GRUNDIG

F Series Coulomb Meter
Shunt Sampling

User Manual

(Images in the manual are for reference only)

Warranty and Declaration

Declaration

This product is protected by national patents

This document supersedes all previously published instructional materials

Contact Us

If you have any questions or needs regarding the use of this product or this manual, you can contact GRUNDIG at:

Email: **service@grundig-auto.com**

Website: **WWW.grundig-auto.COM**

Safety Requirements

Safety Standards and Safe Use

General Safety Overview

Understand the following safety precautions to avoid injury and prevent damage to this product or any products connected to it. To avoid potential hazards, please use this product as prescribed.

Check All Terminal Ratings

To avoid fire and excessive current shock, please check all the ratings and markings on the product, and consult the product manual for detailed information on ratings before connecting the product.

Use Appropriate Overvoltage Protection

Ensure no overvoltage (such as voltage caused by lightning) reaches this product, as this could pose a risk of electric shock to the operator.

Do Not Operate with Cover Open

Do not operate this product with its case open.

Do Not Insert Foreign Objects into Ventilation Holes

Do not insert foreign objects into ventilation holes to avoid damaging the instrument.

Avoid Exposed Circuits

Do not touch exposed connectors and components when the power is on.

Do Not Operate if You Suspect a Fault

If you suspect a fault with this product, contact authorized GRUNDIG service personnel for inspection. Any maintenance, adjustment, or replacement of parts must be performed by authorized GRUNDIG service personnel.

Maintain Proper Ventilation

Poor ventilation can cause an increase in temperature of the instrument, leading to damage. Ensure good ventilation during use and regularly check ventilation ports.

Do Not Operate in Damp Environments

To avoid the risk of short circuits or electric shock within the instrument, do not operate it in damp environments.

Do Not Operate in Flammable or Explosive Environments

To avoid damage to the instrument or personal injury, do not operate it in flammable or explosive environments.

Keep the Product Surface Clean and Dry

To prevent dust or moisture in the air from affecting the performance of the instrument, keep the product surface clean and dry.

Antistatic Protection

Static electricity can damage the instrument, so testing should be done in an antistatic area as much as possible. Before connecting cables to the instrument, briefly ground the inner and outer conductors to release static electricity.

Pay Attention to Safe Handling

To prevent the instrument from slipping during handling, causing damage to buttons, knobs, or interfaces on the instrument panel, handle it safely.

Attention and Maintenance

1. Do not exceed the voltage and current range of the instrument, as this will damage the instrument.
2. Do not reverse the positive and negative poles, as incorrect handling will result.
3. The outer case of the instrument is fragile and corrosive. Do not hit it hard or expose it to chemicals to avoid corrosion.
4. Store at temperatures between -25 to 50°C in a dry environment.
5. Do not attempt to open the instrument; breaking the seal will void the warranty. There are no parts inside the instrument that users can repair. Repairs can only be done through designated service points or sent back to the factory.
6. Avoid placing unsafe items such as lit candles, cups of water, or corrosive

chemicals on the instrument to prevent damage.

7. The display screen is prone to contamination and breakage; do not touch or collide with hands or external objects. Keep the instrument away from children. When you notice dust on the LCD surface, carefully wipe it with a soft cloth.
8. Do not move the instrument violently while it is working to avoid irreparable damage to the internal circuit. If the instrument still does not work properly after troubleshooting, please contact the supplier!

Warranty and After-sales Service

To maximize understanding and use of your new product, we suggest you take the following steps:

1. Read the safety and effective use guide.
2. Read the warranty terms and conditions.

Warranty Terms

The warranty period for the instrument is one year from the date of shipment. During the warranty period, our company will decide whether to repair or replace the faulty instrument based on the actual situation. If repair is needed, please contact our after-sales service and mail the product to our company.

Exclusions from Warranty Coverage

Improper operation or maintenance by the user; use of software or power interfaces provided by the user; unauthorized disassembly and repair of the instrument.

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Contents

Unboxing Inspection

When you receive a new battery Coulomb meter, we recommend you follow these steps to inspect the instrument.

Check the Shipping Packaging

If the shipping package is damaged, retain the damaged packaging or shock-absorbing materials until the goods have been fully inspected and the instrument has passed electrical and mechanical tests. For damage caused during transportation, the shipper and carrier should be contacted regarding compensation.

Check the Accessories Included

The contents of the accessories are as follows. If the contents do not match or the instrument is damaged, please contact the dealer or our company.

Main unit: KM-F series display KM-F series sampler	1 piece 1 piece
Accessories:5-meter data cable	1 piece
Accessories:1-meter red positive wire	1 piece
Accessories: Quick Guide	1 piece

Inspect the Entire Instrument

If you find any damage to the appearance of the instrument, if the instrument is not working properly, or if it fails the performance test, please contact the dealer or our company.

Chapter 1: Overview

1.Instrument Introduction

The KM-F series coulometer is a new generation of battery monitoring equipment developed by Hangzhou Junce Instrument Co., Ltd. It integrates 10 years of coulometer use and research and development experience, providing you with a comprehensive, easy-to-operate, and innovative battery power monitoring solution. The following are the highlights of the KM-F series coulometer:

1、Global Internet access: Support Wi-Fi and Bluetooth connections, and through the mobile app, you can view battery information in real time no matter where you are.

2、Comprehensive monitoring capability: It can detect the voltage, current, power, remaining capacity value, remaining capacity percentage, charging and discharging status, and estimated time of the battery during operation.

3、Intelligent alarm system: with a built-in buzzer, users can set low-capacity and low-voltage alarm thresholds, and the system will automatically sound an alarm when the battery status reaches the preset value.

4、Innovative design: The integrated display design simplifies the product volume and installation process, making the coulomb meter easier to install and use.

5、Visual enjoyment: 2.4-inch color screen display provides excellent visual effects under any lighting conditions, and the screen is specially designed with a white-out function to adapt to outdoor use.

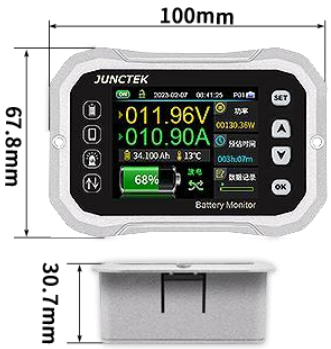
6、Intelligent operation: mobile APP control, providing a beautiful and feature-rich interface, intuitive display of battery status through charging dynamics, and comprehensive parameter settings.

7、Various models: Various models such as KM105F, KM110F, KM140F and

KM160F are available, covering a voltage measurement range of 10-100V and a current measurement range of 0-600A, meeting the needs of different users.

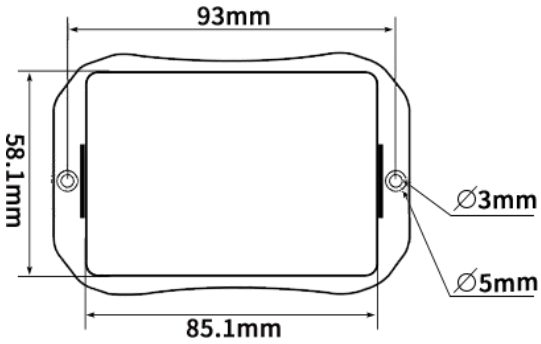
The KM-F series coulometer is suitable for various scenarios such as recreational vehicles, yachts, household solar off-grid power generation equipment, large mobile power banks, portable outdoor power supplies, etc. It is an ideal choice for your battery management.

2. Appearance and Dimensions



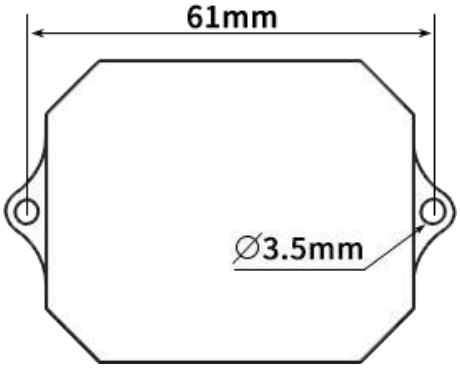
Display Dimension Diagram

Note: Display inset hole size: 85.1 * 58.1mm



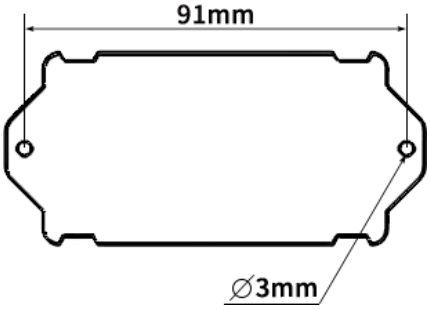
Display Hole Position Diagram

50A Sampler Dimension Diagram



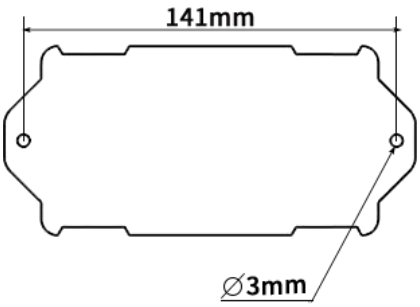
50A Sampler Hole Position Diagram

100A Sampler Dimension Diagram



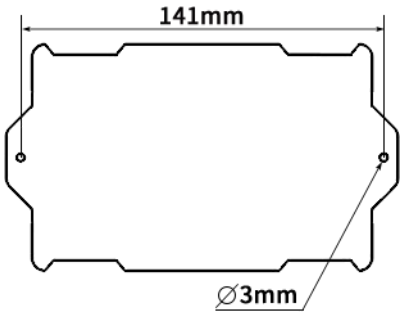
100A Sampler Hole Position Diagram

400A Sampler Dimension Diagram



400A Sampler Hole Position Diagram

600A Sampler Dimension Diagram



600A Sampler Hole Position Diagram

3. Technical Specifications

Model	KM105F	KM110F	KM140F	KM160F
Sampling Method	Shunt			
Voltage Measurement Range	10-100V			

Voltage Resolution	0.01V			
Current Measurement Range	0-50A	0-100A	0-400A	0-600A
Current Resolution	0.001A	0.01A		
Capacity Display Range	0-100%			
Power Measurement Rang	0-5KW	0-10KW	0-40KW	0-600KW
Power Resolution	0.0001W (<10W) 0.001W (≥ 10 and<100W) 0.01W (≥ 100 and<1000W) 0.1W (≥ 1000 and<10000W)			
Ampere-Hour Measurement Range	0-9999.9Ah			
Capacity Resolution	0.001Ah (<100Ah) 0.01Ah (≥ 100 and ＜ 1000Ah) 0.1Ah (≥ 1000 and ≤ 9999.9Ah)			
Bluetooth Connection Distance	Maximum 10 meters in an open area			
WiFi Connection Distance	Maximum 10 meters in an open area			

Remote Connection Distance	Global	
Wifi Network	2.4G (5G cannot configure network)	
Voltage Accuracy	±5‰+0.02V	
Current Accuracy	±2‰+0.002A	±1 %+0.1A
Sampling Rate	5 times per second	
Display Power Consumption	0.9W	
Screen Auto-off Time	Screen lights up when discharge current (I) ≥15mA; screen turns off when I <15mA and time >20s	Screen lights up when discharge current (I) ≥30mA; screen turns off when I <30mA and time >20s

Chapter 2: Instrument Description

1. Display Panel Introduction

Figure 2-1-1 KM-F Series Display Diagram

Figure 2-1-1 KM-F Series Display Diagram Explanation

Label	Description	Label	Description
1	LCD Screen	4	【▼】Button
2	【SET】Button	5	【OK】Button
3	【▲】Button	6	Communication Interface

1. LCD Screen

2.4-inch color LCD display, displaying the current function menu and parameter settings.

2. 【SET】Button

Press the [SET] button to quickly switch to the settings interface.

3. 【▲】Button

When setting parameters, it is used to change parameters; When setting the system, press the [▲] button to select the corresponding system settings.

4. 【▼】Button

When setting parameters, it is used to change parameters; When setting the system, press the [▼] button to select the corresponding system settings.

5. 【OK】Button

In the main interface, short press the [OK] button to view the information of the coulometer and the QR code for connecting to the mobile app; Long press the

[OK] button to quickly lock or unlock the button.

6.Communication Interface

It is used for connecting the communication interface with the measurement module.

2. Sampler Introduction

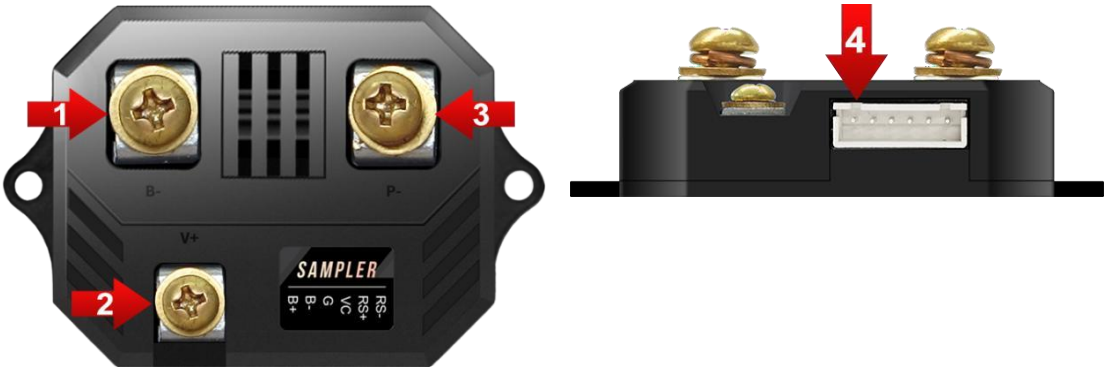


Figure 2-2-1 KM-F Series Sampler Diagram (Example: 50A Sampler)

Table 2-2-1: KM-F Series Sampler Diagram Explanation (Example: 50A Sampler)

Label	Description	Label	Description
1	Battery Negative Terminal Screw	3	Charger and Load Negative Terminal Screw
2	V+ Terminal Screw	4	Data Cable Connection Interface

Figure 2-2-2: KM-F Series Sampler Diagram (Example: 100A Sampler)

Table 2-2-2: KM-F Series Sampler Diagram Explanation (Example: 100A Sampler)

Label	Description	Label	Description
1	Data Cable Connection Interface	3	Battery Negative Terminal Screw
2	V+ Interface	4	Charger and Load Negative Terminal Screw

3. Display Interface Introduction

Figure 2-3-1: KM-F Series Display Interface Diagram

Table 2-3-1: KM-F Series Display Interface Diagram Explanation

Label	Description	Label	Description
1	Button Lock Status	7	Remaining Capacity Percentage
2	Voltage	8	Charge/Discharge Status
3	Current	9	WiFi Remote Connection Status

4	Power	10	WiFi Local Area Network Connection Status
5	Estimated Time	11	Bluetooth Connection Status
6	Remaining Capacity	12	Actual Time

1. Button Lock Status

The current status shows that the representative key can be operated. After long pressing the OK key, it displays , indicating that the key is locked.

2. Voltage

Indicates the voltage value of the voltage measurement interface in the power supply interface.

3. Current

Indicates the actual current value through the sampler.

4. Power

The current power value is measured in W.

5. Estimated Time

How long can it continue to work in the future under the existing capacity and current discharge current/load power conditions; How long will it take to charge in the future under the current capacity and charging current conditions; When the current changes from greater than 0A to 0A, the expected time within one minute is still the previous time, and after one minute, it changes to ---h:--m; When the current changes from 0A to greater than 0A, the expected time is still ---h:--m within one minute;, After one minute, it will be converted to the calculated time;

6. Remaining Capacity

It indicates the remaining capacity of the battery after charging and discharging. The remaining capacity = preset battery capacity - cumulative capacity.

7. Remaining Capacity Percentage

The remaining battery capacity is highlighted in a more intuitive graphical manner. In the main interface, when the remaining capacity percentage is less than or equal to 20%, the battery remaining capacity graph will display in red; When the remaining capacity percentage is greater than 20%, the battery remaining capacity graph displays green.

8. Charge/Discharge Status

When charging, the symbol is displayed as +, and the charging text is displayed, with the current color being green.

During discharge, the symbol is displayed as a minus sign, with the word "discharge" displayed, and the current color is blue.

9. WiFi Remote Connection Status

The current icon indicates that the coulometer has successfully configured the network and can be connected remotely via WiFi.

When the WiFi remote icon disappears, it indicates that the coulometer cannot perform WiFi remote connection.

10. WiFi Local Area Network Connection Status

The current icon indicates that the coulometer has successfully configured the network and can be connected via WiFi LAN.

When the data corner mark in the lower right corner of the WiFi LAN icon disappears, it indicates that the coulometer has been successfully connected to the network, but the network cannot access the Internet normally.

When the data corner mark in the lower right corner of the WiFi LAN icon disappears and the color turns yellow, it indicates that the coulometer is in the process of network distribution.

When the data corner mark in the lower right corner of the WiFi LAN icon disappears and the color turns red, it indicates that the coulometer is experiencing a failure or error in network configuration.

When the WiFi LAN icon disappears, it indicates that the Coulombmeter is not connected to the power grid.

11. Bluetooth Connection Status

The current icon indicates that the coulometer can be connected via Bluetooth.

12. Actual Time

The actual time will only be displayed when the coulometer is successfully configured with a network and the network can access the internet normally.

Chapter 3: Basic Operation of the Instrument

1. Main Interface Settings

In the main interface, press and hold the 【OK】 button for 5 seconds to lock the buttons. To unlock them, press and hold again for 5 seconds. In remote connection mode, press and hold the 【SET】 button for 10 seconds to enter firmware upgrade mode. Short press the 【OK】 button to view the coulomb meter's information and access the QR code for connecting with the mobile app.

2. System Settings

In the main interface, users can enter the system settings interface by short-pressing the 【SET】 button. In the system settings interface, users can easily switch between different function options using the 【▲】 and 【▼】 buttons. When needing to confirm or view detailed settings for a specific function, users can simply short-press the 【OK】 button, and the system will immediately display the corresponding settings popup. Please refer to Figures 3-2-1 to 3-2-2 for specific operation interfaces to ensure efficient and accurate completion of relevant settings.

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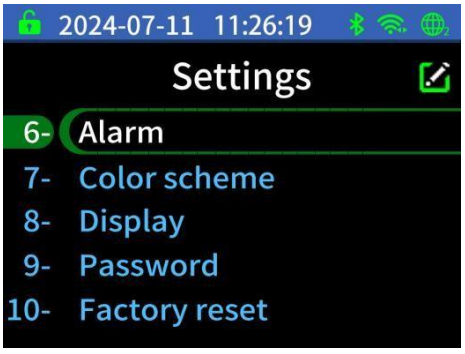
<td> 
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<td>Figures 3-2-1</td>
<td>Figures 3-2-2</td>
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(1). Language & Time Zone

In the system settings interface, users can quickly locate the language & time zone settings options using the 【▲】 and 【▼】 buttons. After short-pressing the 【OK】 button, the system will display the language selection popup as shown in Figure 3-2-3. Users can visually see the currently selected language (e.g., Chinese) and can easily switch between Chinese and English using the 【▲】 and 【▼】 buttons. After selecting the language, short-press the 【OK】 button again, and the system will automatically jump to the time zone settings popup (see Figure 3-2-4). The cursor will automatically select the current time zone. Users can browse and select time zones from around the world using the 【▲】 and 【▼】 buttons. Once the selection is confirmed, pressing the 【OK】 button again will complete the time zone setting and save all changes.

Figures 3-2-3

Figures 3-2-4

(2). Network Reset

In the system settings interface, users can quickly switch to network reset settings using the 【▲】 and 【▼】 buttons. Short press the 【OK】 button, and the system will quickly pop up the network reset dialog box as shown in Figure 3-2-5. Users can select "Yes" or "No" in the network reset options using the 【▲】 and 【▼】 buttons. Once the cursor selects "Yes," short-press the 【OK】 button again, and the device will immediately reset the connected network. Please note that after completing the network reset, you need to reconfigure the network on the JUNCE HOME mobile app to ensure the device connects properly to your network environment. When the network around the

KM-F changes, a network reset and connection to the new network are required for normal use.

Figures 3-2-5

(3). System Reboot

In the system settings interface, users can easily navigate to the system reboot setting by pressing the 【▲】 and 【▼】 buttons, as shown in Figure 3-2-6. Once the system reboot option is selected, simply short-press the 【OK】 button, and the system will immediately execute the restart operation, ensuring the device quickly returns to its optimal state.

Figures 3-2-6

(4). Battery Level

In the system settings interface, users can quickly switch to the battery level setting option using the 【▲】 and 【▼】 buttons. After a short press of the 【OK】 button, the battery level setting popup will appear, as shown in Figure 3-2-7. In this interface, users can continue to adjust the tens digit value using

the【▲】and【▼】buttons. Once the tens digit is set, press the【OK】button again, and the cursor will automatically move to the units digit. Users can then adjust the units digit using the【▲】and【▼】buttons. After setting the values, press the 【OK】 button again to confirm and apply the battery level setting. The battery level is an intuitive indicator of the current battery's remaining capacity, representing the current capacity as a percentage of the total battery capacity. Users can set the current battery capacity percentage according to their actual usage and needs, allowing for continuous adjustment between 0% and 100% for better battery management and utilization. For first-time use, it is recommended to fully charge the battery and set the battery level to 100%.

Figures 3-2-7

(5). Battery Capacity

In the system settings interface, users can easily switch to the battery capacity setting option using the 【▲】 and 【▼】 buttons. Once the cursor selects the battery capacity, a short press of the 【OK】 button will bring up the battery capacity setting popup, as shown in Figure 3-2-8. In this popup, users can increase or decrease the value by pressing the 【▲】 and 【▼】 buttons continuously. Whenever different digit values need adjustment, simply short-press the 【OK】 button again to easily switch to the next digit, starting from the highest digit and progressing to the lowest digit. After adjusting the lowest digit, press the 【OK】 button again to confirm and save the set battery capacity value.

For first-time use, you can set according to the battery's nominal capacity. After fully charging the battery, set the battery level to 100%, then discharge it. The capacity released during discharge will be the actual battery capacity, which can then be reset as the battery capacity.

Figure 3-2-8

(6). Alarm

In the system settings interface, users can conveniently switch to the alarm setting option using the 【▲】 and 【▼】 buttons. Then, a short press of the 【OK】 button will trigger the display of the alarm setting popup, with the cursor defaulting to the low capacity alarm setting, as shown in Figure 3-2-9. Users can continue to use the 【▲】 and 【▼】 buttons to adjust the threshold for the low capacity alarm, which ranges from 01% to 99%. Setting it to "OFF" will disable this alarm . After setting the low capacity alarm, a short press of the 【OK】 button again will save the current settings and automatically switch to the low voltage alarm setting interface, as shown in Figure 3-2-10. Similarly, users can set the threshold for the low voltage alarm using the【▲】and【▼】buttons, ranging from 10.0V to 99.9V. As before, setting it to "OFF" will disable this alarm . Finally, after confirming all alarm settings, the user can complete the entire alarm setting process by pressing the 【OK】 button once more. When the battery voltage or capacity falls below the preset alarm threshold, a prominent alarm window will immediately appear on the main interface, and the buzzer will sound continuously for 10 seconds. Once the 10 seconds have

passed, the buzzer will automatically stop, but the alarm window will remain displayed, prompting the user to acknowledge the alarm. At this point, the user needs to briefly press the 【OK】 button to acknowledge receipt of the alarm. If, after pressing the 【OK】 button, the coulomb meter still indicates that the device is in a discharge state and the voltage or capacity remains below the alarm threshold, the alarm system will reactivate, and the popup and buzzer will repeat the previous alarm process. However, if the user confirms and the coulomb meter shows the device has entered a charging state, the low voltage alarm will not be dismissed if the voltage remains below the set low voltage alarm value, while the low capacity alarm will be dismissed in the charging state. During this operation, the system will provide two types of alarm popups to assist the user: the low capacity alarm popup shown in Figure 3-2-11 and the low voltage alarm popup shown in Figure 3-2-12. These intuitive popups will provide users with clear prompts to assist in performing corresponding operations and settings.

Figure 3-2-9

Figure 3-2-10

Figure 3-2-11

Figure 3-2-12

(7). Color Scheme

In the system settings interface, users can easily switch to the color scheme by gently pressing the【▲】or【▼】button. Once the【OK】button is pressed, the system will quickly respond and display a color scheme selection popup. In this popup, users can continue to use the【▲】and【▼】buttons to choose between the "Light" and "Dark" color scheme options. If the cursor remains on the "Light" option, users need only press the 【OK】 button again, and the device will immediately switch to the light scheme mode, providing a fresh visual experience. Figures 3-2-13 and 3-2-14 show the light and dark displays in the color scheme selection interface, while Figures 3-2-15 and 3-2-16 demonstrate the interface display effects after enabling the light scheme.

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<tr><td>Figure 3-2-13</td><td>Figure 3-2-14</td></tr>
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<tr><td>Figure 3-2-15</td><td>Figure 3-2-16</td></tr>
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(8). Display

In the system settings interface, users can conveniently switch to the display option using the【▲】and【▼】buttons. Then, lightly press the【OK】button, which will trigger the display of the display popup, with the cursor defaulting to the brightness setting, as shown in Figure 3-2-17. Users can continue to use the【▲】and【▼】buttons to adjust the brightness percentage between 01% and 100%. After adjusting the brightness, if the user proceeds to set the auto-off feature, lightly press the 【OK】 button again to save the current settings and automatically transition to the auto-off settings interface, as shown in Figure 3-2-18. In the auto-off settings, users can also use the 【▲】 and 【▼】 buttons to select the screen-off time and mode.

The following options are available for auto-off settings:

- Auto-off (OFF): Selecting this option will keep the screen continuously lit.
- Auto-off (10s/20s/30s/40s/50s/60s): This option indicates that the screen will automatically turn off when there has been no operation for a specified period (10 to 60 seconds).
- Auto-off (Auto): This function automatically adjusts screen brightness based on the device's discharge current. Specifically, for the KM105F model coulomb meter, when the discharge current I is greater than or equal to 15mA for a period, the screen will automatically light up; if the discharge current I is less than 15mA and exceeds 20 seconds, the screen will automatically turn off. For KM110F, KM140F, and KM160F models, the operation is similar, with 30mA as the current threshold.

Figure 3-2-17

Figure 3-2-18

(9). Password

In the system settings interface, users can easily switch to the password option using the【▲】and【▼】buttons. Once selected, a short press of the【OK】button will bring up the password popup, as shown in Figure 3-2-19. In this popup, users can increase or decrease the value by continuously pressing the 【▲】 and 【▼】 buttons. Whenever different digit values need adjustment, simply short-press the 【OK】 button again to easily switch to the next digit, starting from the highest digit and progressing to the lowest digit. After adjusting the lowest digit, press the 【OK】 button again to confirm and save the set password.

The initial password for the KM-F Series Coulomb Meter is set to 11223344. It's important to note that, in its initial state, this password does not allow you to use the device-sharing code feature in the mobile app. If you wish to share the device with others, you must first change the initial password. After completing the password change, the mobile app will require you to enter the new password when connecting to the device for the first time to ensure security and accuracy.

Figure 3-2-19

(10). Factory Reset

In the system settings interface, users can easily switch to the factory reset option using the 【▲】 and 【▼】 buttons. Once the option is selected,

short-press the 【 OK 】 button, and the system will immediately display a factory reset popup, as shown in Figure 3-2-20. At this point, users can use the 【▲】 and 【▼】 buttons to choose between "Yes" and "No" in the factory resetoption. If the cursor selects "Yes," short-press the 【OK】 button again, and the device will immediately execute the restore factory settings operation. Please note that after completing this operation, all settings of the coulomb meter will be reset, and users will need to configure settings again according to their needs.

Figure 3-2-20

3.Wiring Method

KM105F Wiring Steps:

① Use a negative wire to connect the battery's negative terminal to the screw on the sampler marked with "B-".

② Use a negative wire to connect both the charger's negative terminal and the load's negative terminal to the screw on the sampler marked with "P-".

③ Use a positive wire to connect the battery's positive terminal to the small screw on the sampler marked with "V+".

KM110F, KM140F, KM160F Wiring Steps:

① Use a negative wire to connect the battery's negative terminal to the screw on the sampler marked with "BATT-".

② Use a negative wire to connect both the charger's negative terminal and

the load's negative terminal to the screw on the sampler marked with "LOAD-".

③ Use a positive wire to connect the battery's positive terminal to the small screw on the sampler marked with "V+".

Precautions:

◆ The wire from the battery positive to the sampler's "V+" does not need to be particularly thick; a 13-16AWG wire is sufficient.

◆ The negative wires on the sampler's B-, P- (BATT-, LOAD-) terminals must not be connected incorrectly; otherwise, the charging and discharging directions will be reversed, leading to inaccurate measurement data.

◆ It is recommended to use copper terminals for connections as they are relatively more secure.

◆ The wire diameter from the battery negative to the sampler's negative must be equal to or greater than the total diameter of all load wires.

◆ During the wiring process, it is imperative to follow safety protocols and ensure that the wiring is done in a power-off state. It is particularly important to ensure that the battery's positive connection is completely disconnected to avoid any potential risk of electric shock. The recommended procedure is to first connect the sampler section and, after completing this critical step, then safely connect the battery's positive terminal. This sequence ensures the safety and effectiveness of the entire wiring process.

Meanings of the Display Interface After Wiring Completion:

During charging, the current direction symbol is green "+" and displays charging; the remaining capacity value increases. During discharging, the current direction symbol is sky blue "-" and displays discharging; the remaining capacity value decreases.

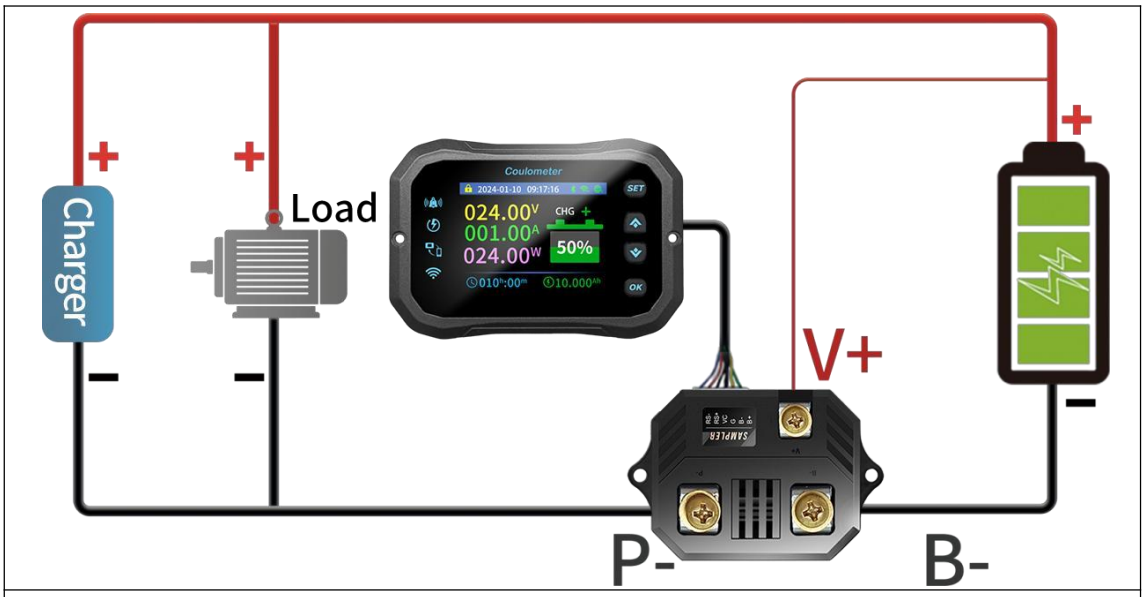


Figure 3-3-1: 50A Sampler Wiring Diagram

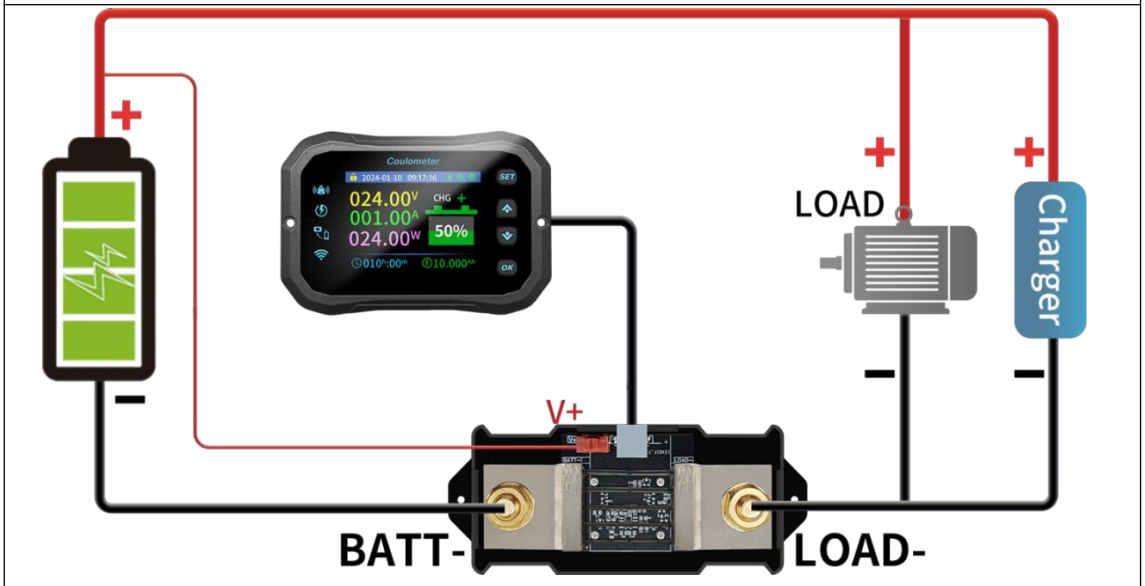


Figure 3-3-2: 100A/400A/600A Sampler Wiring Diagram (illustrated with 400A)

4. Mobile Control

(1). Android Mobile APP Instructions

1). APP Download

Server Download Link:

http://68.168.132.244/JunceHome/JunceHome.apk

Google Play Store download link:

https://play.google.com/store/apps/details?id=com.juntek.platform

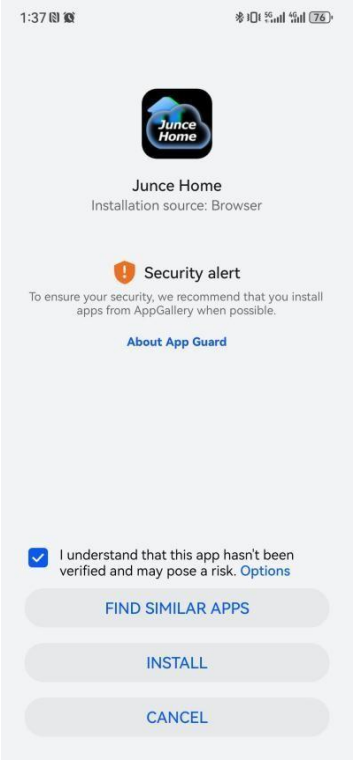
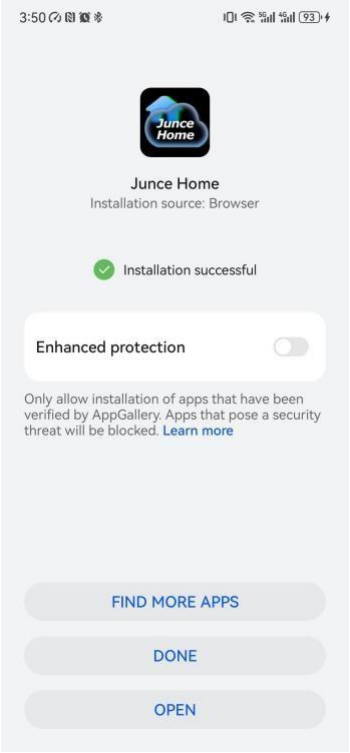
If you are unable to download or have difficulties, you can ask customer service personnel for the software.

2). Mobile APP Software Installation and Device Connection

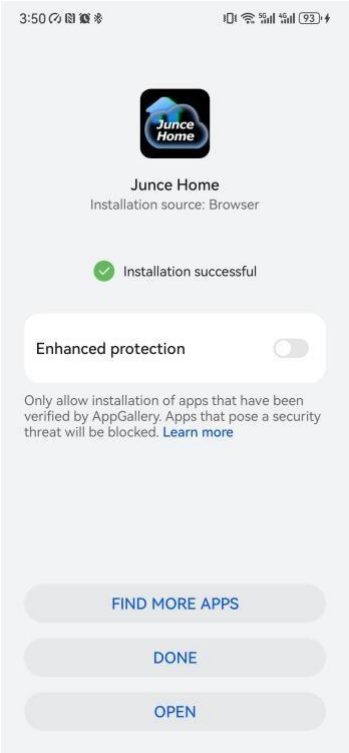
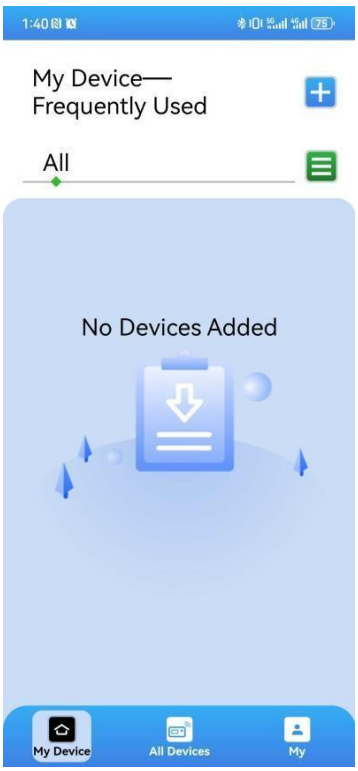
This software only supports use on Android 9.0 and above systems. Using the software requires allowing "Junce Home" to access location information and to find and connect to nearby devices. (Due to Android system restrictions, please turn on the phone's built-in GPS positioning first to search and connect to the Bluetooth model in the mobile APP. Note: This APP does not have a positioning function.)

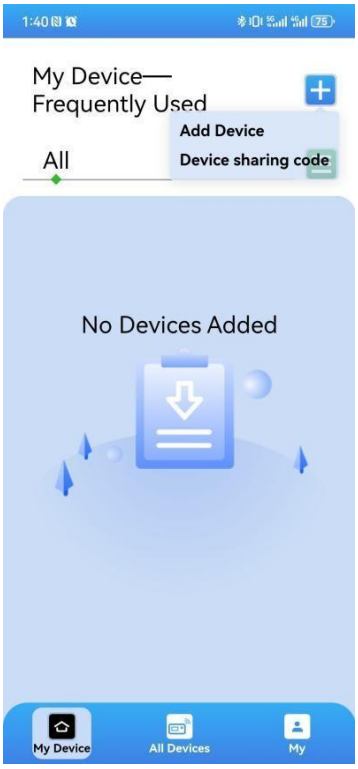
Mobile App Installation:

	
Step 1: Use your phone's built-in browser to scan the APP download code or copy the APP download link into the browser, open it to access the download page, and click "Continue to visit.	Step 2: Download the JunceHome.apk application.

	
Step 3: After downloading JunceHome.apk, proceed with the installation.	Step 4: Complete the installation of JunceHome.apk.

Mobile App -- Bluetooth Connection:

	
Step 1: Successfully install the "Junce Home" app.	Step 2: Open the "Junce Home" app.

<table>
<tr>
<td> 
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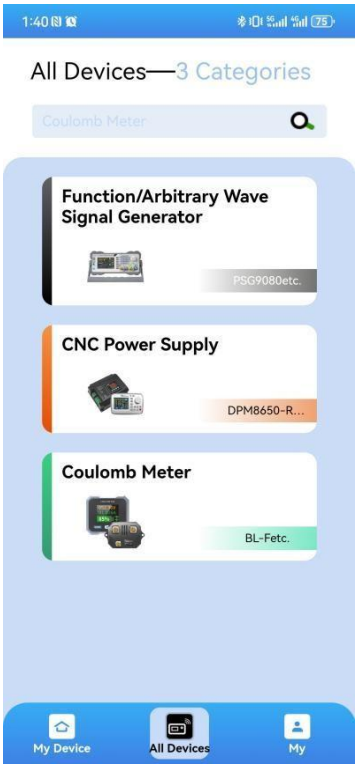
<td> 
</td>
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<tr>
<td>Step 3:
Click the "+" symbol in the upper right corner, and a drop-down list will appear.</td>
<td>Step 4:
Click "Add Devices" to enter the all devices interface.</td>
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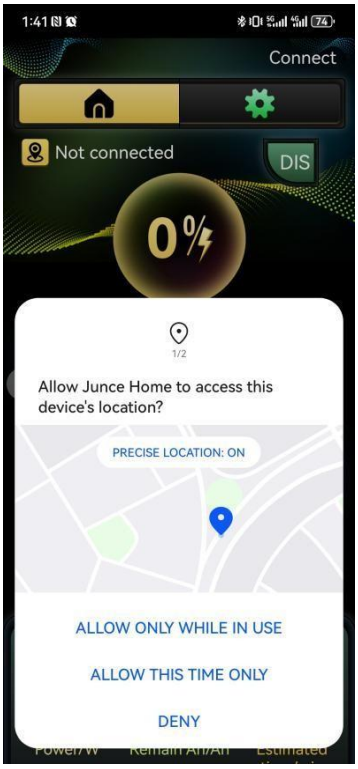
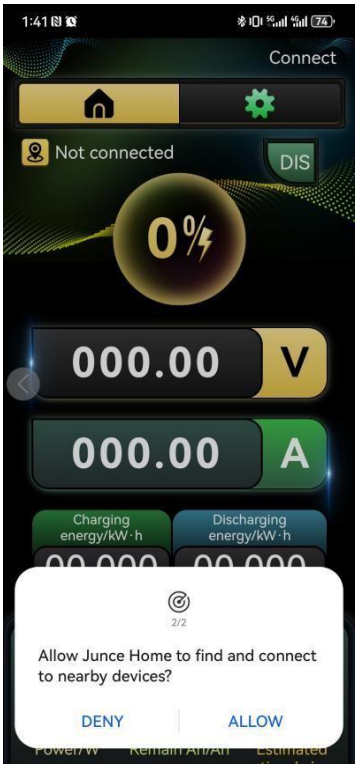
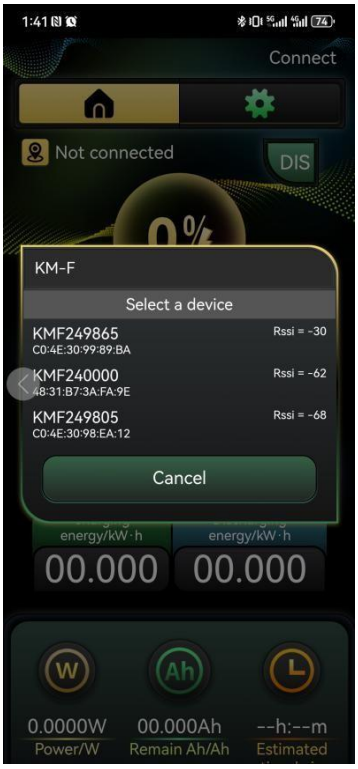
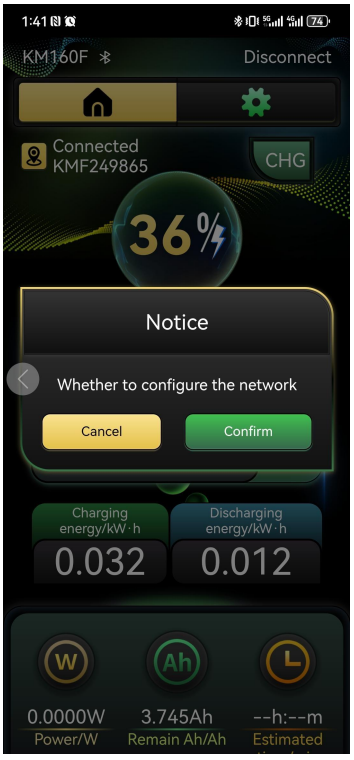
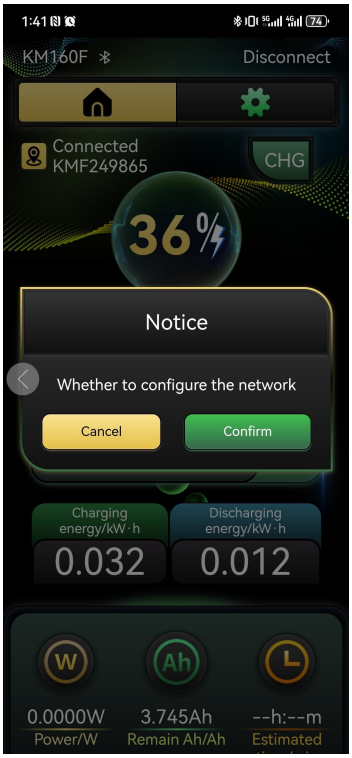
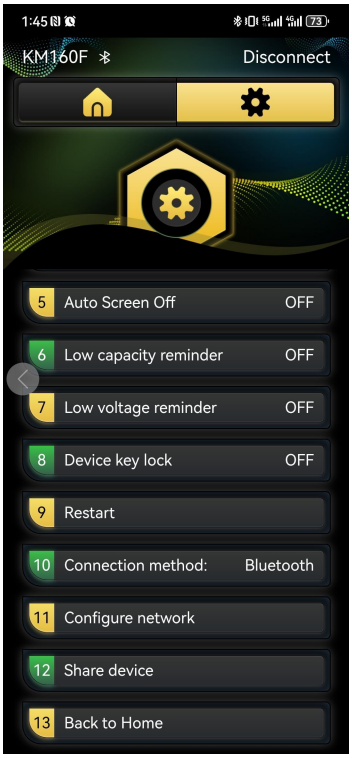
Step 5: Click the "Coulomb Meter" category to enter the Coulomb Meter category interface.	Step 6: Click the "KM-F" model to enter the KM-F connection method interface.
	
Step 7: In the connection interface, click Bluetooth, and a prompt will appear asking for location access permission. Allow this permission.	Step 8: Allow "Junce Home" to search for and connect to nearby devices.

	
Step 9: A selection prompt will appear, displaying the Coulomb Meter Bluetooth model "KMFXXXXXX."	Step 10: Click the "KMFXXXXXX" Bluetooth model, and a prompt will appear asking "Whether to configure the network"

	
Step 11: After selecting "Cancel Network Configuration," the Coulomb Meter will display parameter information, indicating a successful Bluetooth connection, with a Bluetooth symbol shown next to the model.	Step 12: Return to the "My Devices" interface, where you can also see the successfully added and connected device, indicating it is connected via Bluetooth.

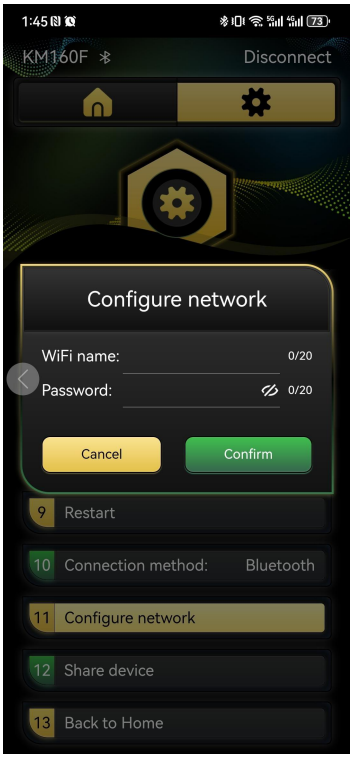
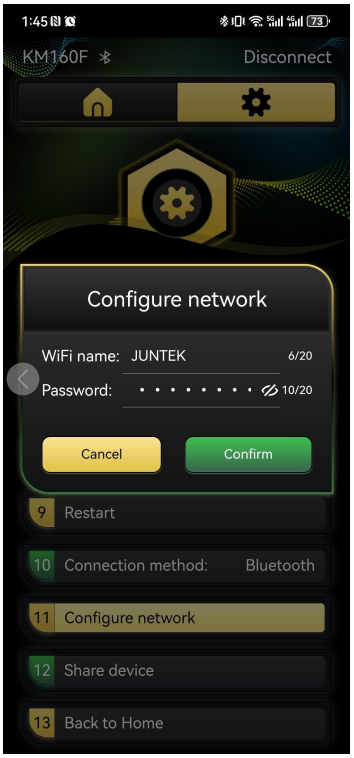
Mobile App -- WiFi Local Network Connection (Current network configuration is limited to the 2.4GHz frequency band and does not support the 5GHz frequency band):

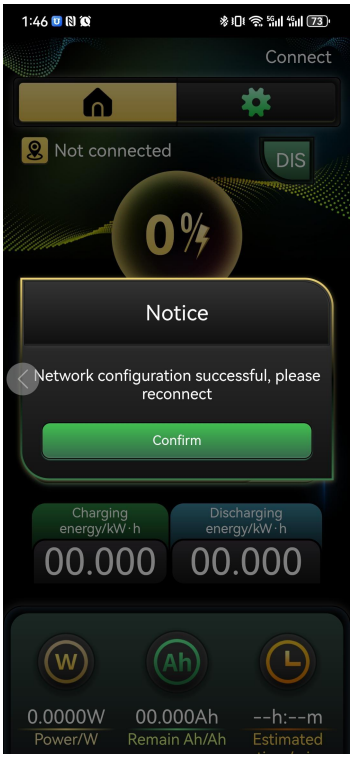




Step 1:

First, complete the Bluetooth connection of the Coulomb Meter. You can either confirm network configuration in Step 10 of the Bluetooth connection process or click "Configure Network" in the system settings interface.

	
Step 2: Enter the WiFi name and WiFi password for the network the Coulomb Meter is going to connect to in the network configuration.	Step 3: After entering the WiFi name and password, click "Confirm."

<table>
<tr>
<td> 
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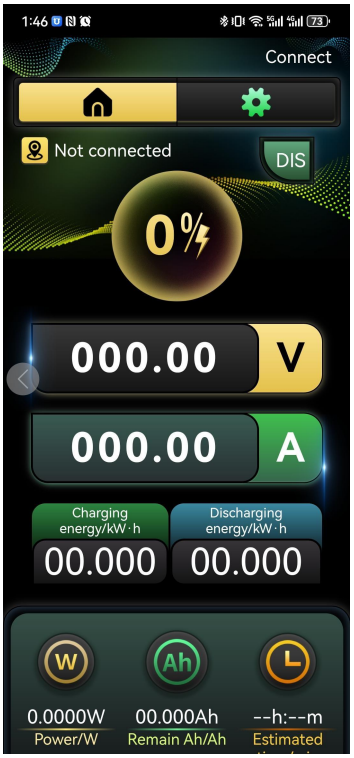
<td> 
</td>
</tr>
<tr>
<td>Step 4:
Once the network is successfully configured, a popup will appear saying "Network configuration successful, please reconnect."</td>
<td>Step 5:
After clicking "Confirm," return to the disconnected interface and check the Coulomb Meter's connection status symbol.</td>
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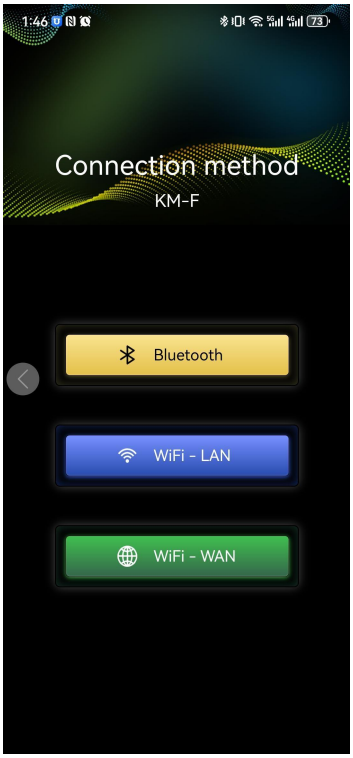
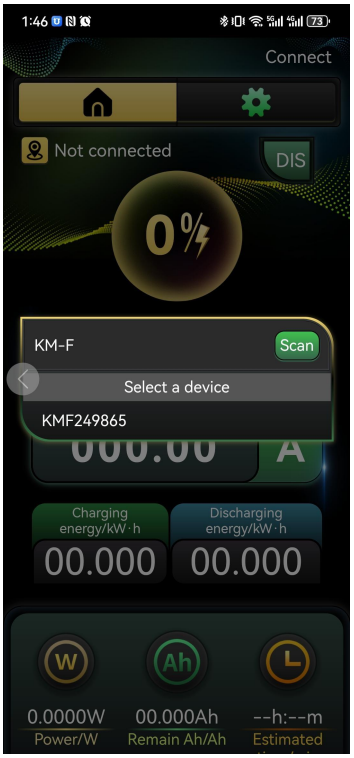
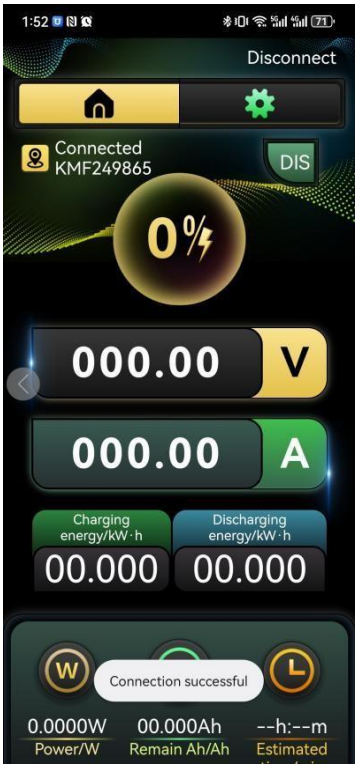
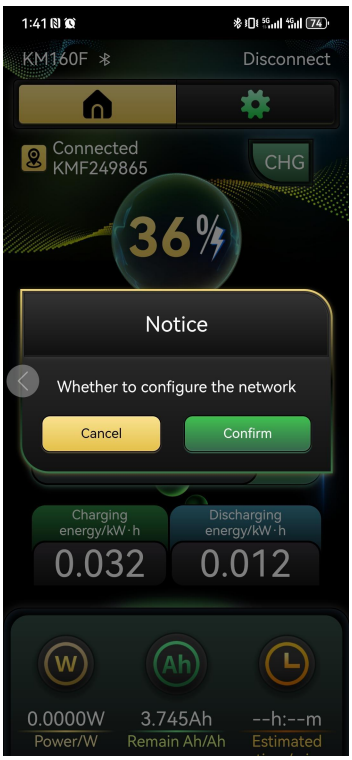
<tr>
<td colspan="2">Step 6:
When the WiFi icon is yellow without an arrow, it means the Coulomb Meter is connected to WiFi but has no internet access and can only be used in local WiFi mode. When the WiFi icon is green with an arrow and the remote symbol appears, it means the Coulomb Meter's WiFi connection has internet access and supports both WiFi and remote connections.</td>
</tr>
</table>

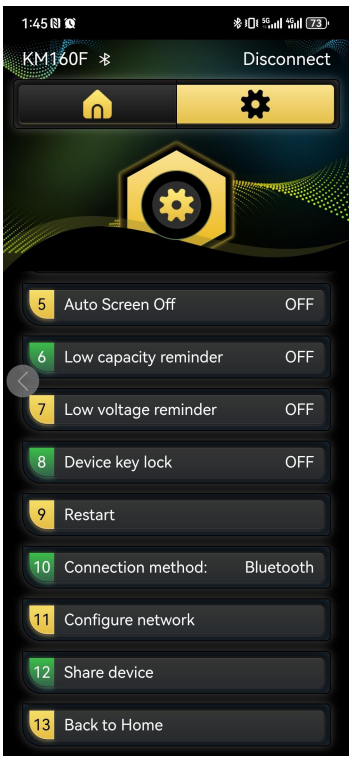
	
Step 7: Click the search icon in the upper right corner of the app interface to enter the connection mode interface, where both the WiFi Local Network and Remote Connection buttons will be lit up.	Step 8: Click the WiFi Local Network connection mode and enter the device selection screen.

	
Step 9: Click on the device model "KMFXXXXXX" or scan the QR code on the Coulomb Meter using the scan function (press OK briefly on the main interface to view the QR code).	Step 10: Once connected, the Coulomb Meter will display parameter information, indicating a successful WiFi Local Network connection, with the WiFi Local Network symbol displayed next to the model.

	
Step 11: Return to the "My Devices" interface, where you will also see the successfully added device, indicating it is connected via WiFi Local Network.	

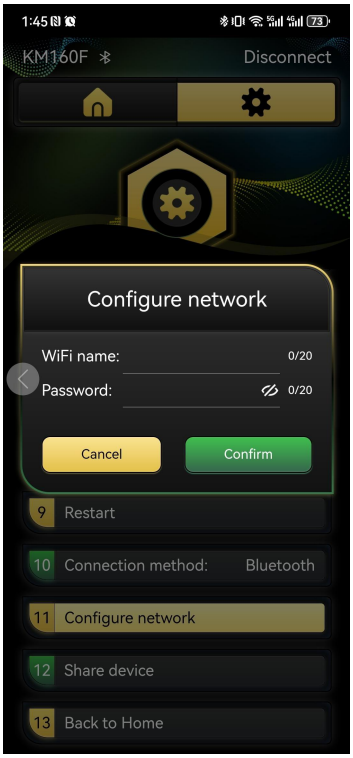
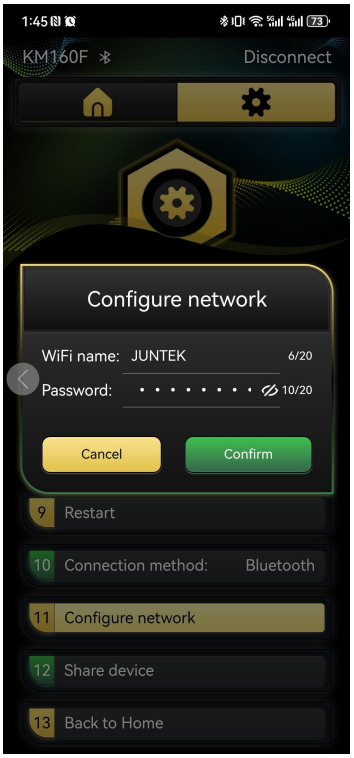
Mobile App -- WiFi Remote Connection (Current network configuration is limited to the 2.4GHz frequency band and does not support the 5GHz frequency band):

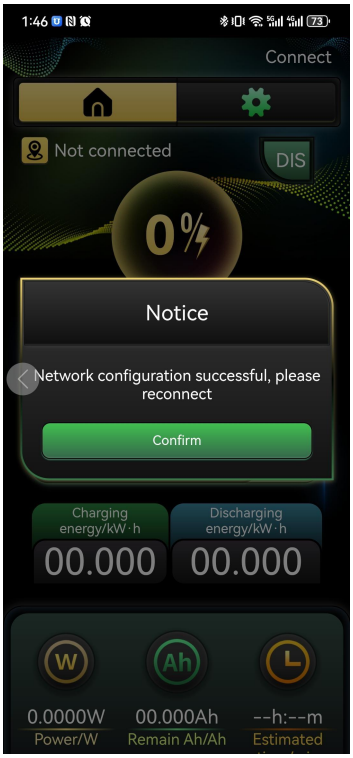




Step 1:

First, complete the Bluetooth connection of the Coulomb Meter. You can either confirm the network configuration in Step 10 of the Bluetooth connection process or click "Configure Network" in the system settings interface.

	
Step 2: Enter the WiFi name and WiFi password for the network the Coulomb Meter is going to connect to in the network configuration.	Step 3: After entering the WiFi name and password, click "Confirm."

<table>
<tr>
<td> 
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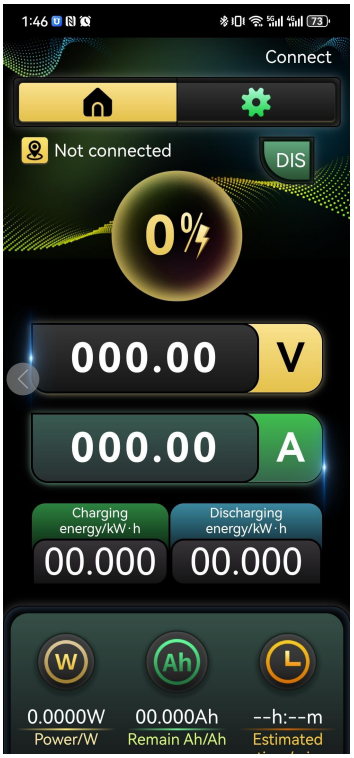
<td> 
</td>
</tr>
<tr>
<td>Step 4:
Once the network is successfully configured, a popup will appear saying "Network configuration successful, please reconnect."</td>
<td>Step 5:
After clicking "Confirm," return to the disconnected interface and check the Coulomb Meter's connection status symbol.</td>
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<tr>
<td colspan="2">Step 6:
When the WiFi icon is yellow without an arrow, it means the Coulomb Meter is connected to WiFi but has no internet access and can only be used in local WiFi mode. When the WiFi icon is green with an arrow and the remote symbol appears, it means the Coulomb Meter's WiFi connection has internet access and supports both WiFi and remote connections.</td>
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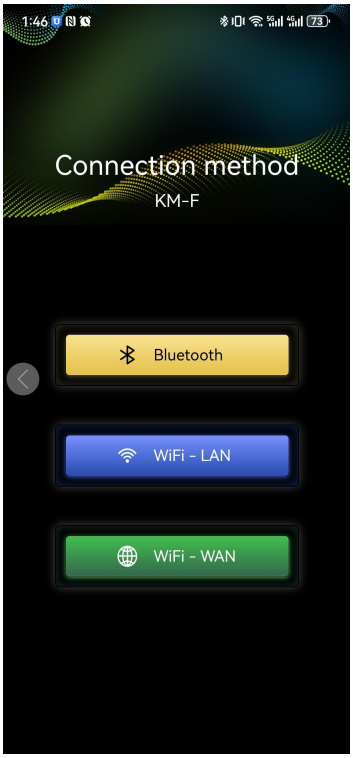
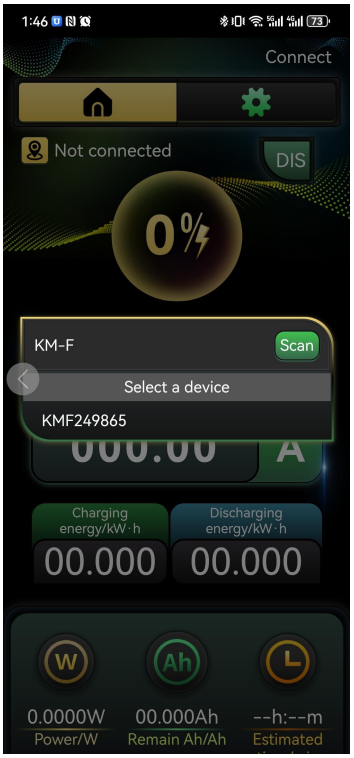
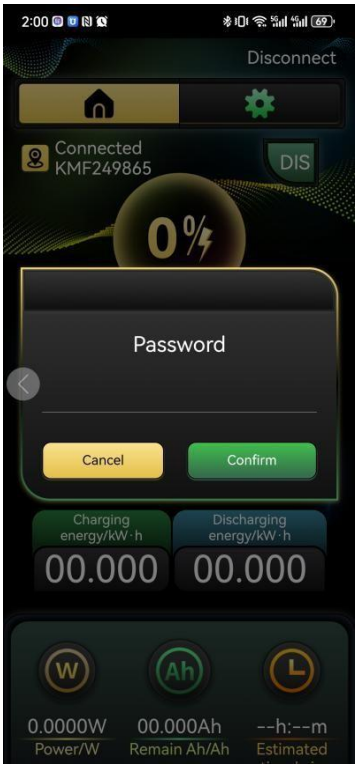
	
Step 7: Click the search icon in the upper right corner of the app interface to enter the connection mode interface, where both the WiFi Local Network and Remote Connection buttons will be lit up.	Step 8: Click the WiFi Remote Connection mode and enter the device selection screen.

	
Step 9: Click on the device model "KMFXXXXXX" or scan the QR code on the Coulomb Meter using the scan function (press OK briefly on the main interface to view the QR code).	Step 10: Once connected, the Coulomb Meter will display parameter information, indicating a successful remote connection, with the remote connection symbol displayed next to the model.

	
Step 11: Return to the "My Devices" interface, where you will also see the successfully added device, indicating it is connected via WiFi Remote Connection.	

Device Sharing Connection (Device sharing requires the Coulomb Meter's password to be modified; the initial password cannot be used for sharing, and device sharing is only applicable to Coulomb Meters that support remote connections):

	
Step 1: Change the password on the Coulomb Meter display. The initial password is: 11223344 and needs to be modified.	Step 2: After modifying the password, enter the updated password in the mobile app.

<table>
<tr>
<td> 
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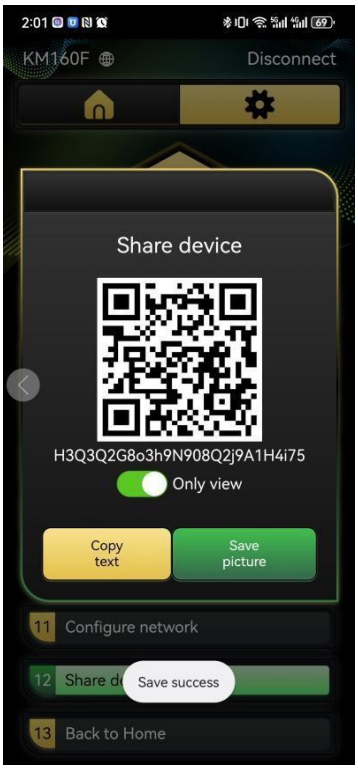
<tr>
<td>Step 3:
Go to the system settings interface and click on "Share Device."</td>
<td>Step 4:
You can choose between "Set Share" and "View Only Share."</td>
</tr>
<tr>
<td> 
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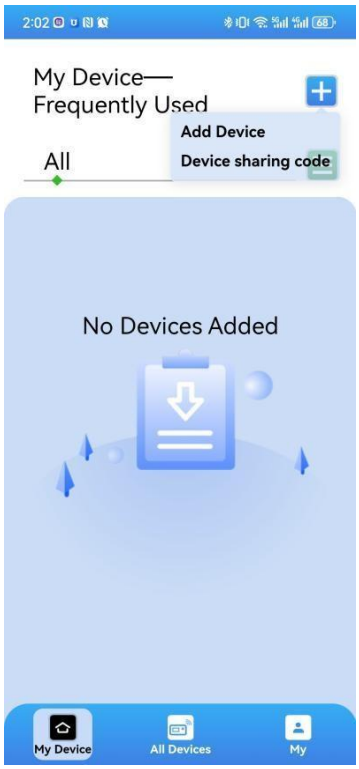
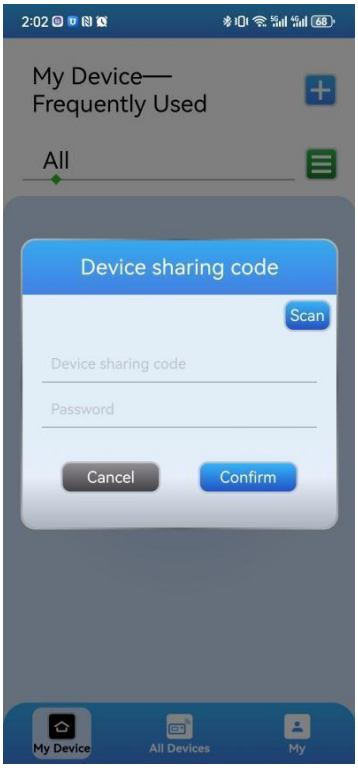
<td> 
</td>
</tr>
<tr>
<td>Step 5:</td>
<td>Step 6:</td>
</tr>
</table>

Choose to either copy the text or save the image.	In the "My Devices" interface, click the "+" symbol in the upper right corner, and a drop-down list will appear.
	
Step 7: Click "Device Share Code," and a popup will appear asking for the device share code and password.	Step 8: Enter the corresponding device share code and password, or use the scan function to scan the device share QR code.

	
Step 9: After clicking "Confirm," the successfully shared device will appear in the "My Devices" interface.	Step 10: Click on the device to directly enter the detailed KM interface.

3). Software Update

Click on the APP icon, and upon APP startup, the system will automatically check in the background if there is an update to the APP version. A pop-up notification will alert you to update if there is a new version available.

4). APP Interface Display

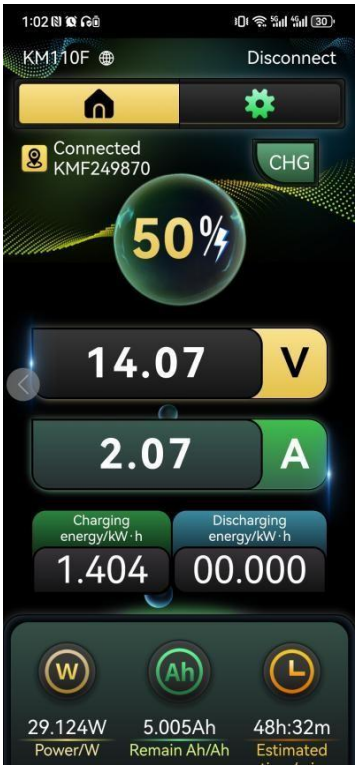


Figure 3-4-1

Main Interface

Figure 3-4-2

Configuration Interface

5). APP Operation Instructions

➢ Online Connection

Current capacity percentage: Click the icon of capacity percentage to pop up a box "Current capacity percentage", enter the corresponding value and click OK to complete the modification, as shown in Figure 3-4-3 Remaining capacity percentage.

Voltage fine adjustment: After continuously pressing the voltage value for 10 seconds, a "voltage calibration" pop-up box will appear. Slide to select the corresponding value, as shown in Figure 3-4-4 below for voltage calibration.

Current fine adjustment: After continuously pressing the voltage value for 10 seconds, a "voltage calibration" pop-up box will appear. Slide to select the corresponding value, as shown in Figure 3-4-5 Current Calibration.

Figure 3-4-3 Current capacity percentage

Figure 3-4-4 Voltage calibration

Figure 3-4-5 Current calibration

➢ System settings interface operation

Firmware upgrade: After long pressing the large icon in the settings interface for 10 seconds, a pop-up box will appear with the "After-sales Service Code". Enter "8610" and a pop-up box will appear with the "Firmware Code". Enter "000" and the instrument will enter the firmware upgrade mode. During the upgrade process, do not operate the instrument or mobile app. After the upgrade is complete, a pop-up box will appear with the message "Upgrade Complete, Please Reconnect", indicating that the firmware upgrade has been successful. As shown in Figures 3-4-6, 3-4-7, 3-4-8, and 3-4-9.

Full power capacity: Click the Full power capacity column to pop up the pop-up box "Full power capacity", enter the corresponding value and click OK to complete the modification, as shown in Figure 3-4-10 below.

Current capacity percentage: Click the Current capacity percentage column to pop up the pop-up box "Current capacity percentage", enter the corresponding value and click OK to complete the modification, as shown in Figure 3-4-11 below.

Screen Brightness: Click the screen brightness column to pop up a pop-up box "Screen Brightness", enter the corresponding value and click OK to complete the modification of the display brightness, as shown in Figure 3-4-12 below.

Color scheme: Click the color scheme column to pop up a pop-up box "color scheme", where you can choose bright or dark colors, as shown in Figure 3-4-13 below.

Automatic screen off: Click the Automatic screen off column to pop up a pop-up box "Automatic screen off", which can be set to turn off the screen, set the screen off time to 10s, 20s, 30s, 40s, 50s, 60s, and turn on automatic screen off, as shown in Figure 3-4-14 below.

Low Capacity Reminder: Click on the Low Capacity Reminder to bring up the pop-up box "Low Capacity Reminder". Enter the corresponding capacity percentage and click OK to complete the modification. Of course, when the battery capacity percentage falls below the set value, the coulometer will provide a low capacity reminder, as shown in Figure 3-4-15 below.

Low voltage reminder: Click the low voltage reminder to pop up a box "Low voltage reminder", enter the corresponding voltage value and click OK to complete the modification. Of course, when the low voltage is lower than the set value, the coulomb meter will give a low voltage reminder, as shown in Figure 3-4-16 below.

Device key lock: Clicking the device key lock button will bring up a pop-up box titled "Device Key Lock", which can be selected to turn on or off. When the key lock is turned on, the display cannot be operated by pressing keys, as shown in Figure 3-4-17 below.

Restart the machine: Click Restart the Machine to pop up a dialog box "Restart the Machine", where you can choose to confirm or cancel. After confirming the restart of the machine, the coulometer will restart, as shown in Figure 3-4-18 below.

Connection method: Click on the connection method to bring up a pop-up box titled "Connection Method", where you can choose between Bluetooth connection, WiFi-LAN connection, and WiFi-remote connection, as shown in Figure 3-4-19 below.

Configure network: Click on Configure Network to pop up a box titled "Configure Network", which allows you to configure the coulometer's network settings. Enter the WiFi name and password that you want to connect to the coulometer, as shown in Figure 3-4-20 below.

Sharing device: Click on the "Share Device" button to bring up a pop-up box. Other users can remotely share and connect to the Coulomb counter by scanning the QR code shared and entering the password in the display system settings, as shown in Figure 3-4-21 below.

Return to the home page: Click Return to the home page to immediately return to the My Device interface of the smart platform, as shown in Figure 3-4-22 below.

		
Figure 3-4-6 After-sales Service Code	Figure 3-4-7 Firmware Code	Figure 3-4-8 Firmware upgrade in progress
		
Figure 3-4-9: Firmware Upgrade Complete	Figure 3-4-10 Full Battery Capacity	Figure 3-4-11 Current capacity percentage

		
Figure 3-4-12 Screen Brightness	Figure 3-4-13 Color Scheme	Figure 3-4-14 Automatic screen turning off
		
Figure 3-4-15 Low Capacity Reminder	Figure 3-4-16 Low voltage reminder	Figure 3-4-17: Device Key Lock

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(2). iPhone App Instructions

1). APP Download

Download "Junce Home" from the Apple Store.

iOS APP Download Link:

https://apps.apple.com/us/app/junce-home/id6474582707

2). Mobile APP Software Installation and Device Connection

The software only supports iOS 9.0 and above systems, and the first time the software connects to Bluetooth, it will request access to Bluetooth. Please agree to the access.

The device connection method is the same as the Android connection method.

3). Software Update

You can obtain the latest software from the Apple Store.Different versions may vary slightly, so it is recommended to upgrade to the latest software for a better user experience.

4). APP Interface Display

Figure 3-4-23 Main interface Figure	3-4-24 Setting interface

5). App Operation Instructions

The operation for IOS is consistent with the aforementioned Android operation.

Chapter 4: Troubleshooting

The following is a list of possible malfunctions and troubleshooting methods that may occur during the use of the KM-F series. When you encounter these faults, please follow the corresponding steps to handle them. If you cannot handle them, please contact GRUNDIG and provide your device information.

Q1: How to download and install the mobile app?

Guide to installing mobile APP and pairing with devices

1. Scan the QR code: First, use your mobile phone to scan the QR code on the Getting Started Guide to obtain and successfully install the corresponding mobile app.
2. Enable Bluetooth: Turn on the Bluetooth function in the phone settings to facilitate Bluetooth connection with the instrument.
3. Enable location services: To meet the connection requirements of the Android system, please also enable the location services on your phone. We solemnly promise that we will not collect or use any of your location information.
4. Search and connect the device: Start the mobile phone APP, click the search function, and then select the KMFXXXXXX device in the search results. After selecting the device, the app will read and display its measurement information.

Q2: Why is the file downloaded from scanning the QR code on my phone a compressed package instead of an APK file, and I cannot install the mobile app?

1. On some Android phones, downloaded applications may be automatically identified as compressed files. If you encounter this situation, you only need to

make simple manual changes:

2. Find the downloaded file, usually with a ZIP, such as "JunceHome.APK.ZIP". Then, remove the file extension The suffix of ZIP, which is renamed to "JunceHome.APK". After completing the above steps, you can install the application normally as usual.

Q3: After installing the mobile app and turning on Bluetooth, I cannot search for the device by opening the mobile app

1. The issue you are facing is due to the lack of location permission on your Android device, which prevents the app from being able to search for the device after it is opened. Once you have enabled location services, you can connect to Bluetooth devices through the search function of the mobile app.

Q4: During the charging process, it was observed that the battery level and battery percentage decreased; During the discharge process, the percentage of electricity increases instead.

Solution:

The cause of this abnormal phenomenon may be that the negative wires connected to the two screws B-/BATT- and P-/LOAD- on the shunt are connected incorrectly.

Operation steps:

You need to swap the positions of the negative wires secured by the two screws B-/BATT- and P-/LOAD- on the shunt.

After the replacement, the device will be able to detect the charging and discharging currents normally.

Current color indication:

When charging, the current color will display as green, indicating that the capacity is increasing.

During discharge, the current color will display blue, indicating that the capacity is decreasing.

Q5: During use, we noticed that the color of the current indicator frequently switches between green and blue.

Solution:

This phenomenon may be due to the current zero calibration performed when the product is initially powered on. This process usually lasts about 1 minute. If the current color switching status persists for more than 1 minute, it may indicate a problem.

Further actions:

Please wait for 1 minute and observe whether the current indicator color stabilizes.

If the problem is not solved after 1 minute, please contact the supplier in time to report the problem so that we can provide further technical support and solutions.

Q6: My coulometer cannot be remotely controlled and viewed through WiFi. How can I solve this problem?

Please check and resolve your coulometer network configuration issues based on the following conditions:

First of all, it should be clear that our coulomb meter supports 2.4GHZ wifi networks and does not support 5GHZ wifi networks

1. Network is not configured

Display status: Only display the Bluetooth icon.

Operation guide: You need to configure the network for the coulometer.

2. Failure or error in distribution network

Display status: Bluetooth icon plus red WiFi LAN icon.

Operation guide: Please reset the network settings in the display and reconfigure them.

3. Configuring the network

Display status: Bluetooth icon plus yellow WiFi LAN icon.

Operation guide: Network configuration is in progress, please wait patiently.

4. The network configuration is successful but the Internet cannot be accessed

Display status: Bluetooth icon plus green WiFi LAN icon, but the data icon disappears.

Operation guide: Check the network connection to ensure that the network is not disconnected abnormally.

5. The network configuration is successful and remote connection is available

Display status: Bluetooth icon plus green WiFi LAN icon and data icon, as well as green WiFi remote icon.

Operation guide: The coulometer has successfully configured the network, and you can connect to it remotely via WiFi.

Chapter 5: More Product Information

The "KM-F Series Manual" introduces the functions and operation methods of this product, as well as possible faults that may occur during use and corresponding troubleshooting methods.

Chapter 6: Contact Us

If you have any questions or needs regarding the use of this product or this manual, please contact GRUNDIG:

Email: service@grundig-auto.com

Website: www.grundig-auto.com

Appendix 1:English Names and Abbreviations of the Display Interface

English	Abbreviations
Charge	CHG
Discharge	DIS
Language and Time Zone	Language & Time zone
Network reset	Network reset
System settings	System reboot
Power percentage	Battery level
Battery capacity	Battery capacity
Alarm function	Alarm
Color scheme	Color scheme
Screen settings	Display
Password settings	Password
Restore factory settings	Factory reset
Low volume alarm	Low cap.
Voltage alarm	Low volt.
Bright colors	Light
Dark	Dark
Brightness	Brightness
Automatic screen shutdown	BL.OFF