

Matters needing attention:

- Please read this manual carefully before use and keep it for future reference.
- The equipment list should be checked carefully before use. If in doubt, contact Thinkcar Tech Inc immediately.
- Due to the continuous upgrading of the product, the manual and the physical have a slight difference, without notice, please prevail in kind.

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Thinkcar is not responsible for any damages or problems caused by the use of other optional accessories or consumables other than Thinkcar's original products or Thinkcar's approved products.

Official Disclaimer: All other product names mentioned in this manual are intended to illustrate how the equipment is used and remain registered trademarks of their respective companies.

This equipment is intended for use by specialized technicians or maintenance personnel.

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1. Overview

The EVP403 is a portable single-cell charge/discharge device developed by THINKCAR for cell-level maintenance and recycling scenarios. It integrates charging, discharging, capacity testing, and internal resistance detection, featuring high-precision control and multiple safety protections.

1.1 Product Features

- Compact and lightweight body, suitable for on-site mobile operations and desktop workstation testing.
- Supports up to 50 A constant current charging and discharging to meet efficient cell activation and repair needs.
- Integrates charging, discharging, capacity testing, and internal resistance testing to comprehensively evaluate cell performance and health status.
- Isolated design for voltage and current sampling channels ensures stable and reliable test results.
- Combines battery temperature monitoring with multiple protection mechanisms to enhance equipment safety.
- Supports over-voltage, under-voltage, over-current, output short circuit, reverse polarity protection, and over-temperature protection functions.
- Supports constant current and constant voltage charging/discharging modes for precise control of output current and voltage.

1.2 Main Purpose and Scope of Application

Mainly used for single-cell charging and discharging, supporting a voltage range of 1 V–5 V and high-current charging/discharging capabilities up to 50 A.

2. Safety Precautions

2.1 General Safety Practices

Follow the user manual when using this equipment.

2.2 Common Incorrect Usage or Misoperations

- 1) Failure to take insulation measures for operating tools.
- 2) Failure to follow the user manual when operating the equipment.

2.3 Potential Injuries from Incorrect Usage

- 1) If operating tools are not insulated, close proximity between battery pack positive and negative terminals may cause short circuit accidents.
- 2) Failure to follow correct operating procedures will prevent the equipment from working normally.

2.4 Emergency Measures in Abnormal Situations

Disconnect the equipment power supply and test cables.

2.5 Precautions for Special Situations

If the operator fails to take insulation measures or improper operation causes a short circuit, disconnect the cables immediately.

2.6 Other Safety Warnings

Strictly abide by safety operation regulations and correct equipment use methods.

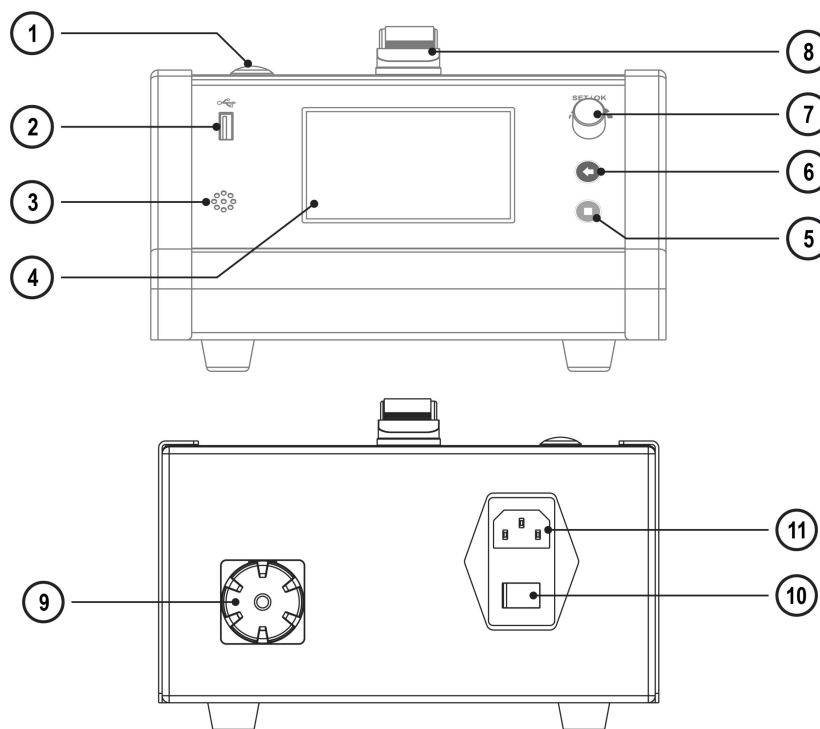
3. Technical Parameters

Parameter	Description
Model	EVP403
Power Supply	AC 110 V, 50/60 Hz or AC 220 V, 50/60 Hz
Voltage Accuracy	$\pm 0.2\%$ FS + 5 mV (Max Range 5 V)
Current Accuracy	$\pm 0.5\%$ FS + 0.1 A (Max Range 50 A)
Charge/Discharge Voltage Range	1–5 V, Voltage Resolution 0.001 V
Charge/Discharge Current Range	0.5–50 A, Current Resolution 0.1 A
Charge/Discharge Power	Max 250 W
Working Mode	Constant Current Charging, Constant Current Discharging
System Protection	Battery Over-temperature Protection, System Over-temperature Protection, Short Circuit Protection, Reverse Polarity Protection, Disconnection Protection, Over-current Protection, Over-voltage Protection, Under-voltage Protection
Display Screen	4.3-inch, Resolution 480*272

Data Storage	USB Flash Drive
Dimensions	214.0 x 358.3 x 142.8 mm
Operating Environment	
Cooling	Forced Air cooling
Operating Temperature	-5°C ~ 45°C
Storage Temperature	-20°C ~ 70°C
Operating Humidity	10% ~ 90%
Altitude	Rated Altitude 2000 m

4. Operation

4.1 Equipment Interfaces and Buttons

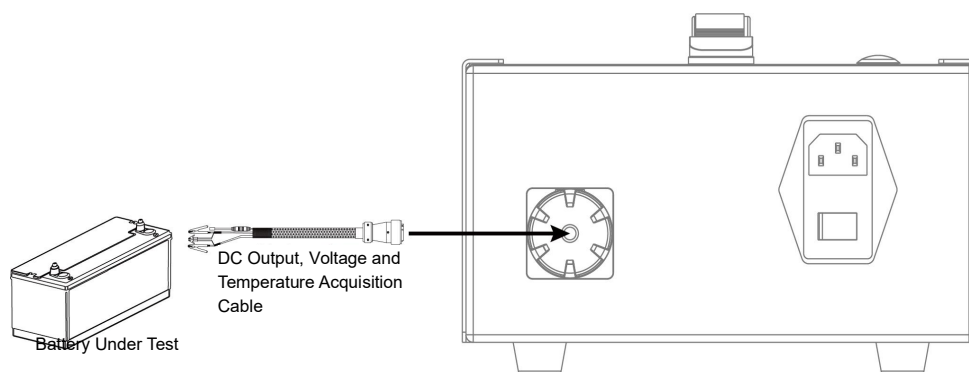


No.	Name	Description
1	Working Status Indicator Light	Solid Green: Equipment in Standby; Flashing Green: Equipment Working; Flashing Red: Equipment Fault/Stop Warning.
2	USB Port	Used for exporting data and upgrading via USB flash drive.

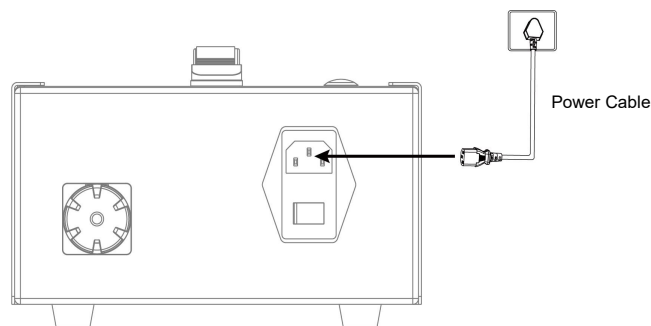
3	Buzzer Hole	Used to emit alarm sounds.
4	Screen	-
5	Stop Key	Used to immediately terminate the current working process.
6	Return Key	Used to return to the previous interface or exit the current operation.
7	Knob	Used for menu navigation and parameter adjustment; press to confirm selection.
8	Handle	-
9	Output Port	Used to insert the DC Output, Voltage and Temperature Acquisition Cable plug and connect to the battery positive terminal, negative terminal, and temperature acquisition point.
10	Power Switch	Used to turn the equipment power on or off.
11	Power Socket	Connect AC power.

4.2 Equipment Connection

(1) Insert the test connector of the DC Output, Voltage and Temperature Acquisition Cable into the **“Output Port”** of the equipment. Connect the red clips of the two sets of clip wires at the other end to the positive terminal of the battery, and the black clips to the negative terminal of the battery (large clips are for current input, small clips are for voltage sampling); connect the probe end of the temperature acquisition line to the battery cell.



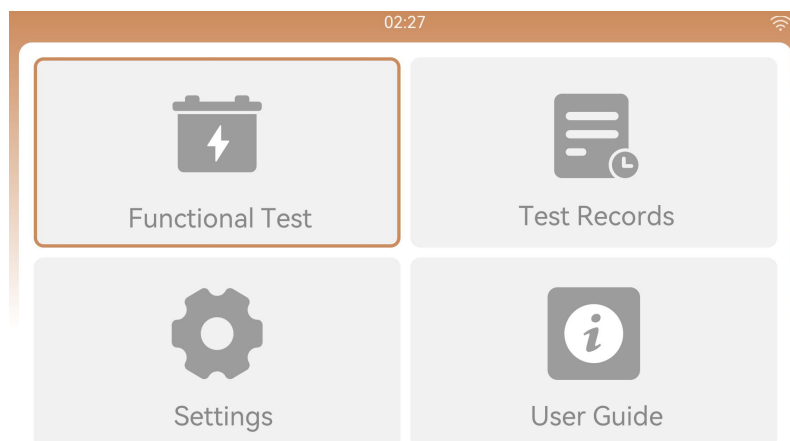
(2) Use the power cable equipped with the device to connect the equipment power interface and the power socket to supply power to the equipment.



4.3 Main Menu

(1) After connecting the equipment, turn on the power switch to start the equipment, then set the charge/discharge parameters and protection conditions to start the test.

(2) After startup, the equipment enters the main interface by default. Functional modules on the main interface include **Functional Test**, **Test Records**, **System Settings**, and **User Guide**. Rotate the knob to switch between selected functional modules, and press the knob to enter the corresponding functional module page.



4.4 Functional Test

(1) In the main interface, rotate the knob to select the **“Functional Test”** option and press the knob to enter the functional test page. Functional tests include Charge/Discharge Test, Capacity Test, and Internal Resistance Test. First, select the test item and set the parameters for the corresponding test item.

Charge/Discharge Test Parameter Settings:

02:27

Charge/Discharge
Capacity Test
Internal Resistance Test

Voltage (V) 500

Temp (°C) 26.5

* Battery ☐ NCM ☐ LFP ☐ LTO ☐ LMO

* Target Voltage(V) 00 . 80

* Target Current(A) 03 . 80

Voltage Upper Limit(V) .

* Duration(H:M) 00 : 00

* Cut-off Current(A) .

Voltage Lower Limit(V) .

Disconnected

Start

Parameter Description	
Voltage	Displays the real-time voltage status of the currently connected battery.
Temperature	Displays the real-time operating temperature of the currently connected battery.
Battery Type	Select the type of battery to be tested.
Target Voltage	Set the target voltage value to be reached during the test process. The equipment will automatically determine whether to charge or discharge based on the current battery voltage and the target voltage.
Target Current	Sets the current value to be maintained during the test process.
Voltage Upper Limit	Set the maximum voltage allowable during battery testing to prevent over-voltage.
Voltage Lower Limit	Set the minimum voltage allowable during battery testing to prevent under-voltage.
Cut-off current	During operation, when the specified target voltage is reached, the working current will drop to this set value and then cease
Duration	Sets the duration for the current test plan.
Connection Status	Indicates the current connection status between the equipment and the battery (Disconnected/Connected).

Capacity Test Parameter Settings:

02:27

Charge/Discharge **Capacity Test** Internal Resistance Test

Voltage (V) **500** Temp (°C) **26.5**

* Battery ☐ NCM ☐ LFP ☐ LTO ☐ LMO

* Voltage Upper Limit (V) * Voltage Lower Limit (V)

* Target Current (A) * standing time(Min)

* Cycle Count

Disconnected **Start**

Parameter Description	
Voltage	Displays the real-time voltage status of the currently connected battery.
Temperature	Displays the real-time operating temperature of the currently connected battery.
Battery Type	Select the type of battery to be tested.
Voltage Upper Limit	The maximum charging voltage allowed during the capacity test, used to determine the battery's full charge state and prevent overcharging and over-voltage.
Voltage Lower Limit	The minimum discharging voltage allowed during the capacity test, used to determine the battery's empty state and prevent damage from over-discharging.
Target Current	Sets the current value to be maintained during the test process.
Standing Time	Battery standing time between charge and discharge steps.
Cycle Count	Sets the number of charge/discharge cycles to be repeated for the capacity test.
Connection Status	Indicates the current connection status between the equipment and the battery (Disconnected/Connected).

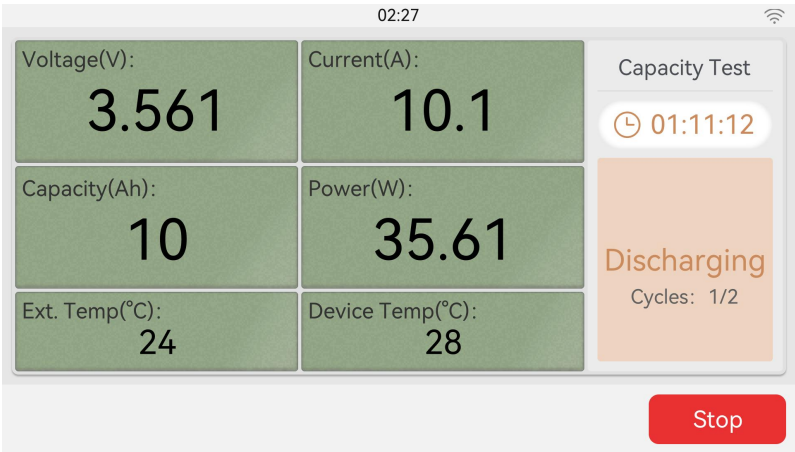
Internal Resistance Test Parameter Settings:

Parameter Description	
Voltage	Displays the real-time voltage status of the currently connected battery.
Temperature	Displays the real-time operating temperature of the currently connected battery.
Battery Type	Select the type of battery to be tested.
Test Time	Set the operation duration of this test plan.
Target Current	Sets the current value to be maintained during the test process.
Connection Status	Indicates the current connection status between the equipment and the battery (Disconnected/Connected).

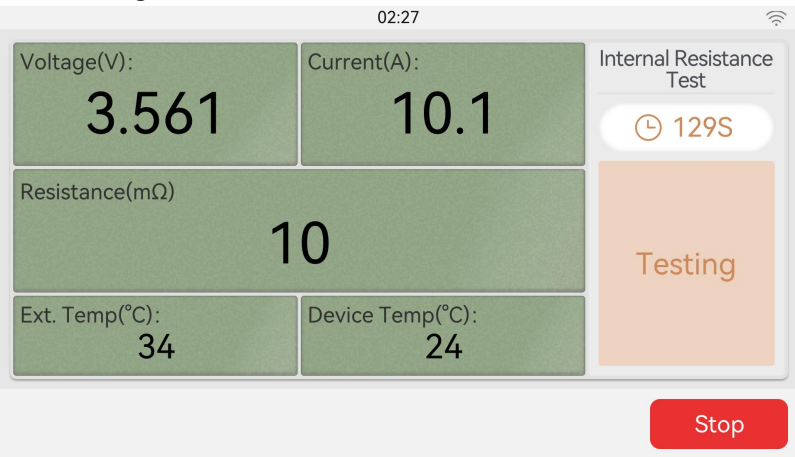
(2)After setting the parameters, select “**Start**” using the knob and press the knob to begin the test. The user can observe various parameters on the screen during the test.

Charge/Discharge Test Page:

Capacity Test Page:



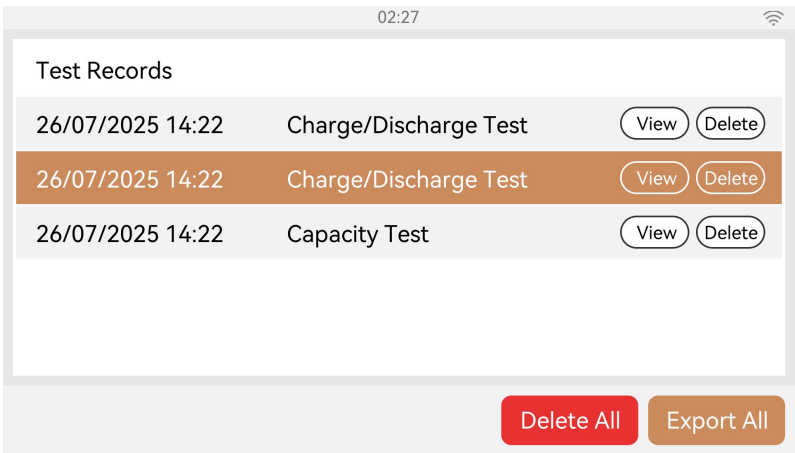
Internal Resistance Test Page:



(3)Select “**Stop**” using the knob and press the knob to stop the current test.

4.5 Test Records

1) In the main interface, rotate the knob to select the “**Test Records**” option and press the knob to enter the Test Records page.



2) Rotate the knob to select a single record, then select the **“View”** option to view the record details or select the **“Delete”** option to delete the record.

02:27

Start Time: 26/07/2025 14:22 Charge/Discharge Test

Test Details:

Battery : NCM Duration: 134h Charge Capacity: 10.2AH

Initial Voltage: 3.560V Final Voltage: 4.200V

Parameters:

Target Voltage: Target Voltage: Duration:

Voltage Upper Limit: Voltage Lower Limit: Cut-off Current:

Completed Export

Insert the USB flash drive into the USB port on the device, rotate the knob to select the **“Export”** option to transfer the test record to the USB flash drive.

3) In the Test Records page, rotate the knob to select the **“Delete All”** option to delete all saved test records.

4) In the Test Records page, rotate the knob to select the **“Export All”** option to transfer all test records to the USB flash drive.

4.6 User Guide

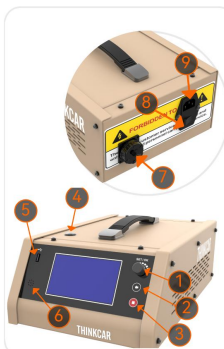
In the main interface, rotate the knob to select the **“User Guide”** option and press the knob to enter the User Guide page. The User Guide page includes Device Description, Cautions, Operating Instructions, and About the Product. Use the knob to switch between different options.

4.6.1 Device Description

This page contains the device overview and functional descriptions of device controls.

02:27

Device Description Cautions Operating Instructions About the Product



1	Knob	Used for menu navigation and parameter adjustment. Press to confirm selection.
2	Return Key	Returns to the previous screen or exits the current operation.
3	Stop Key	Press to immediately stop the current process.
4	Indicator	Green steady: Standby; Green flashing: Operating; Red flashing: Alarm.
5	USB Port	Supports firmware update via USB drive and data export.
6	Buzzer	Provides audible alarm alerts.
7	DC Output Port	Connect the DC output/temperature cable to interface with the battery.
8	Power Input	For AC power connection.
9	Power Switch	Turns the device power on/off.

4.6.2 Cautions

This page primarily introduces precautions before, during, and after equipment operation.

02:27

Device Description Cautions Operating Instructions About the Product

Pre-operation

- Environment check: Use the device in a well-ventilated area away from flammable materials.
- Take personal protection: Wear insulated gloves and keep hands dry.
- Check connections: Ensure the clips are securely fastened with no loose or exposed conductors.

During operation

- Correct connection sequence: Connect all cables first, then plug in the power supply. Avoid live operations.
- Prevent short circuits: Verify correct polarity connection. Never short the positive and negative terminals.
- Keep away from hazardous areas: Do not touch metal terminals or potential heating areas during operation.

Post-operation

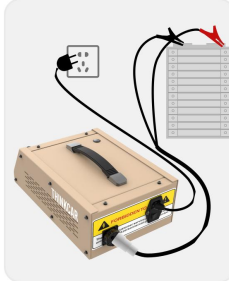
- Stop and inspect promptly: If abnormal noise, odor, overheating, or alarms occur, stop immediately, cut power, and inspect.
- Disconnect in the correct sequence: After work, turn off the power first, then remove the clips and battery connections.

4.6.3 Operating Instructions

This page introduces the main steps for battery connection, equipment connection, and operation. Select the “**Video Tutorial**” option in the bottom right corner using the knob to view the introductory video on equipment operation.

02:27

Device Description Cautions Operating Instructions About the Product

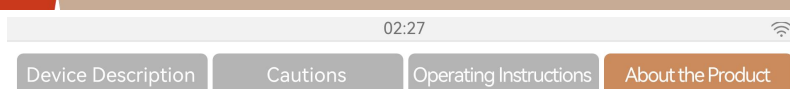


- 1. Connect the battery:** Attach the DC output clips to the battery positive and negative terminals. Place the temperature sensor close to the battery for real-time temperature monitoring.
- 2. Connect the device:** Insert the other end of the cable into the device's DC output port. After connecting the power cord, check that all connections are secure.
- 3. Power on the device:** Once connections are confirmed, turn on the power switch to energize the device.
- 4. Select function and set parameters:** On the home screen, use the knob to choose the desired function. Enter the required parameters as prompted.
- 5. Start operation:** After verifying the parameters, press the knob to begin the operation.

video tutorial

4.6.4 About the Product

This page displays information such as product name, product model, manufacturer information, and equipment serial number.

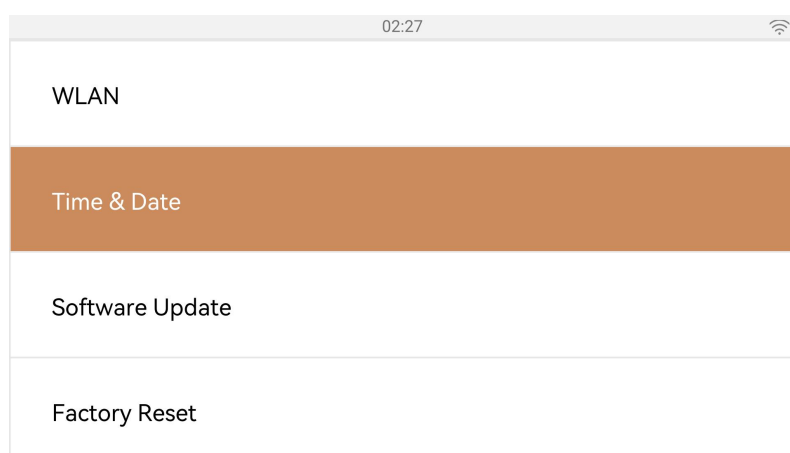


THINKCAR

Product Name: Portable Single-Cell Charger/Discharger
 Model: THINKCAR EVP403
 Manufacturer: THINKCAR TECH CO., LTD.
 serial number: 806016000000

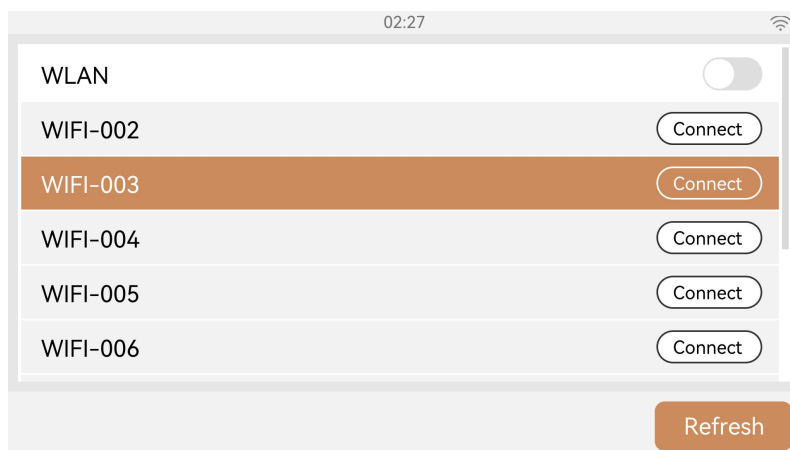
4.7 System Settings

In the main interface, rotate the knob to select the **“System Settings”** option and press the knob to enter the System Settings page. The System Settings page includes WLAN, Time & Date, Software Upgrade, and Factory Reset. Use the knob to switch between different options.



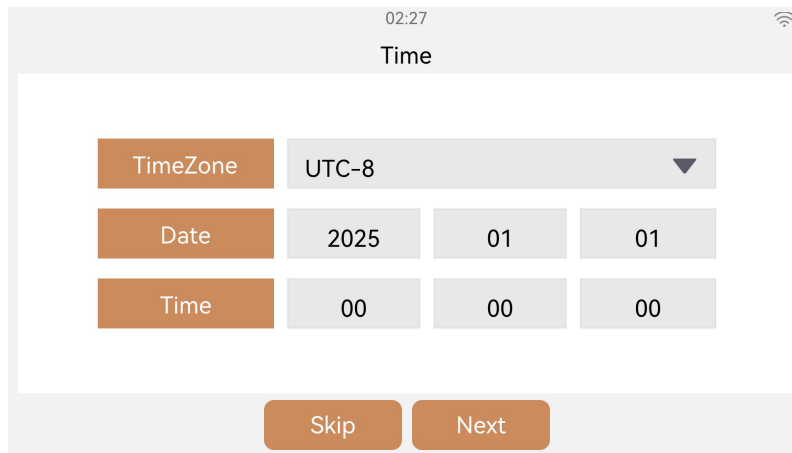
4.7.1 WLAN

Used for setting the device's wireless network connection.



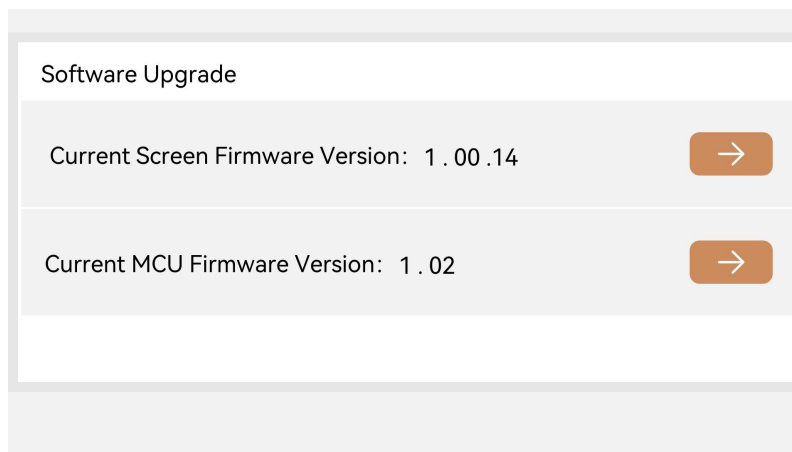
4.7.2 Date & Time

Used for setting the date, time, and time zone.

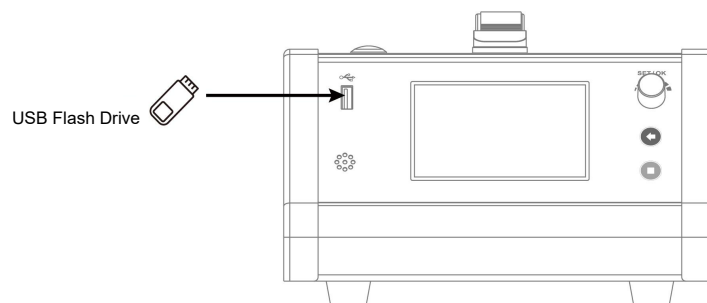


4.7.3 Software Upgrade

Used to view the version numbers of the screen firmware and MCU firmware. Select the arrow button to the right of the version number using the knob to update the screen firmware or MCU firmware to the latest version.



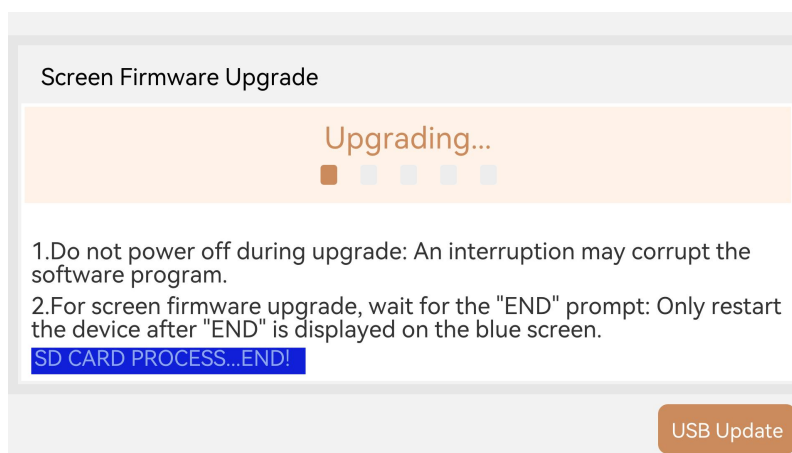
1) Insert the USB flash drive containing the update files into the USB port on the device.



2)**Screen Firmware Upgrade:** Rotate the knob to select the arrow button to the right of the screen firmware version number to start the screen firmware upgrade. During the upgrade, the screen will turn blue. Wait for the blue screen interface to display “**END**” before

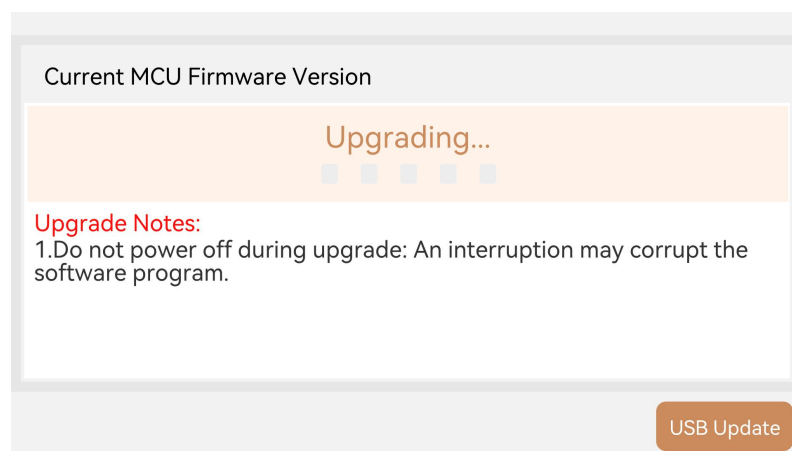
restarting the device to complete the screen firmware upgrade.

Note: Do not power off during the upgrade process, as this may cause damage to the software program.



MCU Firmware Upgrade: Rotate the knob to select the arrow button to the right of the MCU firmware version number to start the MCU firmware upgrade, and wait for the upgrade to complete.

Note: Do not power off during the upgrade process, as this may cause damage to the software program.



4.7.4 Factory Reset

Used to restore the device configuration to the factory state. This operation will delete personal data and custom settings; please proceed with caution.

Warranty terms

This warranty applies only to customers and dealers who have purchased Thinkcar products through the normal course of business.

For a period of one year from the date of delivery, Thinkcar Inc. warrants its electronic products against damage caused by defects in material or workmanship. Damage to this equipment or parts caused by misuse, unauthorized alteration, use for purposes other than those for which the product was designed, or failure to operate in the manner specified in the instruction manual is not covered by this warranty. Damage to automotive gauges caused by defects in this equipment is limited to repair or replacement only, and Thinkcar is not liable for consequential or incidental damages. Thinkcar will determine the nature of the damage to the equipment in accordance with its own prescribed methods of inspection. No agent, employee, or commercial representative of Thinkcar is authorized to make any confirmation, recommendation, or promise in connection with Thinkcar products. No agent, employee or commercial representative of Thinkcar is authorized to make any confirmation, representation or promise with respect to Thinkcar products.

Waiver of Declaration

The above warranty may be substituted for any other form of warranty.

Order Notification

Replacement parts and optional accessories can be ordered directly from Thinkcar authorized dealers, please specify the quantity, part number and part name.

Customer service center

If you encounter any problems during the operation of the equipment, please call: +1 (909) 321-5665.

When the equipment needs to be repaired, please send it to Thinkcar with the warranty card, product certificate, purchase invoice and a description of the problem. If the equipment is within the warranty, Thinkcar will repair it free of charge; if the equipment is outside the warranty, Thinkcar will charge for the repair and add the return shipping cost.

SIMPLIFIED EU DECLARATION OF CONFORMITY

Hereby, THINKCAR TECH CO., LTD. declares that this equipment is in compliance with Directive 2014/53/EU.

The full text of the EU declaration of conformity is available at the following internet address:

https://h5.mythinkcar.com/update_app/productlist

Thinkcar Company Address: 1908 S Lynx Pl, Ontario, CA 91761.

Customer Service Email: service@thinkcar.com

Thinkcar website: www.thinkcar.com

Statement:

Thinkcar reserves the right to change product design and specifications without prior notice. The appearance and color of the actual product may differ from that shown in the manual, please refer to the actual product. We have tried our best to make all the descriptions in the book accurate, but there are still some inaccuracies, if you have any questions, please contact the dealer or Thinkcar after-sales service center, the company does not assume any responsibility for any misunderstandings arising from the consequences.

FCC Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution: Any changes or modifications to this device not explicitly approved by manufacturer could void your authority to operate this equipment.

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

RF Exposure Information

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