先临三维

EinScan Rigil

V1.0.3

User Manual

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Contact

Overview

Welcome

This user manual (hereinafter referred to as "this manual") mainly introduces the appearance and operation of the **EinScan Rigil** 3D scanner.

Symbol Conventions

Symbol	Meaning
	**Note**: This symbol is used to inform you of the additional information of the product.
	**Caution**: This symbol is used to inform you of incorrect operations that may damage the device or result in data loss. Any damages resulting from misuse are not covered by the warranty.
	**Warning**: This symbol is used to inform you of the potential risks that may result in serious personal injury and other safety incidents.

The Declaration of Intellectual Property and Disclaimer

Thank you for using products from Shining 3D Technology Co., Ltd. (hereinafter referred to as "Shining 3D")! Please read and understand this statement carefully before using this product. By using this product, you fully accept this statement and commit to complying with the relevant regulations.

Thank you for using the products of SHINING 3D TECH CO., LTD. (hereinafter referred to as the "SHINING 3D"). Before you use the products, please carefully read and understand this declaration. Once you use this product, it means that you fully accept this statement and promise to comply with the relevant regulations.

1. The contents of the Product Instruction and User Manual (hereinafter collectively referred to as the "Product Usage Documentation") are critical to your personal safety, legal rights, and liabilities. Before you use the products, please ensure that you have carefully read the Product Usage Documentation, and use the product correctly in accordance with the requirements of the Product Usage Documentation. We also recommend that the products be operated by trained professional technicians.
2. Please inspect and/or maintain the product before use. If the product is damaged, deformed or in any other abnormal condition, stop using it immediately and contact the after-sales service personnel for maintenance. SHINING 3D will not be responsible for any problems caused by your failure to inspect or maintain the product in a timely manner.
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4. SHINING 3D owns complete intellectual property rights for the contents of the for which you bear full responsibility. Without the written consent of SHINING 3D, it is not allowed to copy, transmit, publish, adapt, compile or translate any contents of the Product Usage Documentation in any form for any purpose.
5. The Product Usage Documentation is a guidance for installing, operating, and maintaining the product instead of serving as the quality guaranty for the products. SHINING 3D makes all efforts to ensure the applicability of the Product Usage Documentation, but reserves the right of final interpretation. Images and diagrams in the product documentation are presented to provide convenience to user understanding. In the event that any images or diagrams are inconsistent with the physical products, the later shall prevail. In addition to the mandatory provisions of laws and regulations, the contents of the Product Usage Documentation are subject to changes without further notice.
6. SHINING 3D shall not be held responsible for any damages and/or losses caused by human factors, environmental factors, improper storage and use, or any other factors other than due to the quality of the product. SHINING 3D also shall not be held responsible for any indirect anticipated profit loss, loss of reputation and other indirect economic losses. Except as otherwise expressly provided by laws and regulations, the total liability assumed by SHINING 3D (regardless of cause) shall not exceed the purchase price of the products you paid to SHINING 3D.
7. Disputes arising from this Declaration and the Product Usage Documentation thereof shall be governed by the laws of the People's Republic of China, excluding its conflict of law rules. In the event that certain provisions are in conflict with the applicable law, these provisions will be reinterpreted in full accordance with the law, while other valid provisions will remain in force.
8. All disputes between you and SHINING 3D that arise from, shall first be resolved amicably through negotiation. If a dispute cannot be resolved through friendly negotiation, any party may submit the dispute to the Court of Xiaoshan District, Hangzhou City, Zhejiang Province, People's Republic of China for litigation and settlement.
9. In the event of any questions about the contents of this Declaration and application of Product Usage Documentation, please contact us by the contact information provided in the User Manual. Thank you for your cooperation and support! We hope that our products can bring you a great experience of using.

FCC

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part15 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.
- Changes or modifications not expressly approved by the manufacturer could void the user’s authority to operate the 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.

Industry Canada Statement

This Class B digital apparatus complies with Canadian ICES-003.CAN ICES-3(B)/NMB-3(B).

This device complies with Industry Canada license-exempt RSS standard(s).

Operation is subject to the following two conditions: (1) This device may not cause interference, and (2) This device must accept any interference, including interference that may cause undesired operation of the device.

Le present appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts delicence. L'exploitation est autorisee aux deux conditions suivantes : (1) L'appareil ne doit pas produire debrouillage, et (2) L'utilisateur de l'appareil doit accepter tout brouillage radioelectrique subi, meme si le brouillageest susceptible d'en comprome re le fonctionnement.

RESTRICTIONS IN THE 5 GHZ BAND

Within the 5.15 to 5.25 GHz band, UNII devices will be restricted to indoor operations to reduce any potential for harmful interference to co-channel Mobile Satellite System (MSS) operations.

RESTRICTIONS DANS LA BANDE DE 5 GHZ

Dans la bande de 5,15 à 5,25 GHz, les appareils UNII seront restreints aux opérations intérieures pour réduiretoute possibilité d'interférence pouvant nuire aux opérations du Système satellite mobile dans le mêmecanal (MSS).

RF Exposure Regulations (FCC IC)

The SAR limit of USA/Canada is 1.6 W/kg averaged over one gram of tissue for Body and 4.0 W/kg averaged over ten grams of tissue for extremity SAR, this device has also been tested against the SAR limits.

Body-Worn: The use of belt clips, holsters and similar accessories should not contain metallic components in its assembly. The use of accessories that do not satisfy these requirements may not comply with RF exposure requirements and should be avoided. To maintain compliance with RF exposure requirements, a 10mm separation distance between the user's body and the back of the device should be maintained.

La limite du das des États-Unis et du Canada est de 1,6 W/kg en moyenne sur un gramme de tissu pour le corps et de 4,0 W/kg en moyenne sur dix grammes de tissu pour le das des extrémités.

Porté sur le corps: l'utilisation de clips de ceinture, de étuis et d'accessoires similaires ne doit pas contenir de composants métalliques dans son assemblage. L'utilisation d'accessoires qui ne satisfont pas à ces exigences peut ne pas être conforme aux exigences d'exposition aux RF et devrait être évitée.Pour maintenir la conformité aux exigences d'exposition aux RF, une distance de séparation de 10mm entre le corps de l'utilisateur et l'arrière de l'appareil devrait être maintenue.

Getting Started

This chapter provides an overview for the **EinScan Rigil** wireless all-in-one 3D scanner, helping you quickly locate the instructions you need. This device can be used alone for scanning, or it can be used with the supporting software **EXScan Rigil** for scanning.

Here you can learn about the scanner, including its appearance and activation process.

→ Introduction to the scanner

→ How to activate my scanner?

Scanning with EXScan Rigil

When using the scanner to scan and process projects with large amounts of data, you need to install EXScan Rigil software (hereinafter referred to as the "software"); click here to view the user manual for EXScan Rigil.

How to download EXScan Rigil?

Please log in to Download Center, select the software to download; for more details, see Installation.

How to scan with EXScan Rigil?

Tap to enter the connection interface; for more details, see Connection.

Note

Please install and start the software before connecting the EinScan Rigil.

Scanning with EinScan Rigil

Once you have successfully activated the scanner, follow the steps below to use it.

1 Calibrate the Scanner

Calibration ensures the accuracy of the scanner and improves the scanning quality.

→ How to prepare for calibration?

→ How to calibrate?

2 Do Basic Settings

Before scanning, you can set the scanner's display, sound, and transmission options.

→ Introduction to the control center

→ Introduction to the file list

3 Prepare for the Scan

You can do some preparation before scanning to ensure a good scanning experience.

→ How to prepare for scanning?

→ How to cast the screen?

4 Pre-set for the Scan

After the necessary preparation for the scan, you can adjust relevant scanning settings to improve scan results.
Some of these settings can also be adjusted during the scanning.

→ Introduction to the scan interface

→ How to adjust scanning settings?

5 Scan and Generate a Point Cloud

After setting the scanning settings, start scanning and generate the point cloud.

→ How to scan?

→ How to rewind the scan?

6 Edit Data

You can edit the scanned data after pausing or completing the scan to clip the redundant data.

→ How to edit the point cloud?

7 Post-Process

You can mesh or measure the model and share it.

→ How to generate and optimize the mesh?

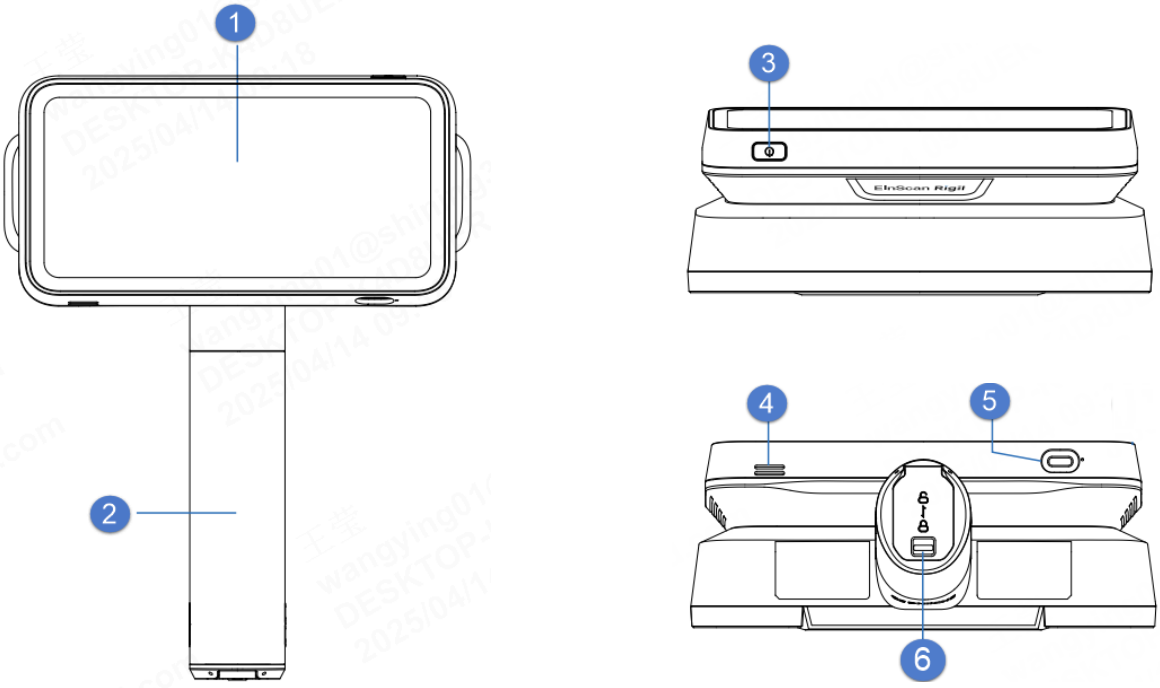
→ How to edit mesh?

Device

Introduction

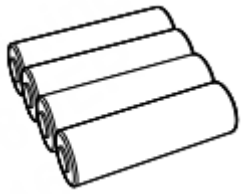
EinScan Rigil is an all-in-one Laser 3D scanner with built-in computing, wireless and hybrid light technology. Its three light sources (38 cross laser lines, 7 parallel laser lines, and infrared VCSEL) paired with two dedicated camera systems ensure versatile performance for various-sized objects, making the infrared mode truly practical. Its innovative tracking algorithms and excellent adaptability to dark and reflective surfaces significantly enhance its scanning efficiency and applicability in industries such as automotive, aftermarket, cultural heritage and art preservation, augmented reality (AR), virtual reality (VR), and digital content. For technical specifications, see EinScan Rigil Technical Data.

Structure and Components

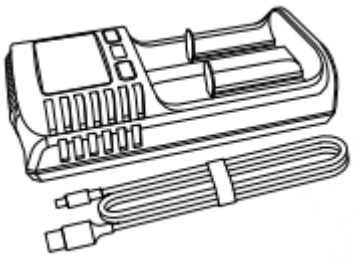


No.	Structure and Components
①	AMOLED Screen
②	Handle and Battery Compartment
③	Power Button
④	Sound Hole
⑤	USB Type-C Port
⑥	Battery Compartment Switch

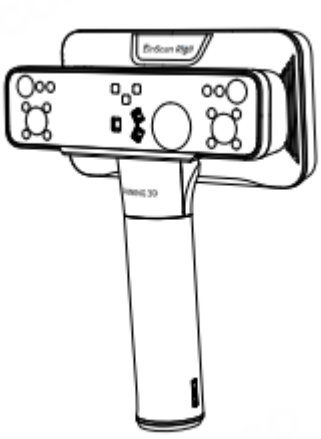
Packing List



Battery



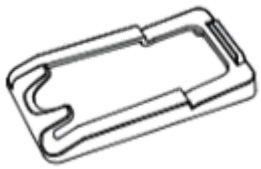
Battery Compartment and Charging Cable



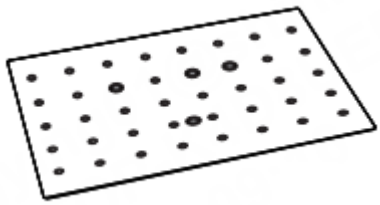
EinScan Rigil 3D Scanner

Type C-Type C Cable for Scanner

Power Adapter

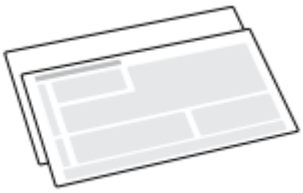


Calibration Board and Universal Holder



Calibration Board

3 mm Markers, 6 mm Markers, Reflective Markers and Marker Removal Tool



Packing List and Cleaning Cloth

Battery

Specifications	Description
Type	Rechargeable lithium-ion battery
Model	21700
Nominal Voltage	3.6 V
Capacity	5500 mAh
Cycle Life	Over 400 times

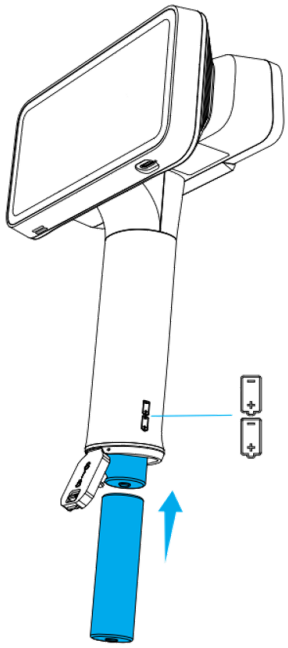
Operating and Storage Requirements	Description
Operating Temperature	Charge: 0 ~ 45°C Discharge: -20 ~ +60°C
Storage / Transport Temperature	-20 ~ +45°C (less than 1 month) -20 ~ +35°C (less than 3 months) -20 ~ +25°C (less than 12 months)
Storage / Transport Relative Humidity	≤ 75%RH

Activation and Connection

Before using the scanner, activate it by logging into the SHINING 3D passport: **Power On** > **Connect to Network** > **Register / Login**.

Battery

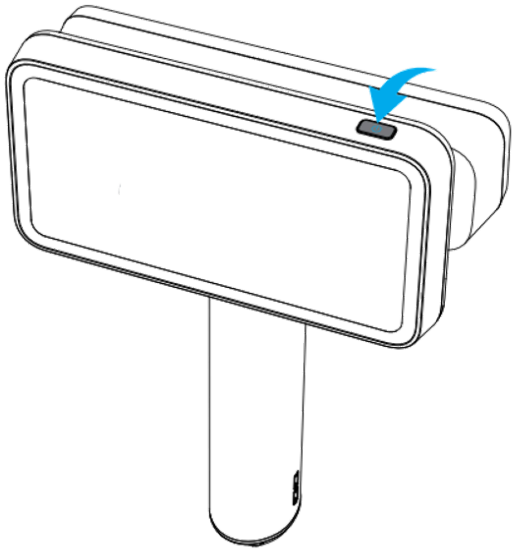
Please open the battery compartment and insert the batteries first.



> ⚠ **Caution**
>
> - Please place the batteries correctly according to the positive and negative directions shown in the diagram.
> - Please insert two batteries with a power difference of no more than 10% to avoid excessive battery voltage due to a large power difference, resulting in unclear power indication or automatic shutdown due to low power.

Power On

Press and hold the power button (for about 2 seconds) until the screen displays the startup animation, indicating that the scanner has powered on successfully.



After powering on, please select a language; the default is English. You can change the language later in **Settings** > **Language**.

Note

- If the scanner remains black or shows a charging prompt, please charge it promptly.
- After powering on and selecting a language, please check the "End User License Agreement" first; otherwise, you cannot proceed to the **Next Step**.

Power Off

- Press and hold the power button for approximately 3 seconds to bring up the shutdown interface, where you can choose to restart or power off.
- Press and hold the power button for approximately 6 seconds to force shutdown.

Connect to Network

After entering the network connection interface, the scanner will automatically search for available wireless networks (every 10 seconds). Tap the corresponding network to connect; if you need to disconnect from the network, press and hold the connected network and select **Delete Network**.

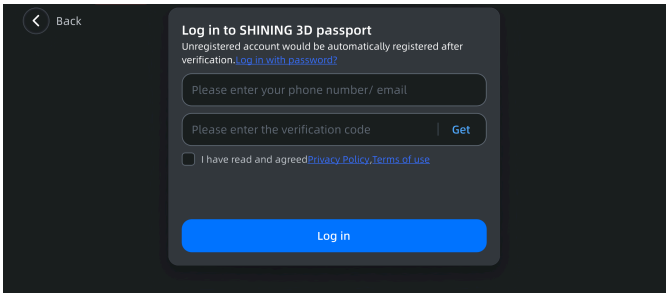
Note

- After connecting to the network, tap **Next Step** to register or log into the SHINING 3D passport.
- If there is a network connection error, please retry or switch networks; if the issue persists, please restart the scanner.
- If you choose to **Skip** connecting to the network and go directly to the Scanning process, you will not be able to upload scanned data to the SHINING 3D Cloud or transfer files to a computer.

Register / Login

After entering the login interface, you can choose to log in with a verification code or password.

After login, you can enter the Scanning interface.



Note

- Successfully logging into the passport indicates that the scanner has been activated.
- The warranty period starts after activation.
- If this is your first login, it is recommended that you use the verification code login; registration will be completed automatically after a successful login.

Connection

Note

You cannot connect the scanner to a computer for file transfer before activation.

After connecting the scanner to EXScan Rigil via wireless or wired methods, you can perform file transfers or online scanning; for details, please refer to the EXScan Rigil User Manual.

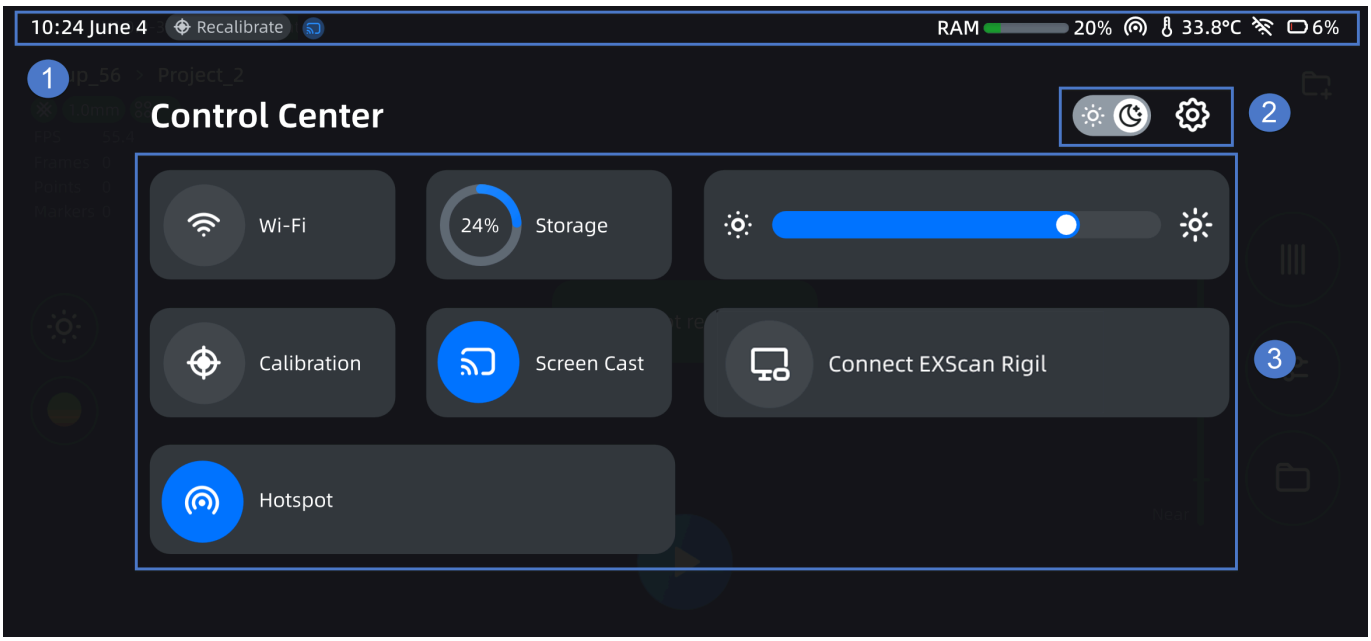
Note

- Please use the Type-C data cable that comes with the product for connection.
- For Windows users, if the connection fails, please open the firewall and network protection notifications on your computer, and click **Allow** if a notification from Windows Security Center appears.

Control Center

You can swipe down from the top of the screen to bring up the control center.

Overview



Note

- To hide the control center, use an upward swipe gesture.
- If the control center is called up during scanning or calibration, you cannot navigate to the corresponding position by tapping the buttons in the control center.

① Status Bar

Status	Description
Time	The format is hh:mm, and it is displayed in the 12-hour format by default; You can enable **24-hour format** in **Settings** > **Date and Time**.
Calibration Reminder	Tap to enter the calibration process; if it's the first calibration, it will enter the **Help** interface. • Recalibrate : It has been 7 days since the last calibration. • Recalibrate : It has been 14 days since the last calibration.
 **Screen Cast**	The scanner is currently in casting.
RAM	Indicates the used memory space of the scanner. ⚠**Note** When it shows , it means that memory usage has exceeded 70%. Please pay attention to the remaining memory space.
 **Hotspot**	The scanner's wireless hotspot is currently enabled.
Temperature	Displays the current temperature of the device.
Wi-Fi	The current network connection status of the scanner.
Battery	Displays the current battery level of the scanner. ⚠**Note** If the battery level is below 20%, please replace the battery in time or use the accompanying Type-C data cable and power adapter to charge the scanner.

② Function Bar

Function	Description
	Tap to switch the scanner interface to **Light Mode**.
	Tap to switch the scanner interface to **Dark Mode**. **Note** This is the default display mode.
	Tap to enter the **Settings** interface. You can set **Account**, **Software Update**, **Calibration**, **Wi-Fi**, **Hotspot**, **Language**, **Display**, **Date and Time**, **Storage**, **About**, etc.; for details, see the content below. **Note** This entrance cannot be used during scanning or calibration.

Account

Tap here to view your account information and scanner's name.

If you are not logged in

- Tap **Log in** to enter the passort login interface.
- Tap **Device Name** to modify the scanner's name in the pop-up.

If you are logged in

- This will display the passport account and name information.
- Tap **Device name** to modify the scanner's name in the pop-up.
- Tap **Switch account** to enter the passport login interface.
- Tapping **Log out** will prompt a confirmation dialog box.

> **Note**
>
> Switching accounts does not affect the files already in the scanner.

Software Update

Tap **Check for Update** to automatically check if the current software is the latest version.

a. If an update is detected, tap **Download the update file** to initiate the download process; if you do not wish to update at this time, tap to cancel the download.

b. After the download is complete, tap **Install Now** to proceed with the software installation.

c. After the update (download and installation) is complete, the scanner will automatically restart.

Note

- During the download process, you can leave the current interface, and the update process will complete in the background, displaying as at the top of the interface.
- Ensure the scanner has sufficient battery to avoid shutdown during the update process.
- If prompted "download update interrupted", please follow the instructions.
- Do not operate the scanner during installation.
- The scanner must have a battery installed to complete updates when operating on external power alone.

Calibration

- If you are using the scanner for the first time, please bind the calibration board included in the box; after successful binding, the calibration board number will be displayed here.
- Tap the corresponding button in the calibration status to enter the respective calibration process; if it is your first calibration, you will first enter the **Help** interface.

Wi-Fi

- Wi-Fi is enabled by default; for the use of the **Available Networks** section, please refer to Connect to Network.
- If you are connected to the network but the network status is abnormal, tap **Network Diagnosis** to open a pop-up, then tap **Start diagnosis** to diagnose the network connection.

Hotspot

Disabled by default, it will display in the status bar when enabled; the hotspot name is fixed as “EinScanRigil_xxx”.

Language

Default is the language selected at startup, supporting **English**, **Traditional Chinese**, **German** or **Japanese**.

Display

Supports adjusting screen brightness and switching software theme colors.

Date and Time

- **Set time and date automatically**: After connecting to the network and enabling it, the scanner will automatically synchronize the time of the time zone.
- **Time zone**: You can manually select the time zone; after that, the time displayed in the upper left corner of the scanner will be the time of selected time zone.
- **24-hour system**: When enabled, the scanner will display time in 24-hour format.

Storage

Displays the scanner's disk space usage, including used amount, total storage capacity, and percentage.

About

Displays basic information such as scanner's name, serial number, warranty status, software version, RAM, WLAN address, privacy policy, contact us, and the **Factory Reset** entrance.

> **Note**
>
> - You can modify the scanner's name and view the specific content of the warranty status and privacy policy.
> - Tapping **Factory Reset** will prompt a secondary confirmation pop-up; tapping **Confirm** again will enter the reset process (non-cancellable) and automatically restart.

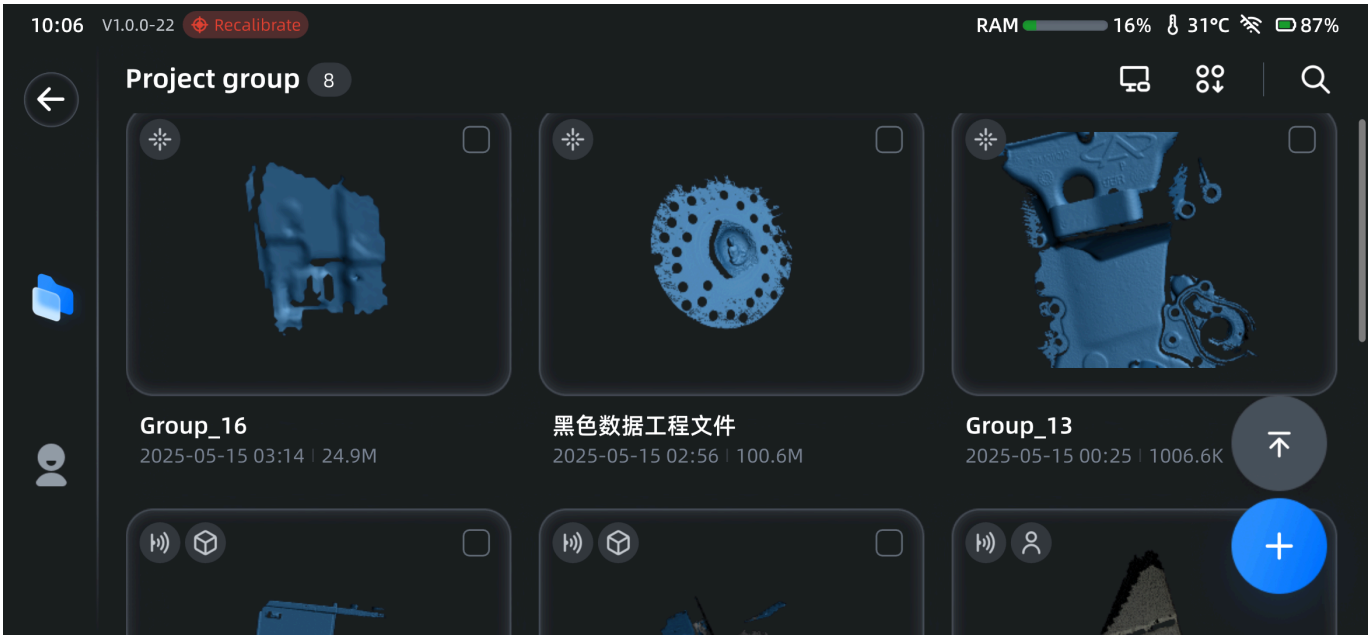
③ Function Panel

Function	Description
Wi-Fi	Wireless Network Settings entrance. Tap the icon to quickly enable or disable the wireless network connection.
Storage	Percentage of used memory space of the scanner. Tap to enter **Settings** > **Storage**. **Note** When it shows , it means that memory usage has exceeded 70%. Please pay attention to the remaining memory space and clean up unnecessary project files as soon as possible to avoid affecting the scanning experience.
Screen Brightness	• ← : Darken. • → : Brighten.
Calibration	Calibration entrance. • : Tap to enter the calibration process; if it's the first calibration, it will enter the **Help** interface. • : Indicates that the calibration entrance is unavailable, possibly during scanning or calibration.
Screen Cast	Screen cast entrance. • : Indicates that the function is unavailable, possibly during scanning. • : Indicates that the function is enabled; tap to open the screen cast interface. • : Indicates that the function is enabled but cannot be turned off, possibly during scanning.
	Tap to enter the connection interface; for specific operation instructions, see Device Connection.
Hotspot	Hotspot Settings entrance. Tap the icon to quickly enable or disable the hotspot.

File List

On the right side of the Scan interface, tap the button to enter the **Project Group** interface.

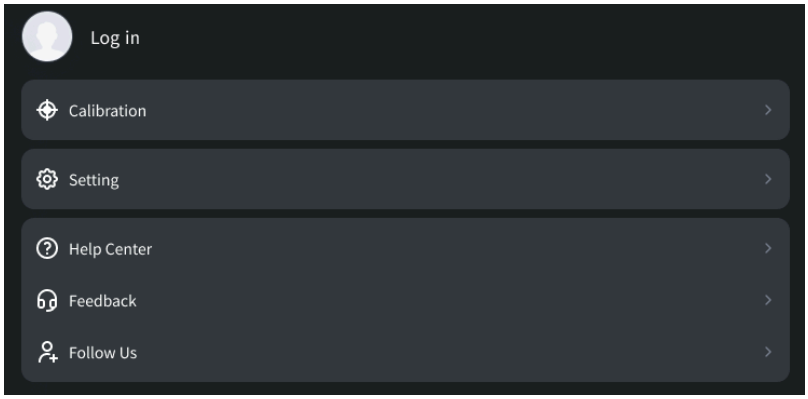
Interface Overview



Left Navigation Bar

Function	Description
	Tap to return to the Scan interface.
	Tap to return to the Project Group interface.
	Tap to enter the User Center interface.

User Center



Function	Description
	Tap to enter the login interface.
	Tap to enter the **Settings** > **Calibration** interface.
	Tap to enter the **Settings** interface.
	Tap to enter the **Help Center**, where you can view beginner tutorials and scan a QR code to access the user manual.
	Tap to enter the **Feedback**, where you can report issues via the e-mail or support website.
	Tap to view related QR codes and follow us.

Other Interface Buttons

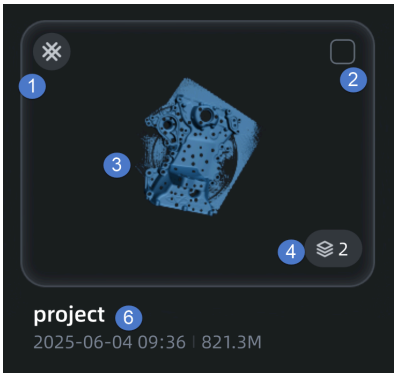
Function	Description
	Tap to pop up the search window. **Note** If there are no files in the current project group list, this function button will not be visible.
	Tap to enter the connection interface; for specific operation instructions, see Device Connection.
	Tap to enter the global markers file interface, where you can delete or rename these files.
	After scrolling down the project group list, this button will appear on the right side of the interface; tap to return to the top of the interface.
	After tapping a project group card to enter the project interface, this button will appear on the right side of the interface; tap it to return to the project group list from the project interface.
	• In the project group list interface, tap to quickly create a new project group and enter the Scan interface. • In the project interface, tap to quickly create a new project of the project group and enter the Scan interface.
Rename	After selecting a project group or project, tap to pop up the rename window to rename the project.
Delete	After selecting a project group or project, tap to pop up the delete confirmation window; tap **Confirm** to delete.
Cancel	After selecting a project group or project, tap to cancel the selection.

Card List

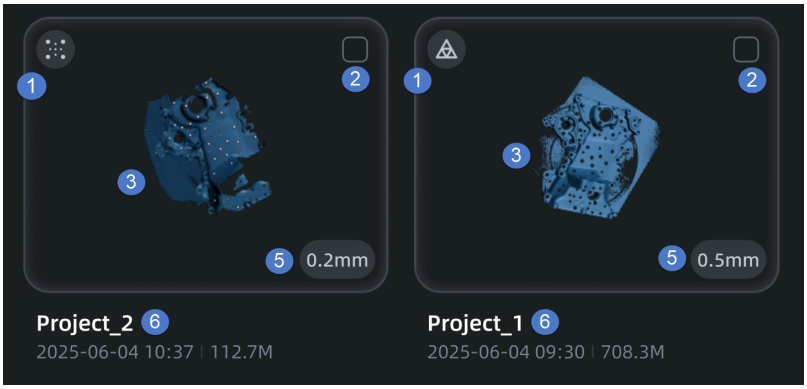
All saved model files are displayed in the format of file card, which are sorted by file update time in descending order.

Note

- Tap the project group card to enter the project interface.
- Tap the project card to enter the post-processing process.



Project Group Card



Project Card

① Label Area

- ※: Indicates that laser scan mode was used to scan this model.
- IR: Indicates that IR scan mode was used to scan this model.
- : Indicates that object scan mode was used to scan this model.
- : Indicates that portrait scan mode was used to scan this model.
- : Indicates that the model file contains point cloud data.
- : Indicates that the model file contains mesh data.

② Checkbox

Check or long press the card to select it for operations such as copying, deleting, or renaming.

③ Thumbnail

Displays a thumbnail of the model; point cloud models with textures and mesh models with texture mapping will display as colored models, while other models will display in blue.

> **Note**
>
> If the file is corrupted, it will display as ; tapping this button will pop up a delete window prompt, and tapping **Confirm** will delete the file.

④ Project

Displays the number of projects in this project group.

⑤ Resolution

Displays the point distance of the project.

⑥ Information

Displays the name, last update time, and file size of the model file.

Screen Cast

Before starting the scan, you can cast the scanner screen to other devices for scanning and other operations.

Note

- When the scanner is connected to a computer, the scanner does not support screen cast.
- During scanning or calibration, you cannot change the screen cast status.

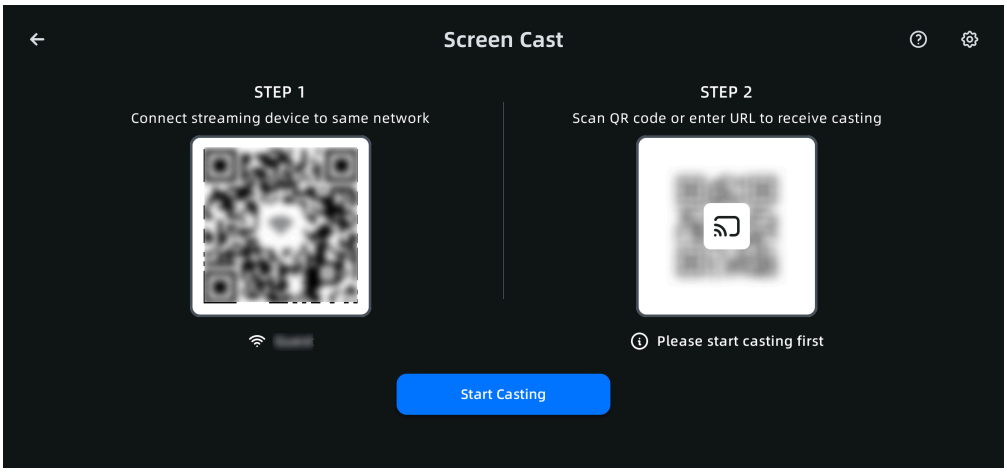
Operation

1. Swipe down from the top of the scanner screen to bring up the control center.
2. Tap **Screen Cast**, and choose **Wi-Fi** or **Hotspot**.

Note

- Wi-Fi: You need to scan the QR code with the device to be cast or manually connect the device to the same network as the scanner.
- Hotspot: You need to scan the QR code with the device to be cast or manually connect the device to the scanner's hotspot.

3. Tap **Start Casting**.



4. Use the device to be cast to scan the QR code or enter the URL displayed on the scanner screen in a browser.
5. If the scanner screen appears on the device, it indicates that the casting was successful; you can then operate the scanner directly from that device. To cancel the casting, tap **Exit Casting** on the casting interface.

> **Note**
>
> - Tap the ⓘ button in the upper right corner of the casting interface to view **Help** content for more guidance.
> - Tap the ⚙ button in the upper right corner of the casting interface to set the **Display Resolution**.

Calibration

Calibration Notice

With calibration, the scanner parameters are recalculated, which not only ensures the accuracy of the scanner, but also improves the scan quality.

Please calibrate the scanner before scanning in these situations:

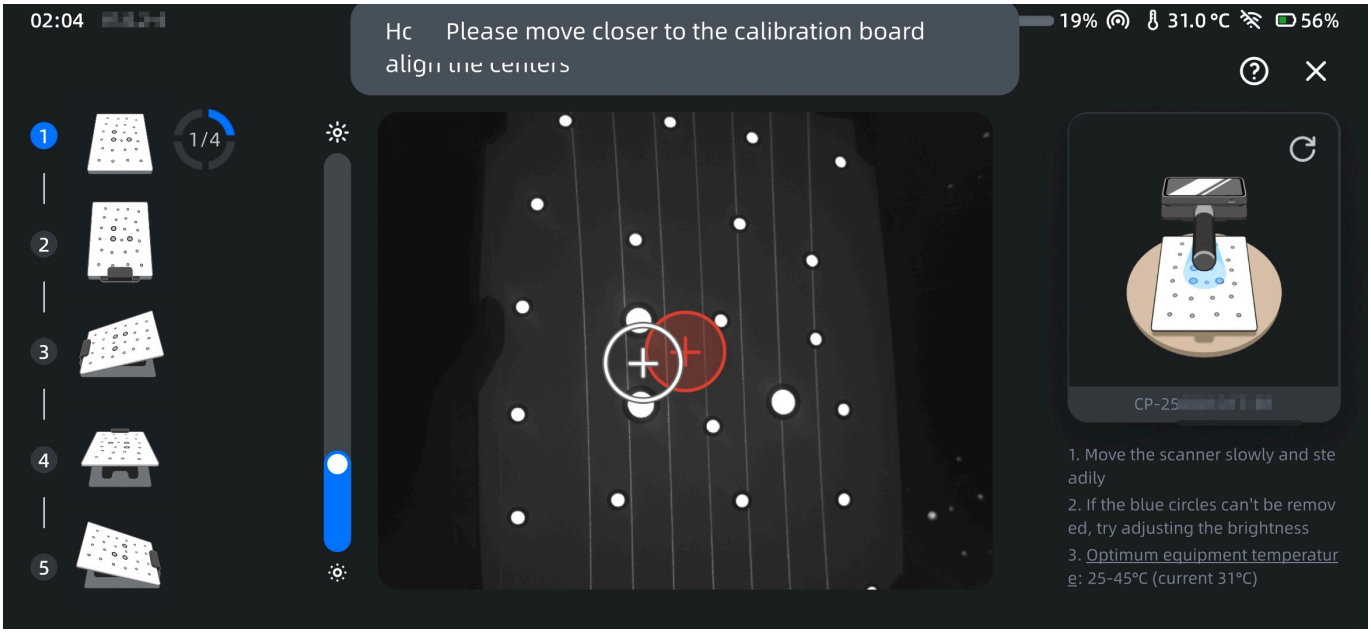
- Using the scanner for the first time.
- The scanner has not been used for a period of time (1 to 2 weeks).
- The scanner has experienced significant shaking or vibration.
- The scanned data is incomplete, and the data quality has severely declined.
- There is a significant drop in accuracy during scanning, with frequent alignment errors or loss of tracking prompts.

> **Note**
>
> If the scanner has not been calibrated for more than 7 days, Recalibrate will appear in the status bar at the top of the screen; if it has not been calibrated for more than 14 days, Recalibrate will appear.

> **Caution**
>
> - Please store the calibration tools properly after use.
> - Calibration tools are for calibration purposes only and should not be used for anything else.
> - Do not place heavy objects or sundries on the calibration tools.
> - Keep the calibration tools away from corrosive solutions, metals, and sharp objects.
> - Ensure that the markers on the calibration tools are undamaged and clean, and that the front of the calibration board is free of scratches.
> - Use calibration board that matches the scanner to avoid issues such as low calibration accuracy or calibration failure due to mismatched boards.
> - Do not use any chemical liquids to clean the calibration tools; if cleaning is necessary, gently wipe the tools with a clean, moist cloth.

Calibration Operation

The calibration process includes three types of calibration: **laser calibration**, **infrared calibration**, and **white balance calibration**. Laser and infrared calibration are compulsory steps, while white balance calibration is optional. You can complete the corresponding calibration based on your needs.



> **Note**
>
> - Before the first calibration or after changing the calibration board, please first go to **Settings** > **Calibration** interface to bind the calibration board before starting calibration.
> - Upon first entering the calibration process, you will automatically enter the help interface before calibration, where you can view guidance related to calibration; at the last step of the help interface, tap **Start** to enter the formal calibration process.
> - During the calibration process, tap ⓘ to re-enter the help interface; tap ✕ to exit the calibration process.

Calibration Entrance

You can enter the calibration process in the following two ways:

- In the Control Center or User Center, tap ⌖ and select **Camera** or **White Balance Calibration** to start.
- In the status bar at the top of the interface, tap the calibration warning and select **Camera** or **White Balance Calibration** to start.

Laser Calibration

A calibration process requires completing the calibration at all angles and distances according to the illustrations.

Taking **laser calibration** as an example, the calibration steps are as follows:

> **Caution**
>
> - Do not perform calibration on reflective tile floors.
> - Do not perform calibration in environments with cluttered markers.

1. Please place the calibration board with the marked side facing up on the flat surface.
2. Align the red crosshair of the scanner with the white crosshair on the calibration board; when the two crosshairs overlap, the crosshair will turn green.
3. Move the scanner vertically up and down until the blue area on the screen is completely eliminated.

   > **Caution**
   >
   > - When moving the scanner up and down, please ensure:
   >   - The center of the scanner remains aligned with the center of the calibration board.
   >   - The scanner remains parallel to the plane where the calibration board is located.
   > - If you are unable to eliminate the blue area completely while moving the scanner up and down, try adjusting the camera brightness using the brightness slider on the left side.

4. Place the calibration board on the holder as shown.
5. Repeat steps 2 to 3 to complete the calibration for that direction.
6. Rotate the calibration board as shown, and repeat steps 2 to 3 to complete the calibration for other directions.
7. After completing calibration for all directions, a calibration file will be automatically generated.
8. If the calibration is successful, you can exit calibration and proceed to scanning; if the calibration fails, please recalibrate.

> **Note**
>
> - After calibration is complete, please store the calibration board properly for future use.
> - If calibration fails multiple times, please promptly contact technical support and provide the error code.

White Balance Calibration

> **Note**
>
> **White balance calibration** is an optional calibration step. It can be performed when there is a discrepancy between the scanned texture data and the actual texture of the object.

Steps

1. Please place the calibration board with the white side facing up on a flat surface.
2. Aim the scanner at the calibration board.
3. Move the scanner vertically up and down until the white circle on the screen completely overlaps with the blue circle.
4. After successful calibration, you can exit calibration and proceed to scanning; if calibration fails, please recalibrate.

> **Note**
>
> - After calibration is complete, please store the calibration board properly for future use.
> - If calibration fails multiple times, please promptly contact technical support and provide the error code.

Scan

Scan Preparation

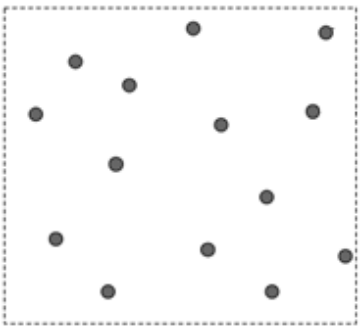
Before scanning, please refer to the following scanning requirements and make the necessary preparations to enhance your scanning experience.

Markers Placement

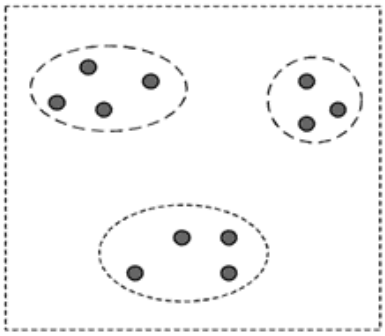
When scanning using **Marker Alignment** or **Global Markers**, markers need to be placed on the object to be scanned in advance.

Please note the following requirements for placing markers:

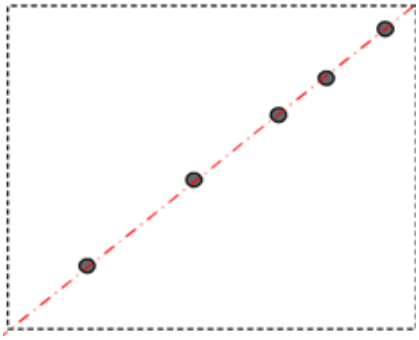
- Place markers evenly and randomly.
- Do not use damaged or incomplete markers.
- Do not place markers on surfaces with high curvature.
- Do not use dirty or contaminated markers.
- Place small markers on edges of models or small areas.



Markers are attached correctly



Wrong: Artificial grouping of markers



Wrong: Attach markers only in one line

Portraits

Please note the following requirements for scanning portraits:

- Hairstyle: Keep hairstyles neat and avoid loose strands or bangs; comb hair before scanning.
- Clothing: Avoid wearing reflective clothing; do not wear accessories or glasses that may cause reflections.
- Posture: Since the person should remain as still as possible during the scanning process, choose a comfortable and easy-to-maintain posture before scanning.

Note

For portrait scanning, please scan the face first and try to complete it in one go to avoid alignment errors caused by muscle movement or blinking.

Objects

Please note the following requirements for scanning objects:

- For scanning transparent, shiny, or reflective objects (especially those with black reflective surfaces), use washable or vanishing scanning spray.
- For objects lacking surface features or with repetitive features:
  - Place markers on the object's surface and select **Marker Alignment** mode for scanning.
  - Randomly add rich geometric features on or around the object's surface and select **Feature Alignment** mode for scanning.
  - Use an erasable marker to enhance surface features by drawing on the object's surface and selecting **Texture Alignment** mode for scanning.

Note

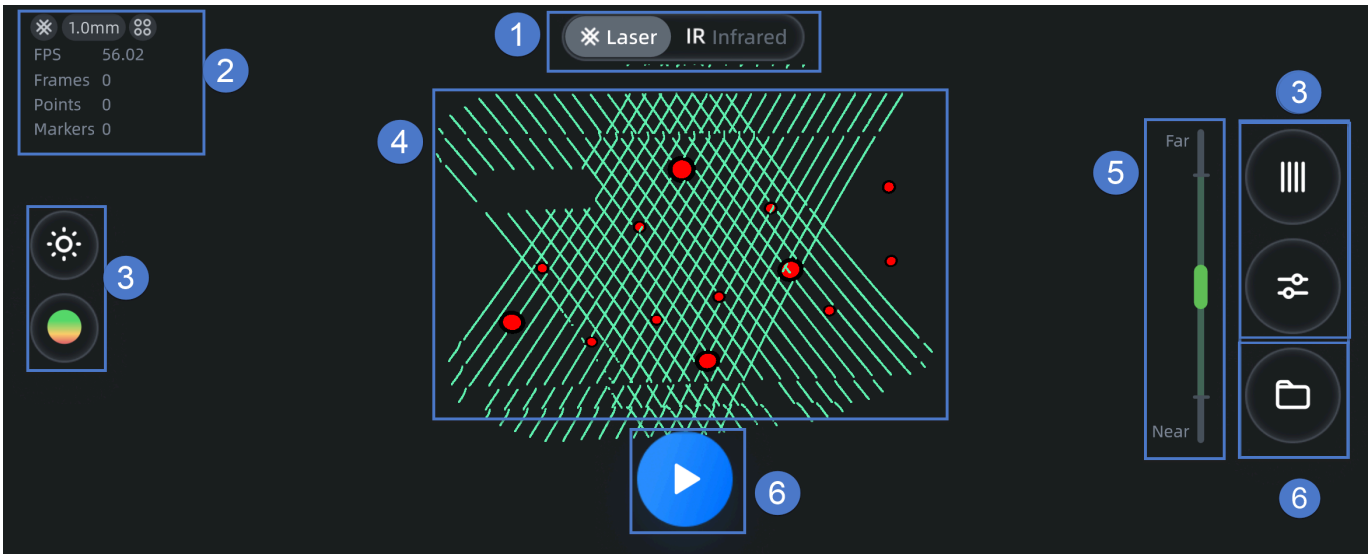
Types of objects unsuitable for scanning:

- Soft material object that cannot be hung.
- Lattice structures with many small deep holes.
- Moving or shaking objects. Frequent coordinate changes will lead to a poor scanning quality.

Preview and Settings

After powering on, you can enter the scan interface.

Interface Overview



> **Note**
>
> For an introduction to the top status bar, please see Status Bar.

① Scan Mode

Tap the button to switch the scan mode of the current project:

- ※: **Laser Scan Mode** (default).
- IR: **IR Scan Mode**.

② Project Information

Displays the data information, including fps, frames, points, markers (**Marker Alignment** or **Global Markers**), and parameter settings of the current project.

> **Note**
>
> You can adjust the project parameters by tapping the **Advanced Settings** button on the right; after setting the parameters, the corresponding icon will be displayed in the upper left corner of the project information.

Icon Meaning			
Object Scan Mode	Portrait Scan Mode	Acquire Texture	
Feature Alignment	Texture Alignment	Marker Alignment	Global Markers Alignment

③ Scan Settings

You can set the scanning settings for the current scanning project in the scan interface.

> **Note**
>
> Once you officially enter the scanning process, you can still adjust the camera view and the data display mode, but you cannot change the parameters in the advanced settings.

Laser Mode

Camera View

Tap the button to enable the camera view, which will display a black-and-white camera view and a texture camera view.

> **Note**
>
> The texture camera view is only displayed when **Acquire Texture** is enabled.

Black-and-White Camera

The red dots in the camera view indicate overexposed areas. To improve scanning quality, it is recommended that you lower down the camera brightness when there are large overexposed areas, or increase the camera brightness when the camera view is too dark.

Function	Description
	When scanning regular objects, you can adjust the camera brightness in this mode.
	When scanning reflective objects, tap the  button to switch to this mode, then adjust the camera brightness.
	In bright environments (such as outdoors in sunlight), tap the  button to switch to  to enable this mode for better scanning experience.

Note

After officially starting the scan, you can adjust the camera brightness again based on the reality.

Brightness adjustment method: Tap the upper or lower part of the camera view or use the slider on the left side of the camera view to manually adjust the brightness.

Texture Camera

To enhance scanning quality and texture effects, it is recommended that you adjust brightness based on the camera view before scanning.

Function	Description
	When enabled, the scanner can adjust the brightness automatically according to the actual situation.
	Enable it when the environment light is too dark; then manually adjust the brightness of the LED supplement light.

Note

After officially starting the scan, you can adjust the camera brightness again based on the reality.

Brightness adjustment methods support automatic exposure or manual adjustment:

- Automatic exposure  : The device automatically adjusts exposure based on the scanning environment; if the automatic exposure effect is not good, you can manually adjust the brightness.

- Manual adjustment: Tap the upper or lower part of the camera view or use the slider on the left side of the camera view to manually adjust the brightness.

Data Display Mode

Tap to expand the list, and you can choose a data display mode:

- **Data Quality Indicator**: Enabled by default for non-texture scanning. When enabled, it will differentiate scan quality in colors: blue represents high-quality scanned data and yellow represents insufficient scanned data that requires further scanning.
- **Texture Display**: Enabled by default when you choose **Acquire Texture** in **Advanced Settings**.

> **Note**
>
> You can enable only one of these two display modes; indicates that both modes are disabled.

Light Source Mode

Light Source Mode	Description
	This mode is suitable for rapid scanning.
	This mode is suitable for detailed scanning.

Advanced Settings

Tap in the right-side function bar to open the **Advanced Settings** window, where you can preset the **Scan Settings** and **Align Mode**.

> **Note**
>
> - If a project group contains more than one project, the status of **Acquire Texture** cannot be adjusted when creating a new project.
> - If a project group contains more than one project, resolution adjustment is unavailable for the second and later projects.

- **Resolution**: Set the resolution manually. A smaller value results in a smaller point distance, increased data quality requirements, longer scanning times, and finer meshes generated.

- **Acquire Texture**: Disabled by default; if disabled, **Texture Display** and **Texture Mapping** are also not available.

Align Mode	Description	Supported Marker Size
Marker Alignment	Completes alignment using markers, suitable for objects with distinct geometric features, flat areas with minimal geometric features, and scenes requiring accuracy. **Note** When enabled, will be displayed in the project information at the top left.	• 3 mm • 6 mm • 12 mm
Global Markers	Completes alignment using markers, suitable for objects lacking rich and variable geometric features and requiring high accuracy. **Note** When enabled, will be displayed in the project information at the top left.	• 3 mm • 6 mm • 12 mm

IR Mode

Camera View

Tap the button to enable the camera view, which will display a black-and-white camera view and a texture camera view.

> **Note**
>
> The texture camera view is only displayed when **Acquire Texture** is enabled.

Black-and-White Camera

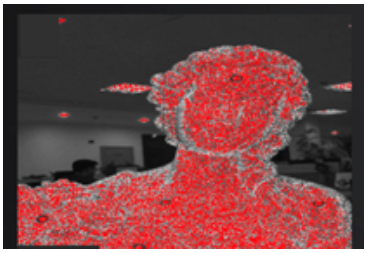
The red dots in the camera view indicate overexposed areas. To improve scanning quality, it is recommended that you lower down the camera brightness when there are large overexposed areas, or increase the camera brightness when the camera view is too dark.

Function	Description
	When enabled, the scanner can adjust the brightness automatically according to the actual situation.

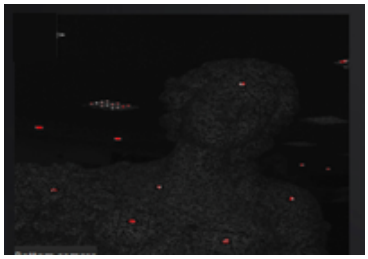
> **Note**
>
> After officially starting the scan, you can adjust the camera brightness again based on the reality.

Brightness adjustment methods support automatic exposure or manual adjustment:

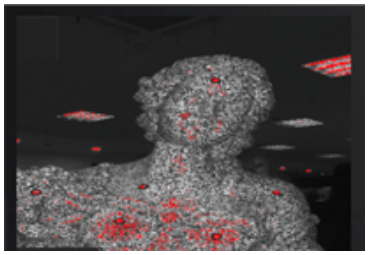
- Automatic exposure Ⓐ: The device automatically adjusts exposure based on the scanning environment; if the automatic exposure effect is not good, you can manually adjust the brightness.
- Manual adjustment: Tap the upper or lower part of the camera view or use the slider on the left side of the camera view to manually adjust the brightness.



Brightness is too high



Brightness is too low



Brightness is proper

Texture Camera

To enhance scanning quality and texture effects, it is recommended that you adjust brightness based on the camera view before scanning.

Function	Description
Ⓐ	When enabled, the scanner can adjust the brightness automatically according to the actual situation.
💡	Enable it when the environment light is too dark; then manually adjust the brightness of the LED supplement light.

> **Note**
>
> After officially starting the scan, you can adjust the camera brightness again based on the reality.

- Automatic exposure Ⓐ: The device automatically adjusts exposure based on the scanning environment; if the automatic exposure effect is not good, you can manually adjust the brightness.

- Manual adjustment: Tap the upper or lower part of the camera view or use the slider on the left side of the camera view to manually adjust the brightness.

Scanning Distance (DOF)

Tap the button to enable the scanning distance adjustment function. You can adjust the scanning distance using the arc slider based on the distance value prompt. The scanner scans only within the set distance. This function can effectively filter out unnecessary noise data.

Remove Base

Tap the button to enable the function, which will automatically identify the base plane and mask the scanned data below it during scanning (if there are markers, they will be retained); you can effectively filter out unnecessary noise data through this function, improving data processing efficiency.

Once the blue base plane appears in the model preview scene, if you confirm that it is the desired plane, then tap to start scanning.

> **Note**
>
> - This function is turned off by default; once it is enabled, the recognized base plane will be continuously displayed during the scanning preview and will be updated in real-time.
> - You can enable or disable this function during the scanning preview; once you officially start scanning, you cannot switch the status of this function again.
> - If prompted that the base plane is not recognized, please adjust the position of the scanner to align it with the object to be scanned.

Data Display Mode

Tap to expand the list, and you can choose a data display mode:

- **Data Quality Indicator**: Enabled by default for non-texture scanning. When enabled, it will differentiate scan quality in colors: blue represents high-quality scanned data and yellow represents insufficient scanned data that requires further scanning.
- **Texture Display**: Enabled by default when you choose **Acquire Texture** in **Advanced Settings**.

> **Note**
>
> You can enable only one of these two display modes; indicates that both modes are disabled.

Advanced Settings

Tap in the right-side function bar to open the **Advanced Settings** window, where you can preset the **Scan Settings** and **Align Mode**.

> **Note**
>
> - If a project group contains more than one project, the status of **Acquire Texture** cannot be adjusted when creating a new project.
> - If a project group contains more than one project, the scan mode (**Object** or **Portrait**) cannot be changed when creating a new project.
> - If a project group contains more than one project, resolution adjustment is unavailable for the second and later projects.

Object

- Scan Settings:
  - **Resolution**: Set the resolution manually. A smaller value results in a smaller point distance, increased data quality requirements, longer scanning times, and finer meshes generated.
  - **Acquire Texture**: Disabled by default; if disabled, **Texture Display** and **Texture Mapping** are also not available.

Align Mode	Description	Supported Marker Size
Feature Alignment	Automatically completes alignment using the geometric features of the scanned object's surface, suitable for objects with rich geometric features or those that cannot have markers pasted. **Note** When enabled,  will be displayed in the project information at the top left.	/
Texture Alignment	Automatically completes alignment using the surface texture of the scanned object, suitable for objects with rich surface texture patterns but lacking rich irregular geometric features. **Note** When enabled,  will be displayed in the project information at the top left.	/
Marker Alignment	Completes alignment using markers, suitable for objects with distinct geometric features, flat areas with minimal geometric features, and scenes requiring accuracy. **Note** When enabled,  will be displayed in the project information at the top left.	• 6 mm and 12 mm markers for scanning medium to large objects. • 6 mm markers for scanning small objects.
Global Markers	Completes alignment using markers, suitable for objects lacking rich and variable geometric features and requiring high accuracy. **Note** When enabled,  will be displayed in the project information at the top left.	• 6 mm and 12 mm markers for scanning medium to large objects. • 6 mm markers for scanning small objects.

Note

- At least one align mode must be used.
- It is recommended not to enable both Feature Alignment and Texture Alignment at the same time, as this may affect the scanning frame rate.
- If the object to be scanned is large and lacks rich geometric features, you can choose to paste 12 mm markers for scanning to improve scanning efficiency.
- If the object to be scanned is large and has rich surface features with few geometric features in flat areas, you can enable both marker point alignment and Feature Alignment simultaneously.

Portrait

- Scan Settings:
  - **Resolution**: Set the resolution manually. A smaller value results in a smaller point distance, increased data quality requirements, longer scanning times, and finer meshes generated.
  - **Acquire Texture**: Disabled by default; if disabled **Texture Display** and **Texture Mapping** are also not available.
- Align Mode:

Align Mode	Description
Feature Alignment	Automatically completes alignment using the geometric features of the scanned object's surface. **Note** When enabled, will be displayed in the project information at the top left.
Texture Alignment	Automatically completes alignment using the surface texture of the scanned object. **Note** When enabled, will be displayed in the project information at the top left.

Note

- At least one align mode must be used.
- It is recommended to use **Feature Alignment** when scanning faces or bodies, and not to enable **Texture Alignment**.

④ Model Preview

Displays the pre-scanning effect of the model.

⑤ Distance Indicator

You can adjust the scanning distance based on the color indication of the distance bar and interface prompts during scanning.

- Red indicates that the distance is too near.
- Blue indicates that the distance is too far.
- Bluish green indicates that the distance is close or far away.

⑥ Function Buttons

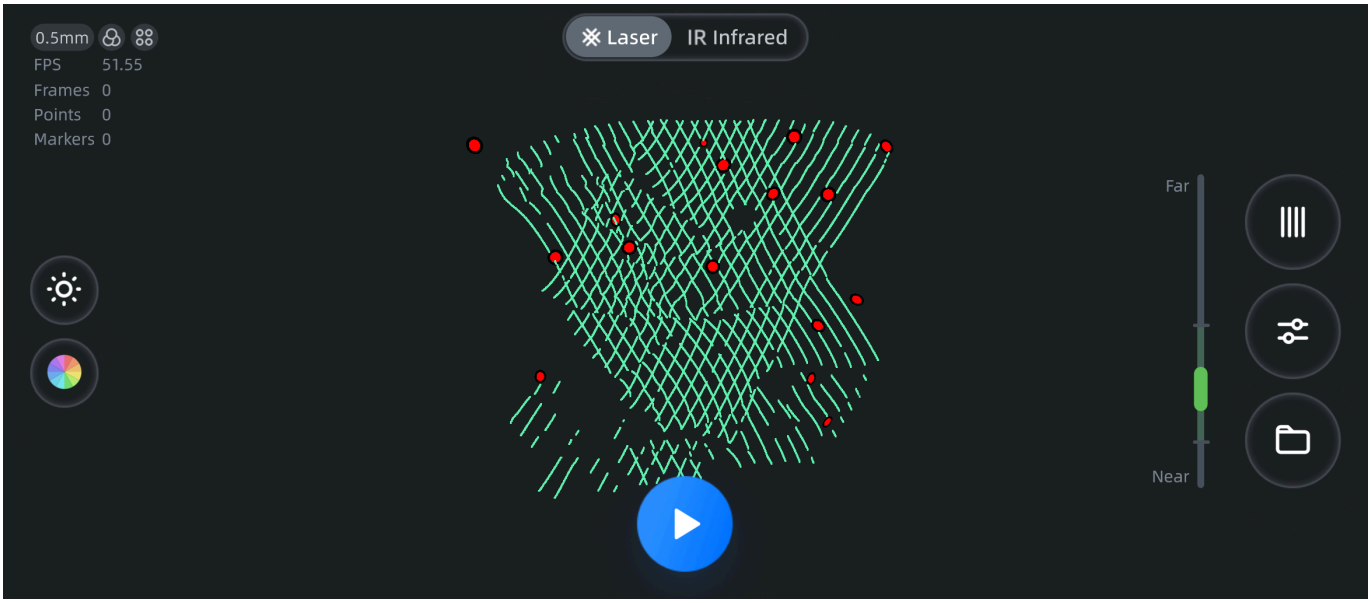
Function	Description
	Tap to enter the File List.
	Tap to Start Scanning.
	Tap to create a new project group.

Note

After scanning and returning to the scan interface,  will appear in the upper right corner of the interface.

Scanning

By scanning, point cloud data can be obtained to generate accurate mesh.



Scanning Steps

1. Tap **Laser** or **Infrared** at the top of the interface to select the corresponding scan mode.
2. Prepare according to the type of object to be scanned and the selected scan mode; for specific details, please refer to Preparation.
3. Set the resolution, align mode, texture, and other related scanning parameters, and adjust the scanning brightness.
   a. Tap to open advanced settings, where you can set the resolution, texture, and align mode.
   b. Tap to open the camera window, and adjust the scanning brightness based on the camera view; during the scanning process, you can adjust the scanning brightness again according to the scanning effect.
   c. (Optional) In laser mode, tap and before and during scanning to switch to the corresponding light source mode.

> **Note**
>
> For more details, please refer to Scanning Settings.

4. Tap the button at the bottom of the interface to start scanning.
5. During the scanning process, please monitor the data on the screen in real-time, and move the scanner slowly and steadily until the object to be scanned is completely scanned.

> **Note**
>
> - If prompted "Tracking Lost" during scanning, please adjust the posture in a timely manner, move the scanner to the already scanned area, and continue scanning after re-tracking.
> - In **Global Markers** mode, you need to scan the global markers first before scanning the point cloud.

6. Tap the button at the bottom of the interface to pause scanning.

7. Check the integrity of the data through operations such as rotation and zooming.

Function	Description
Pan	Slide to pan the model with two fingers.
Rotate	Slide to rotate the model with one finger.
Zoom	Pinch or spread with two fingers to zoom the model.
	Tap this button to restore the model to its original size and reset it to the center of the screen.

8. If the data is incomplete or of low quality, tap the button at the bottom of the interface to continue scanning; if you need to rewind the frame, tap the button to access the rewind function; if you are not satisfied with the overall data, tap the button to clear the scanned data and start scanning again.

> **Note**
>
> - The rewind function is only available in **IR Scan**.
> - After pausing the scan, you can modify the resolution of the current project; it is recommended that you scan again in areas with low quality (yellow areas) after modification.

9. After completing the scan, tap the button at the bottom of the interface to enter the Point Cloud Editing interface, where you can edit and clip the scanned data to remove redundant data.

10. (Optional) If you cannot complete all scans in one project, tap **Complete** in the point cloud editing interface to return to the scan interface, at which point a new project will be automatically created under the current project group, allowing you to repeat the above steps to scan again. If you complete all scans in one project, tap **Complete** in the point cloud editing interface to return to the scan interface, at which point you can click to create a new project group for scanning.

> **Note**
>
> When creating a project, projects within the same project group do not support switching align modes.

Global Markers Files

When selecting **Global Markers** mode, you can quickly export or import global markers files.

Export

In **Marker Alignment** mode or **Global Markers** mode, when the number of scanned markers > 4, tap to save the global markers file to the scanner for later import.

> **Note**
>
> - Custom naming of exported global markers files is supported.
> - In **Global Markers** mode, when scanning the point cloud, if **Add global markers** is enabled, all recognized markers will be exported.
> - In **Laser** mode, after scanning the point cloud, tap to do optimization, and then tap to export the global markers file.

Import

When scanning global markers again, you can go to the scan interface > **Advanced Settings** > **Global Markers**, tap **Import global markers**, and select the corresponding global markers file to import.

> **Note**
>
> If the imported global markers file contains unrecognized marker's sizes, the import will fail; for details on the supported marker sizes for each align mode, please refer to the advanced settings content in Scanning Settings.

Scan Rewind

If there are issues such as alignment errors during the scanning process, you can pause the scan and tap the button to use the rewind function. This allows you to rewind the frames to precisely delete any excess or incorrectly aligned data.

Note

- This function can only rewind frames in IR Scan mode.
- If the total number of frames in the current project is ≤ 50, no frames can be rewound.
- After scanning the global markers, you need to scan the point cloud data; otherwise, the rewind function cannot be used.

Function	Description
○	Drag to quickly adjust the rewind frame count.
‹ / ›	Tap to make fine adjustments to the frame count; each tap increases or decreases by one frame.
⏮ / ⏭	Tap to quickly rewind to the maximum or minimum frame count.
Pan	Slide to pan the model with two fingers .
Rotate	Slide to rotate the model with one finger.
Zoom	Pinch or spread with two fingers to zoom the model.

Operation Instructions

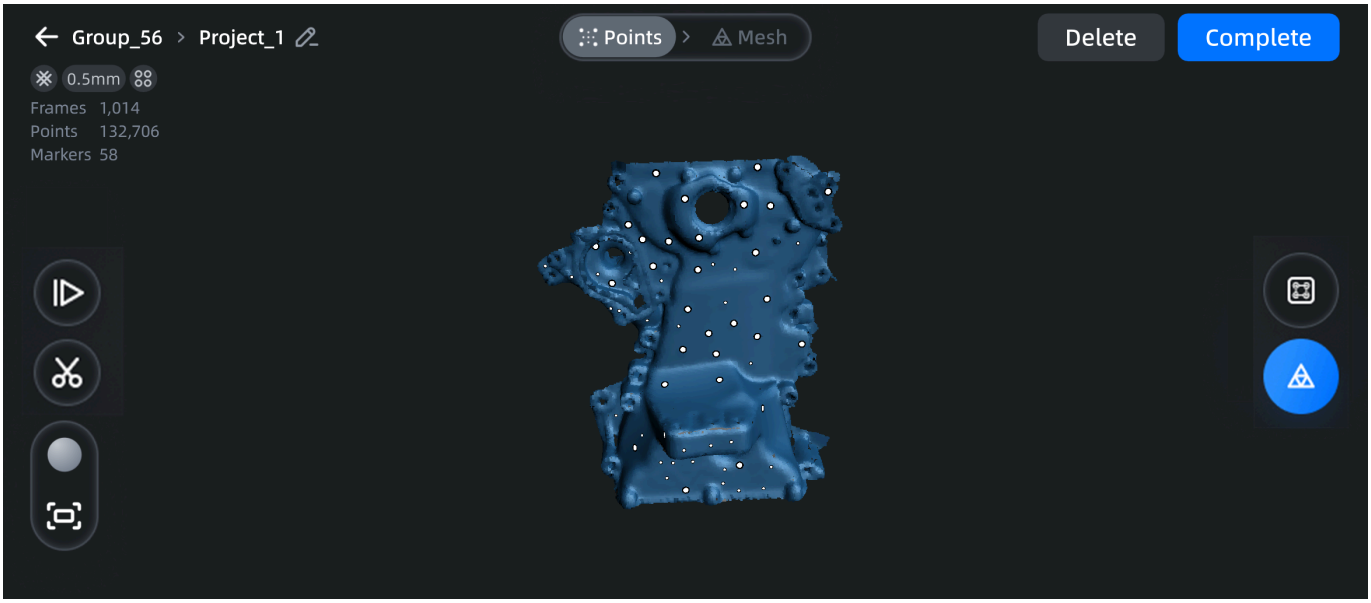
1. When the scan is paused, tap the button to enter the rewind function.
2. Pan, rotate, and zoom the data to check for alignment errors.
3. Drag the slider to rewind to the specified frame count.
4. (Optional) Tap / to make fine adjustments to the rewind frame count; each tap can increase or decrease by one frame.
5. Check the data again by panning, rotating, and zooming. If the data has been rewound to a normal state, tap **Complete** to delete the data after the current frame and return to the scan interface.

> **Note**
>
> - The interface defaults to displaying the last frame; when rewinding the frames, the point cloud data and markers in the 3D scene will change in real-time.
> - When rewinding frames, it is recommended that you enable the data quality indicator to check the current quality of the model. If the data shows yellow after rewinding, the yellow areas need to be scanned again to improve scanning quality.

Data Editing

After completing the scanning, you can edit the point cloud data to remove redundant data; additionally, after editing the point cloud data, tap to continue scanning.

Interface Overview

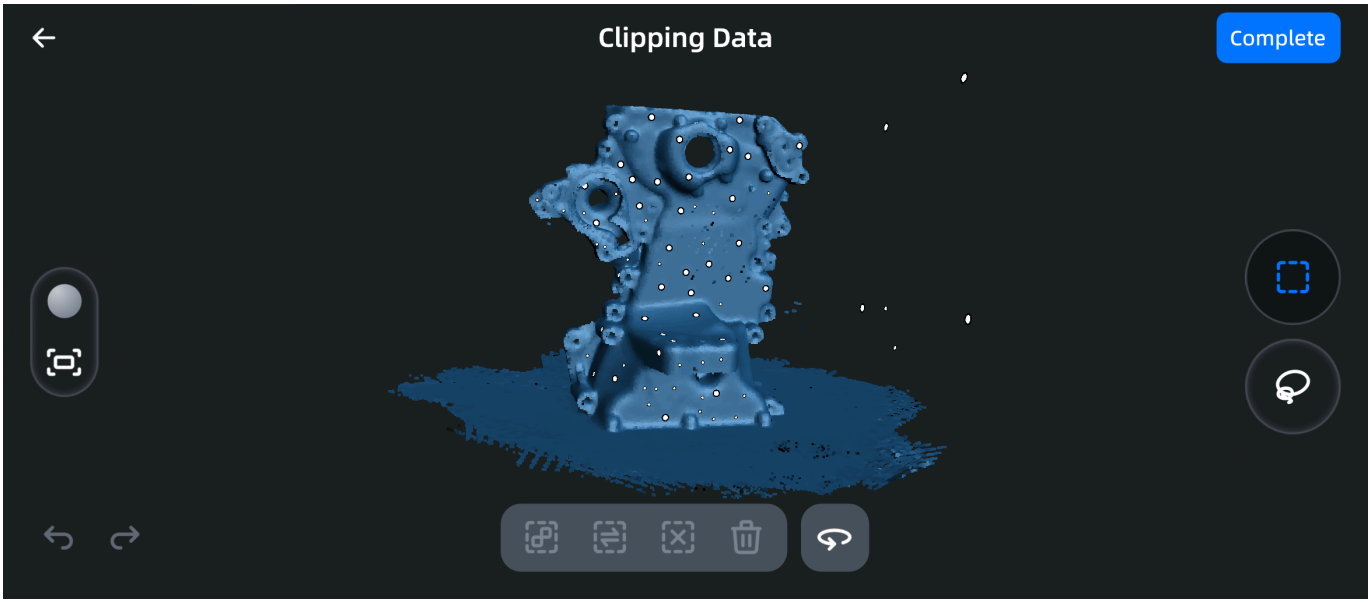


Function	Description
Point Cloud / **Mesh**	Tap the corresponding button to switch the current data to point cloud or mesh. **Note** Before tapping the button to switch between point cloud and mesh, please mesh the data first.
	Tap this button to rename the current project.
	Tap this button to return to the scan interface for continued scanning and other operations. **Note** After returning to the scan interface, switching the scan mode of this project or reverting previously edited data is not supported.
	Tap this button to enter the clipping interface to clip the data and remove noise data.
	After tapping this button, you can choose to turn texture display on or off. **Note** Only projects that have turned on **Acquired Texture** can support turning on texture display.
	Tap this button to restore the model data to its original size and reset it to the center of the screen.
	Tap this button to optimize and align the scanned data. **Note** This function is only supported in laser mode.
	After tapping this button, you can manually set the mesh parameters to generate a mesh; for detailed content, please refer to Mesh.
	Tap this button to save the global markers file to the scanner for later import. **Note** You can export the file only in **Marker Alignment** mode or **Global Markers** mode.
Complete	Tap this button to save the current project to the File List and return to the Scanning Preview interface.
Delete	Tap this button to delete the data of the current project. **Note** Once data is deleted, it cannot be recovered.

Data Clipping

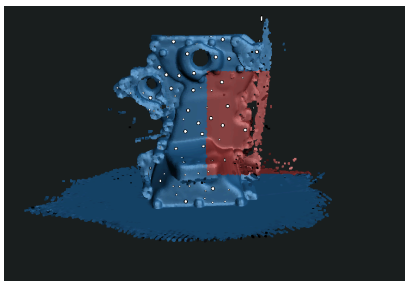
In the **Point Cloud** interface, tap the button on the left toolbar to clip the point cloud data. After clipping, tap the **Complete** button in the upper right corner to save the clipped data and return to the editing interface.

> **Note**
>
> Once clipping is confirmed, reverting to previous scanned data is not supported.

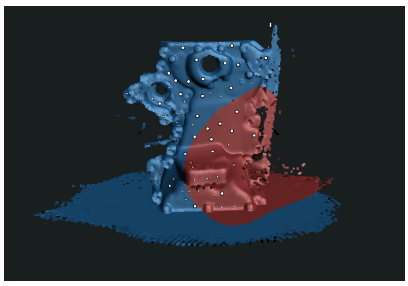


Editing Tools

1. On the right side of the interface, tap or to select the corresponding selection tool, and slide one finger on the screen to select data.



Rectangle Selection



Lasso Selection

2. For the selected area, you can use the following tools to quickly select all, invert selection, deselect, or delete.

Tool	Description
	After selecting the area, tap this button to automatically select all remaining areas connected to the selected area.
	After selecting the area, tap this button to invert the selection based on the selected area.
	After selecting the area, tap this button to deselect all selected areas.
	After selecting the area, tap this button to delete the selected area. **Note** • After performing a delete operation, tap to undo or tap to redo the previous operation. • This only supports undoing or redoing operations within this data clipping.

Auxiliary Functions

Function	Description
	After tapping this button, you can choose to turn texture display on or off. **Note** Only projects that have turned on **Acquired Texture** can support turning on texture display.
	Tap this button to restore the model data to its original size and reset it to the center of the screen.
	Long press in areas other than the button to display a magnification effect.
	Tap to switch to enabled state, at which point you can slide in areas other than the button to rotate the model. **Note** Using any other selection tool will automatically turn off the rotation mode and switch to the selection mode.

Post-Processing

Mesh

After editing the point cloud data, tap  to manually set the mesh parameters.

Settings

Function	Description
Resolution	Closer point distance indicates higher resolution and more geometric details shown in 3D mesh model. You can manually drag the slider to adjust the resolution, or directly check to use recommended values. Besides, tap to enter the high-detail mode, where you can tap − / + to adjust the resolution. **Note** Please use EXScan Rigil software on a computer with > 32 GB of RAM for higher resolution.
Mesh Smoothness	Reduce noise on the surface of the model. The higher the smoothing level is set, the smoother the data surface is and the more data details are lost.
Remove Small Floating Parts	Delete any small disconnected data from the main data.
Fill Markers	Automatically fill all the area covered by markers. Enabled by default, and cannot be disabled when the **Watertight** function is enabled. **Note** If **Marker alignment** is not enabled, this setting will be invisible.
Texture Mapping	Apply colors and textures to the surface of the model. **Note** This setting will not be displayed for the project without **Acquired Texture**.
Watertight	Choose whether to fill all holes and wrap up all open areas on the surface of the model.

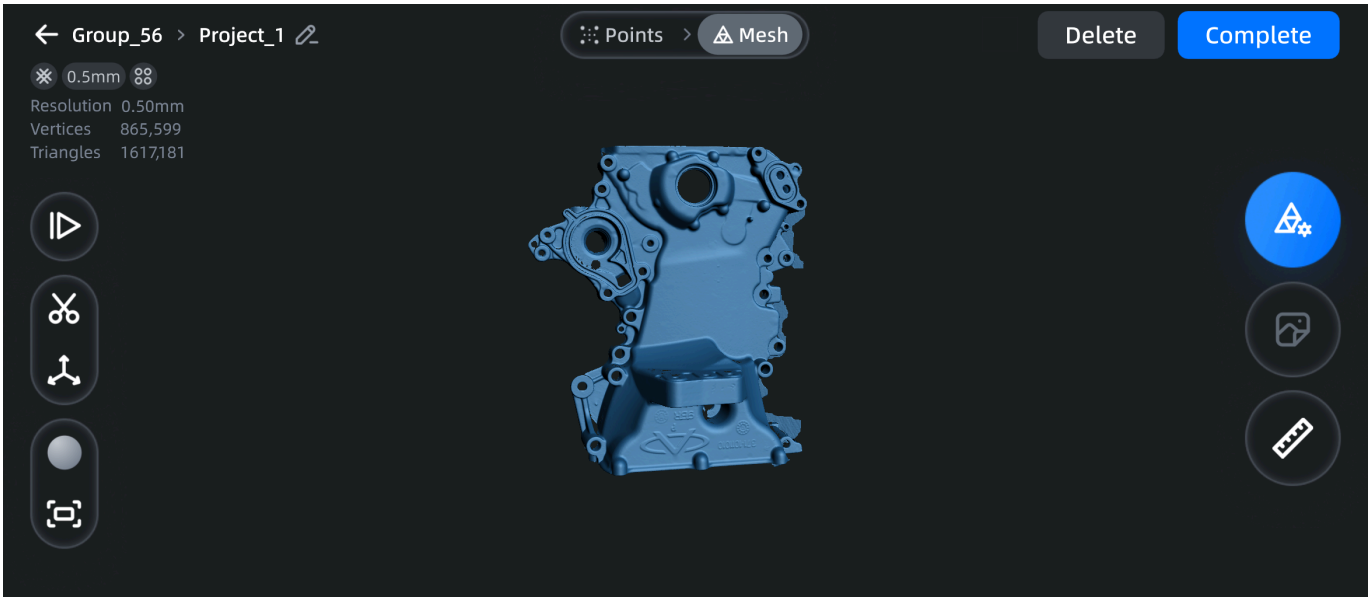
Note

- After generating the mesh, tag to clip the data again to make it more accurate.
- After generating the mesh, all settings cannot be adjusted; you can switch to point cloud and mesh again.

Mesh Interface

After meshing, you can edit the mesh in the mesh interface. For specific functions, see the table below.

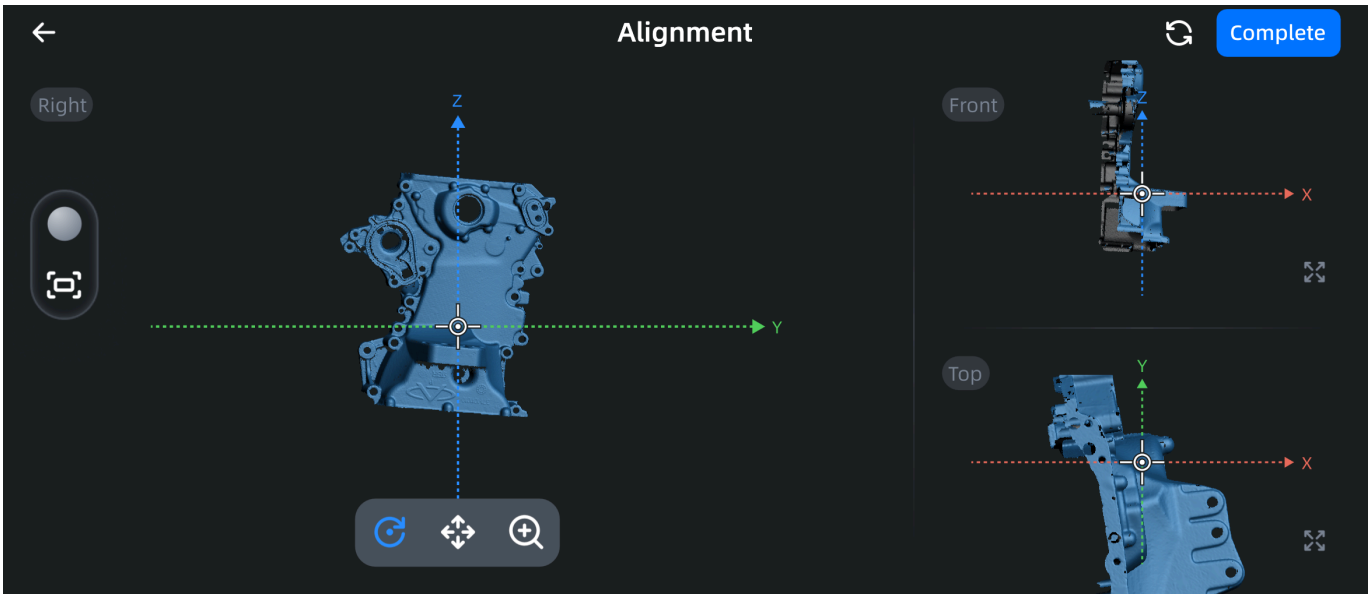
Overview


Group_56
Project_1
Points
Mesh
Delete
Complete
0.5mm
Resolution 0.50mm
Vertices 865,599
Triangles 1617,181

Function	Description
Point Cloud / **Mesh**	Tap the corresponding button to switch the current data to point cloud or mesh.
	Tap this button to rename the current project.
	Tap this button to return to the scan interface and continue scanning. **Note** After returning to the scan interface, it does not support switching the scan mode of the project or rolling back previously edited data.
	Tap this button to enter the clipping interface to clip the data and remove noise data.
	Tap this button to align the model to make it easier to measure the bounding box and perform other post-processing operations. For details, please refer to Alignment.
	After tapping this button, you can choose to turn texture display on or off. **Note** Only projects that have turned on **Acquired Texture** can support turning on texture display.
	Tap this button to restore the model data to its original size and reset it to the center of the screen.
	Tap it to pop up the **Mesh Editing** window, where you can adjust the texture and fill the holes; for details, please refer to Mesh Editing.
	Tap this button to do texture mapping. **Note** This function is unavailable if you didn't enable **Acquire Texture** before scanning.
	Tap this button to measure the model; see Measurement for details.
Complete	Tap this button to save the current project and return to the Scan interface.
Delete	Tap this button to delete the data of the current project. **Note** After deleting data, it cannot be restored again.

Alignment

Tap  to enter the alignment interface. The left main view (model operation area) is the front view, while the right small views (model preview area) represent the right view and the top view, arranged as shown in the following illustration.



Function

Function	Description
←	Tap this button to return to the previous interface.
	Tap this button to turn texture display on or off.
	Tap this button to restore the model data to its original size and reset it to the center of the screen.
	Tap this button and slide on the screen to rotate the model.
	Tap this button and slide on the screen to pan the model.
	Tap this button and slide on the screen to scale the model with two fingers.
	Tap this button in the small view area on the right to switch the view in the upper right or lower right corner to the operation area on the left.
	Tap this button to restore to the default view layout when entering the alignment interface.
Complete	Tap this button to save the current project and return to the Mesh interface.

Operation

1. Adjust the position of the model in the left main view on the coordinate axis by panning and rotating the model.

   > **Note**
   >
   > - When panning and zooming the model, the three views will change synchronously.
   > - Zooming the model only affects the current view and does not affect the actual model.

2. If the adjustment is completed, tap the  button to align other views; if you are not satisfied with the adjustment, tap the  button to restore the model position to the default view layout when entering the alignment interface.
3. Follow the above steps to align the model in the top view and right view.
4. Tap the **Complete** button to save the current project and return to the mesh interface.

Note

If you realign a mesh model that has already been uploaded to the SHINING 3D Cloud, you will need to re-upload it.

Mesh Editing

Tap  to pop up the **Mesh Editing** window, where you can do **Texture Adjustment** and **Auto Hole Filling**.

Texture Adjustment

Touch to pop up the texture adjustment. Through the slider, you can adjust the brightness, contrast, color temperature, and saturation of the texture to make the model texture more accurate.

After the adjustment, tap **Complete** to apply the adjustment and return to the mesh interface; if you are not satisfied with the adjustment, tap to clear all values and do it again.

Note

- Texture adjustments are only supported for models that have completed texture mapping.
- The texture will always be displayed in the texture alignment interface.
- The adjustment will combine with the last applied effect.

Auto Hole Filling

Tap to enter the auto hole filling interface; after setting the hole filling perimeter (the default value is 1 mm) through the slider, the edges of holes that meet the hole filling conditions will display in green, and the edges of the other recognized holes will be red; tap **Apply** to fill all the holes displayed in green, and tap **Complete** to save effect and return to the mesh interface.

Note

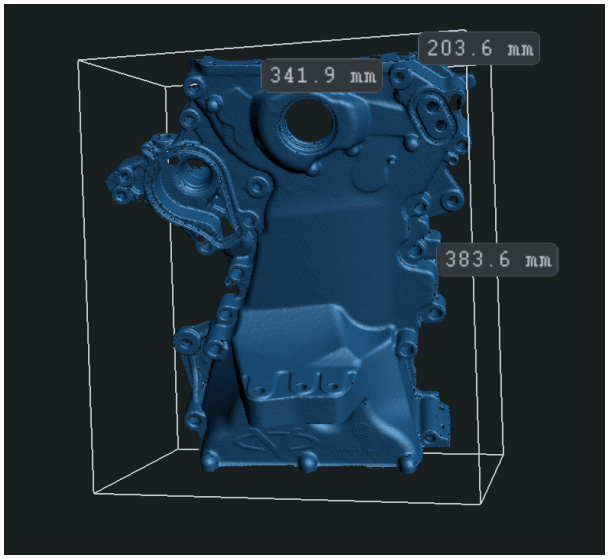
- If you are not satisfied with the hole filling effect, before you tap the **Complete** button, tap to reset to the unfilled state and fill the holes again.
- It is recommended that you redo the texture mapping after filling the hole to ensure the mapping effect.

Model Measurement

After generating the mesh, tap to enter the measurement interface for model measurement, including measuring Bounding Box and Distance.

Bounding Box

Tap the button in the measurement interface to display the bounding box and show its length, width, and height measurements (unit: mm).



> **Note**
>
> The model can be panned, rotated or zoomed and you can reset the model to its original size and correct the view by tapping .

Distance

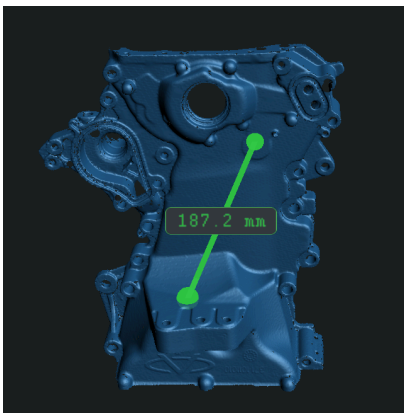
Tap the button in the measurement interface to enable the function for measuring the distance.

The steps to measure distance are as follows:

1. Tap any position on the model to add two points.

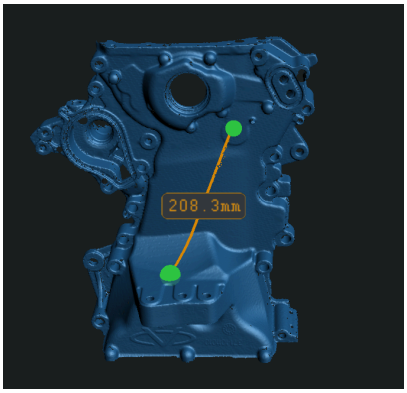
   > **Note**
   >
   > Tap to switch to rotation mode , allowing you to pan, rotate and zoom the model, and you can reset the model to its original size and correct the view by tapping .

2. After adding two points, a line will be automatically drawn, showing the straight-line distance (mm).



3. (Optional) When there is a line on the model, you can enable the **Geodesic** function to calculate the geodesic distance.

> **Note**
>
> When the geodesic function is enabled, the straight line will be automatically hidden.



> **Note**
>
> - If the two points added are not in the same connected domain, the geodesic function cannot be used.
> - You can drag the points to adjust their position, and the distance value will be updated in real time; dragging points will also activate the magnifying glass function to enlarge a specific area of the model, helping you to more accurately define the position of the measurement points.

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