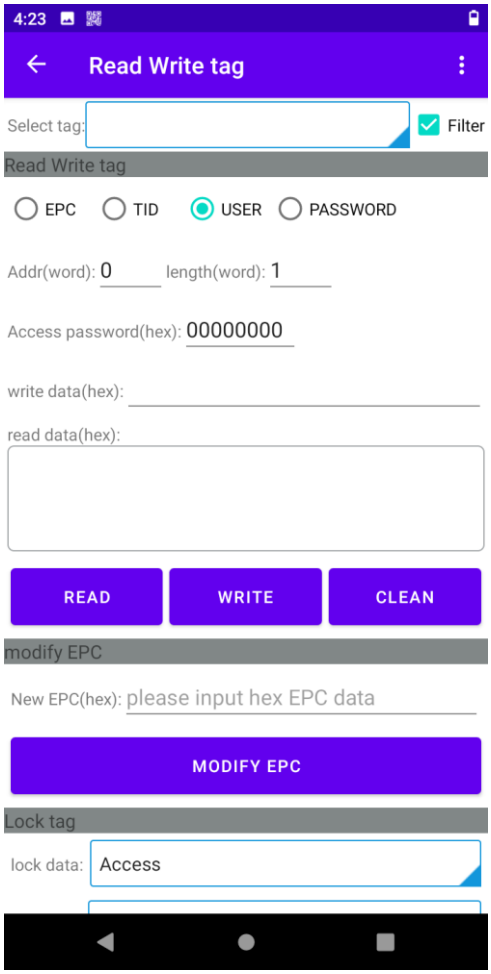


4.3.5 Temperature label



1) Tag Selection: Select the tag type.
2) Read Tag: Click "Read Tag" to start reading temperature tag information. The default is to obtain the EPC code. (Reading and stopping tag reading can also be done using the buttons on the controller.)
3) Clear Screen: Click to clear the current tag search data.
4) Temperature: Displays the temperature when the current tag was read.
5) Number of Times: Displays the number of times the current tag has been searched.

4.3.6 set up



1) Basic Parameter Settings
   a) Operating Frequency Band: Allows querying and setting the current device's operating frequency band.
   b) Output Power: Allows querying and setting the power of the current SIM card search antenna.
2) Query Parameters Relevant operating parameters for SIM card search.
   a) FastID: When enabled, the device reads data from EPC data to EPC+ID data (this function is not supported by some tags).
   b) Session: For different tag quantities and placement environments, it is generally recommended to select SO/S1.
   c) Q Value: Allows querying and setting the tag's Q value.
   d) Storage Method: Allows querying and setting the tag storage method.

Chapter 5: Communications and GPS

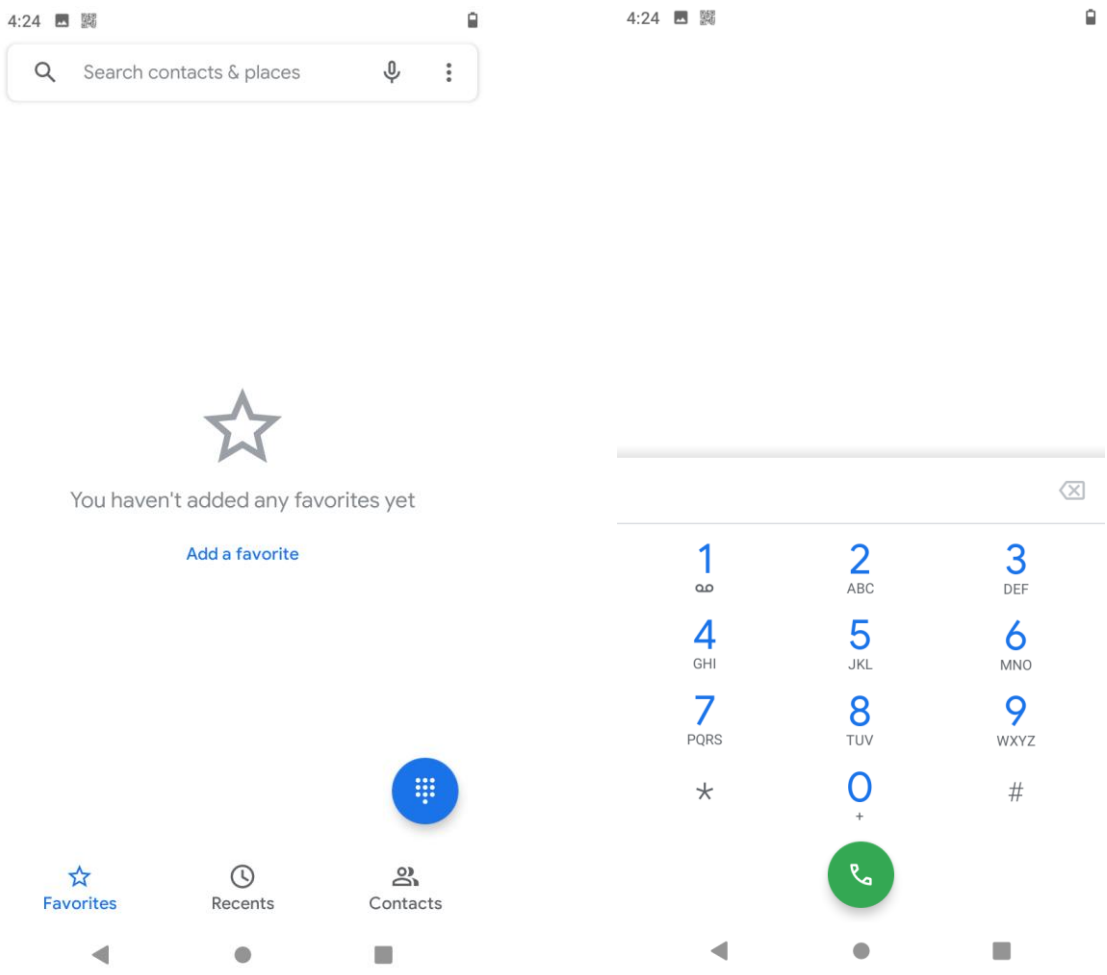
5.1 Dialing

1) Click the icon: ： he bottom of this page contains three sections: Speed Dial, Call History, and Contacts.

2) Click the icon on the right ， to enter the dial pad. Press the number keys and enter the phone number.

3) Click the key ，to make a call.

4) Click the key ， to end the call.



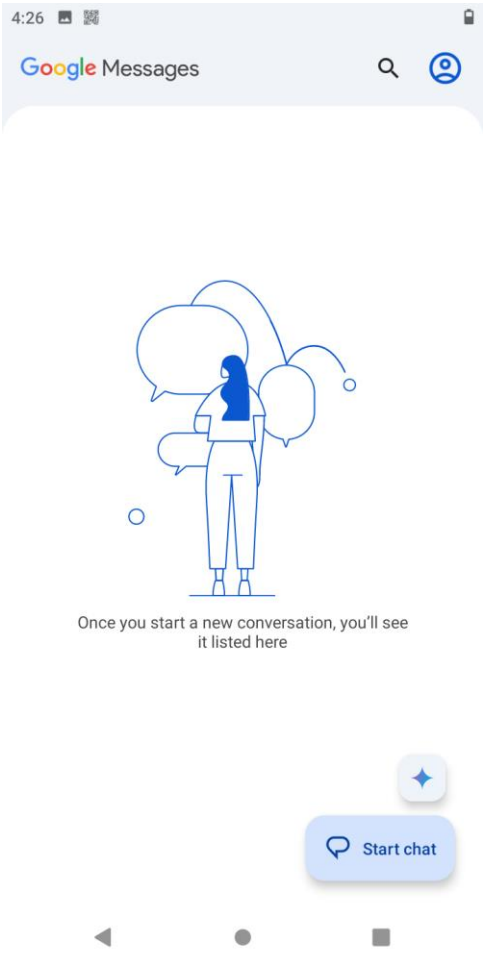
5.2 SMS

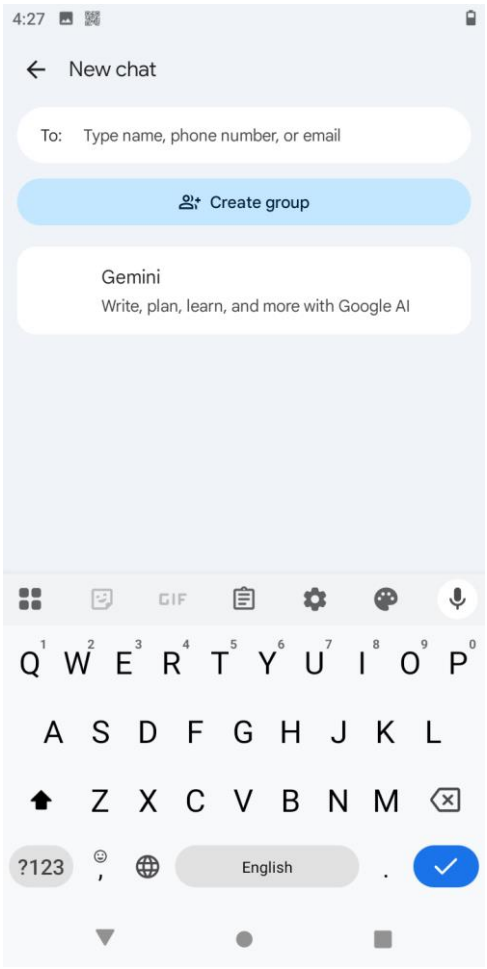
1) Tap to open , the SMS window.

2) Tap to , start a new conversation.

3) After the recipient confirms with their phone number or name, they can enter text to communicate via SMS.

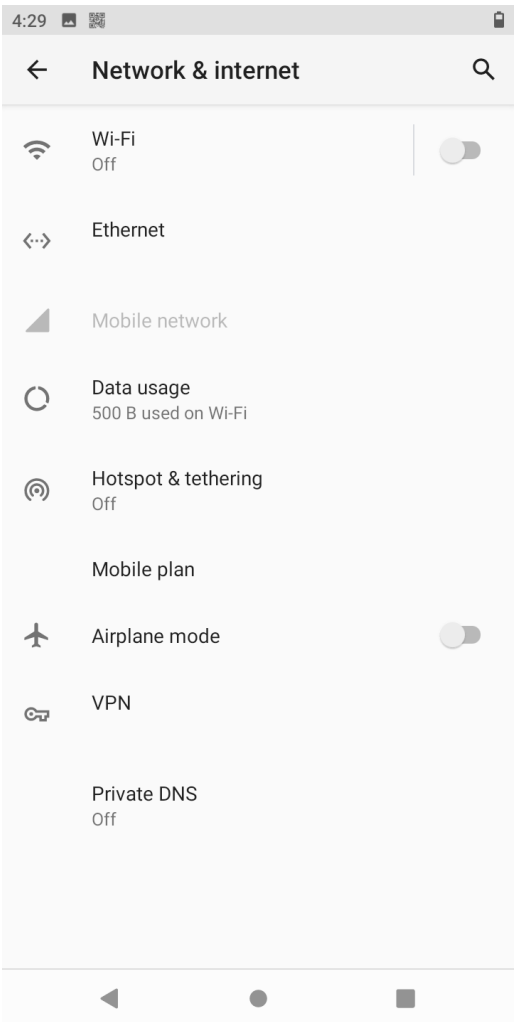
4) Tap to add pictures, videos, etc.; tap to , insert frequently used phrases.





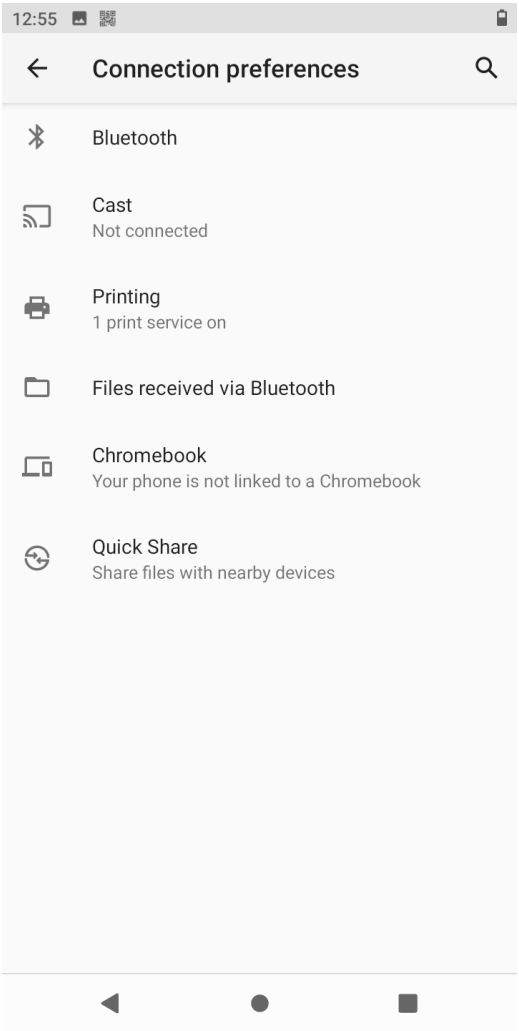
5.3 Network Connectivity

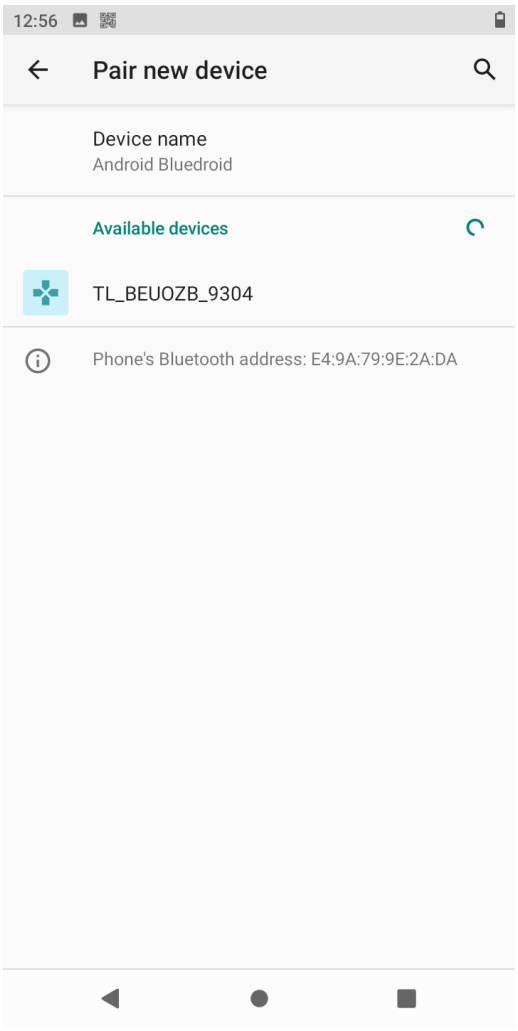
1) Access your device's "Settings" menu.
2) Select "Network & Internet".
3) Tap "Internet" to enter the wireless network management interface.
4) Turn on the "WLAN" switch on the right. The system will automatically scan and list available networks.
5) Select the desired wireless network from the list.
6) Enter the correct password (if required) according to the network requirements to complete the connection.
7) Alternatively, you can pull down the notification bar at the top of the screen (quick settings panel), tap the "WLAN" icon, and then select the target network from the pop-up list and enter the password to quickly connect.



5.4 Bluetooth connectivity

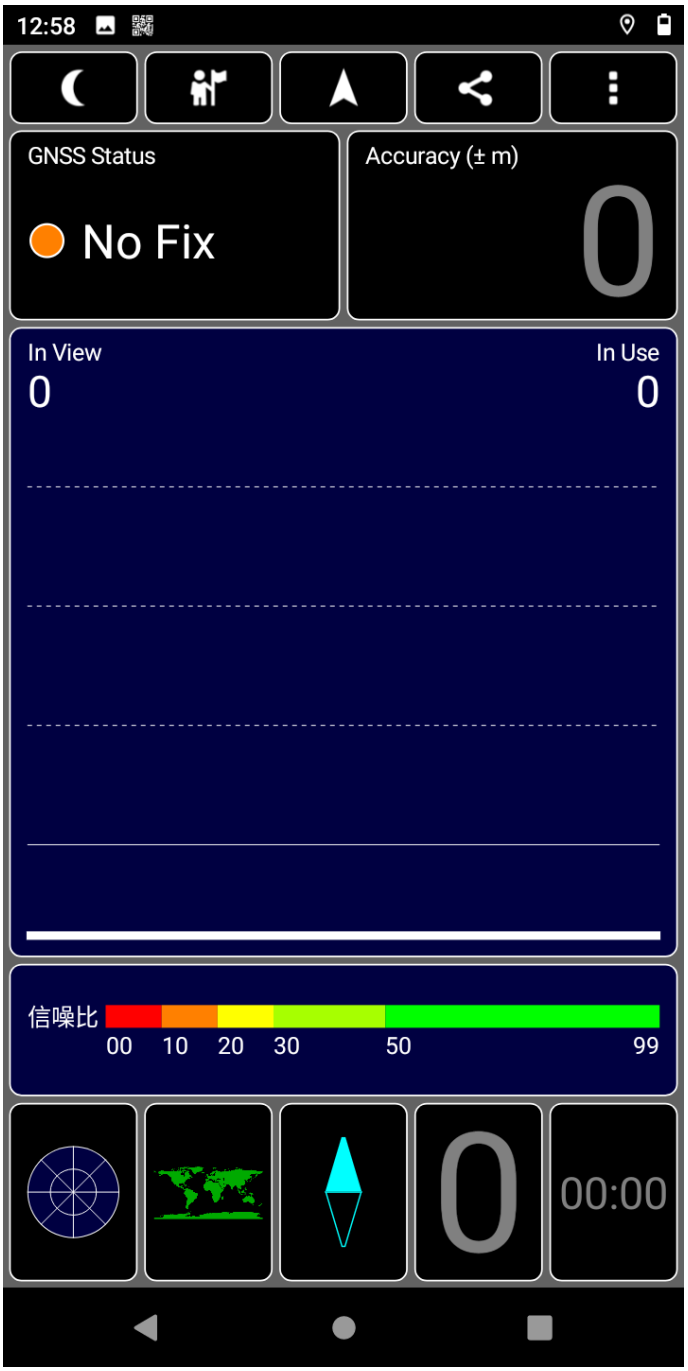
1) Access your device's "Settings" menu.
2) Select "Connected Devices".
3) Tap "Connection Preferences" to enter the management interface.
4) Tap "Bluetooth" and turn on the switch on the right to use Bluetooth.
5) You can also enable Bluetooth by pulling down the notification bar (quick settings panel) at the top of the screen and tapping the "Bluetooth" icon.
6) In the list of found devices, tap the device you want to connect to for pairing.
7) In the pairing request dialog box, enter the PIN code and tap "OK" to connect.
8) For successfully paired devices, tap the settings button on the right to rename the device or cancel pairing, etc., as needed.





5.5 GPS

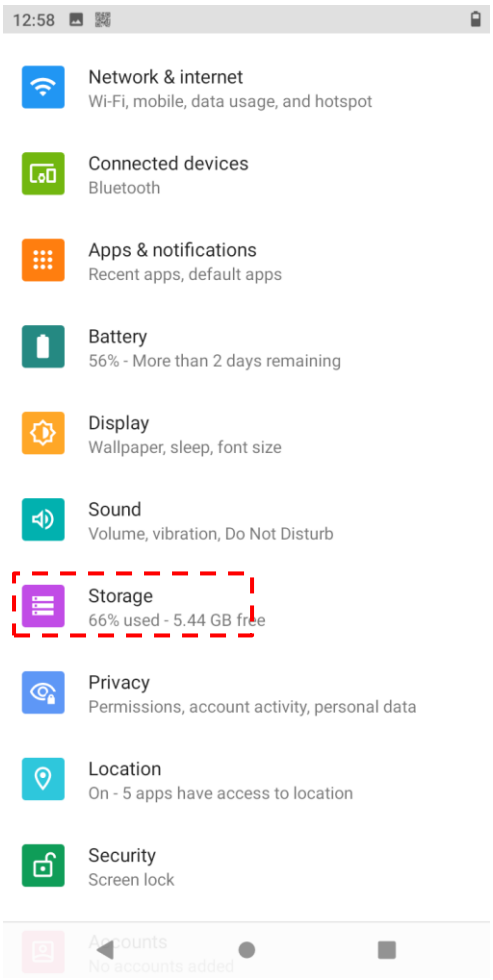
1) Click the icon  ，to open "GPS Positioning Test".
2) Set the GPS parameters，and obtain GPS data information.

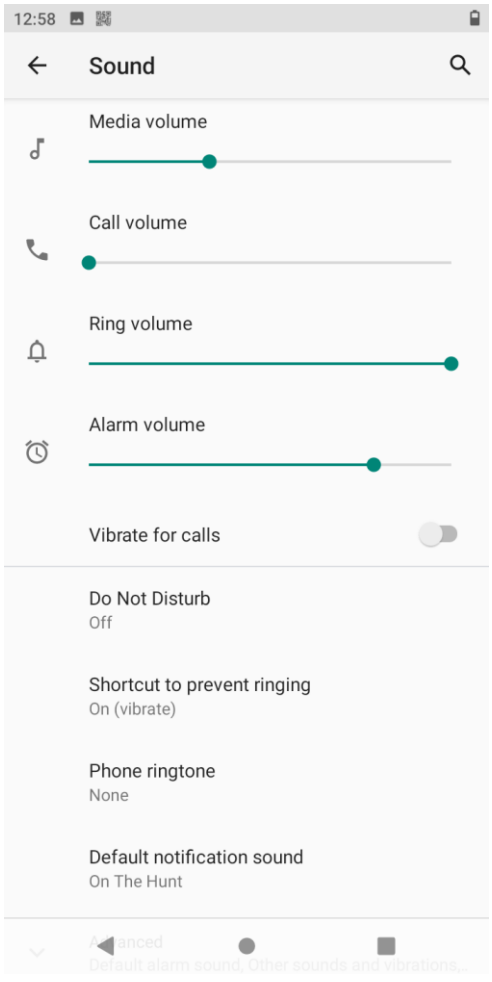


Chapter 6: Setup and Management

6.1 Volume Adjustment

1) Find this icon in settings:  You can set the volume of media, calls, ringtones and alarms, and you can also set the icon function.

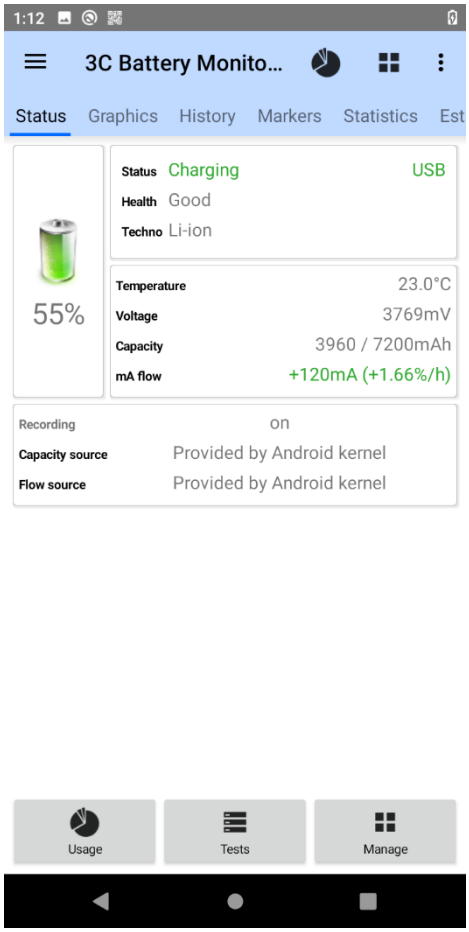




6.2 Power and Battery Management

1) The battery only has a small amount of charge for testing purposes at the factory. Please charge the device before use upon receipt.
2) Charge the battery via the power adapter. The first charge will take approximately 4 hours or more. The LED will be solid red during charging and solid green when fully charged.
3) The optimal operating temperature is room temperature (18-25℃).Charging will not occur at temperatures below -10℃ or above 50℃.
4) Enabling wireless network services or data acquisition programs will significantly deplete the battery. It is recommended to disable these programs when not in use to conserve power.
5) You can check the battery status using the 3C Battery Monitor Pro program.

Note: If the product is not used for an extended period, please charge the entire device at least once every two months.



Chapter 7: Equipment Maintenance

7.1 Troubleshooting

I. Common Faults and Solutions

1) Fault 1: Device Cannot Start
   Fault Description: After the user presses the power button, the device does not respond and cannot start.
   Troubleshooting Steps:
   ● Check if the device has power. If necessary, charge it or replace the battery.
   ● If the above steps do not solve the problem, it is recommended to back up the data and restore factory settings.
2) Fault 2: Device Lags
   Fault Description:The device experiences lag, unresponsiveness, etc., affecting usability.
   Troubleshooting Steps:
   ● Check the device memory to ensure it is not overloaded. Try clearing the cache or closing other applications.
   ● Check the device storage space. If storage space is insufficient, delete unnecessary files or applications.
   ● Check the device for viruses or malware. If necessary, run antivirus software to scan. ● If the above steps do not solve the problem, it is recommended to back up the data and restore factory settings.
3) Fault 3: Device Cannot Connect to the Network Fault Description: The device cannot connect to Wi-Fi or mobile networks. Troubleshooting Steps:
   ● Check if the device's Wi-Fi or mobile data is turned on.
   ● Check if the device is within signal coverage; try connecting closer to a signal source. ● If it's a Wi-Fi network issue, try restarting the Wi-Fi router or re-entering the Wi-Fi password.
   ● If it's a mobile network issue, try changing the SIM card or contacting your mobile carrier for assistance.
   ● If the above steps do not resolve the issue, it is recommended to back up your data and perform a factory reset.
4) Fault 4: Abnormal Device Screen Display Fault Description: The device screen displays abnormal phenomena such as distorted images or flickering. Troubleshooting Steps:
   ● Check if the device has suffered any external physical damage. If necessary, seek assistance from a professional repair technician.
   ● Try restarting the device to see if the display problem is resolved.
   ● Check if the device needs a system or application update. If so, update it.
   ● If the above steps do not resolve the issue, it is recommended to back up

your data and perform a factory reset.

5) Fault 5: Device Cannot Charge Fault Description: After connecting the device to the power adapter, the charging indicator light does not illuminate, and the device screen shows no response. Troubleshooting Steps:
   ● Try a different power adapter to rule out problems with the power adapter and charging cable.
   ● If you have a compatible charging dock, try charging it with the dock. When the battery is completely depleted, it enters a dormant state and needs to be activated by charging with the dock.
   ● When using a network port charging dock, please turn off the dock's internet connection.
   ● If the above steps do not resolve the issue, it is recommended to back up your data and restore factory settings.
   ● If the above steps still do not resolve the issue, it is recommended to contact after-sales service for further assistance.

7.2 Precautions

1) During troubleshooting, be sure to follow the steps precisely to avoid causing more serious problems due to operational errors.
2) If the user cannot successfully resolve the fault, it is recommended to contact after-sales service or professional repair personnel for assistance. Do not disassemble the equipment yourself or use improper repair methods.
3) Users should pay attention to their own safety when troubleshooting to avoid personal injury caused by improper repairs.
4) This troubleshooting manual is only applicable to troubleshooting common faults. More complex problems require handling by professional repair personnel.

7.3 Fault Prevention Measures

1) Regular maintenance and cleaning
2) Regularly clean the product surface and ventilation holes to prevent dust and dirt accumulation from affecting product performance.
3) Correct use of the power adapter
4) Use a power adapter that meets the requirements, avoid overloading the power supply, and ensure stable power supply.
5) Prevent the product from getting damp.
6) Avoid prolonged exposure of the product to humid environments, such as kitchens and bathrooms, to prevent short circuits or component corrosion.

7) Prevent the product from impacts.
8) Prevent the product from being subjected to external impacts or drops to avoid loosening or damage to internal components.
9) Back up data regularly.
10) Regularly back up important data to prevent data loss or unrecoverable situations.

Chapter 8: Secondary Development Instructions

For secondary development packages or other technical issues requiring assistance, please contact your business manager or technical engineer.

Chapter 9: Disclaimer

Disclaimer: The contents of this manual, including but not limited to all operating instructions, functional descriptions, and technical diagrams, are for general reference only and do not constitute a warranty regarding specific machine configurations. The manufacturer does not guarantee that the functions described in this manual are completely consistent with those of specific models and reserves the right to make changes to product design and specifications without prior notice. All functions and performance are subject to the actual condition of the product you purchase.