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User Manual Of Reeyee Pro

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1、 Device List

Item		Quantity	Unit
Basic Version	Scan head	1	set
	Adapter	1	pc
	Power line	1	pc
	Aviation plug	1	pc
	Calibration board	1	pc
	Mark points	1	set
	Installation Guide	1	pc
Industrial Pack （add-on module）	Turntable	1	pc
	Tripod	1	pc
	Scan head tray	1	pc
	USB line	1	pc
	Power adapter	1	set
	Power line	1	pc
Color pack （add-on module）	Texture camera	1	pc

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2、 Specification Parameter

Model	**EinScan-Pro**			
Scan Mode	Handheld HD Scan	Handheld Rapid Scan	Auto Scan	Free Scan
Accuracy	0.1mm	0.3mm	Single Scan Accuracy: 0.05mm	Single Scan Accuracy: 0.05mm
Scan speed	15 frames/sec	10 frames/sec	Single Scan: <2sec	Single Scan: <2sec
Point distance	0.2mm~3.0mm	0.5mm~3.1mm	0.16mm	
Single Scan Range	210*150mm			
Light source	White light LED			
Part Size Range (Recommend)	0.03m~4m	0.15m~4m	0.03m~0.15m	0.03m~4m
Align Mode	Mark Point Align	Feature Align	Turntable Align	Compatible: Mark Point Align Feature Align Turntable Align
Texture Scan	No	Yes (texture scan camera and software module shall be bought)		
Outdoor Operation	No (affected by strong light)			
Special Scan Object	--	Rich Surface Feature needed	--	--
	For transparent, reflective and dark object, please spray powder first before scanning			
Printable Data Output	Yes			
Data Format	OBJ, STL, ASC,PLY			
Scan Head Weight	0.8KG			
System Support	Win7/Win8/Win10 64bit			
Computer Requirements	CPU: I5 or Higher; Display card： NVIDIA GTX660 or higher; Display memory：>2G; Memory Storage：8G or more			

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3、 Installation Instructions

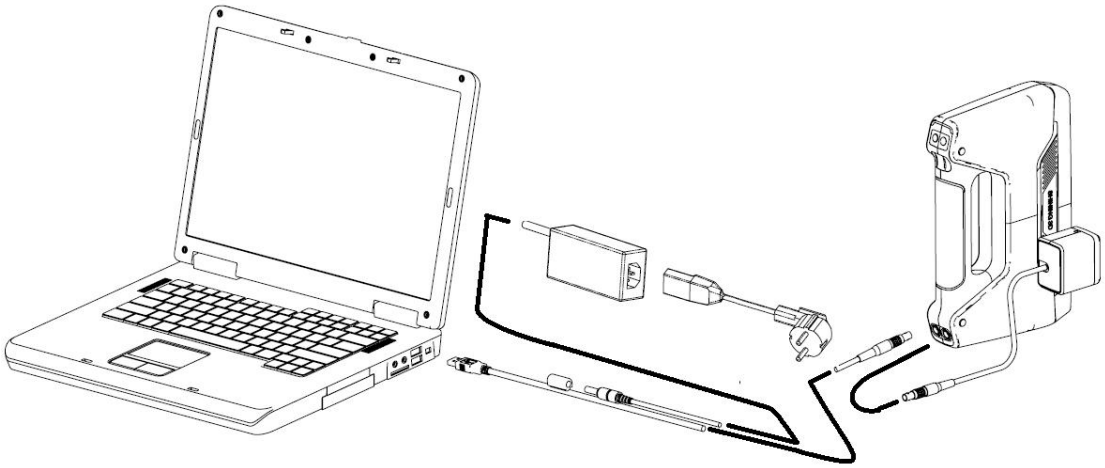
Firstly, please complete the registration, and log in.

Secondly, enter the Support page: http://en.wiiboox.net/support.php. Click “System upgrades and software download”, and click “Software download” then choose the one you need.

3.1 Hardware Installation

3.1.1 Basic Module

1. Connect one end of the line to the scanner, the other end to power line and USB on the computer as shown in the picture.
2. Connect to USB2.0 or USB3.0. (This installation mode is suitable for Handheld Scan.)



3.1.2 Industrial Module Installation

1. Put the basic module on the tripod when the installation finishes.
2. Connect the long-opening end of USB line to the computer, the square-opening end to the turntable.
3. Then connect the power adapter to the turntable and adjust the position of scan head and turntable. (This installation mode is suitable for Fixed Scan.)

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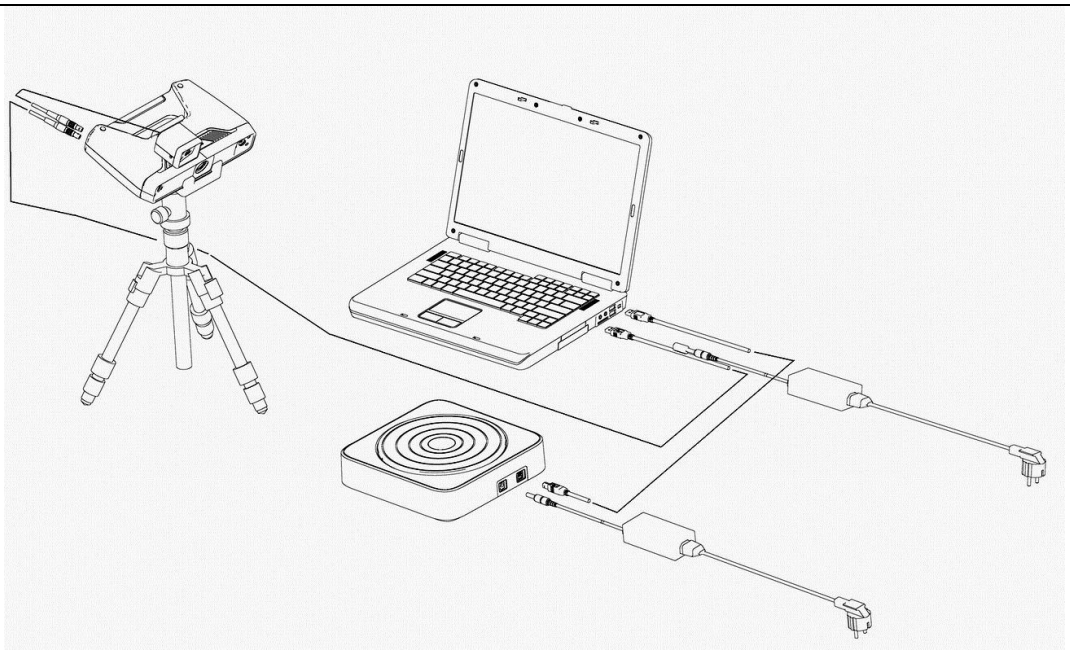
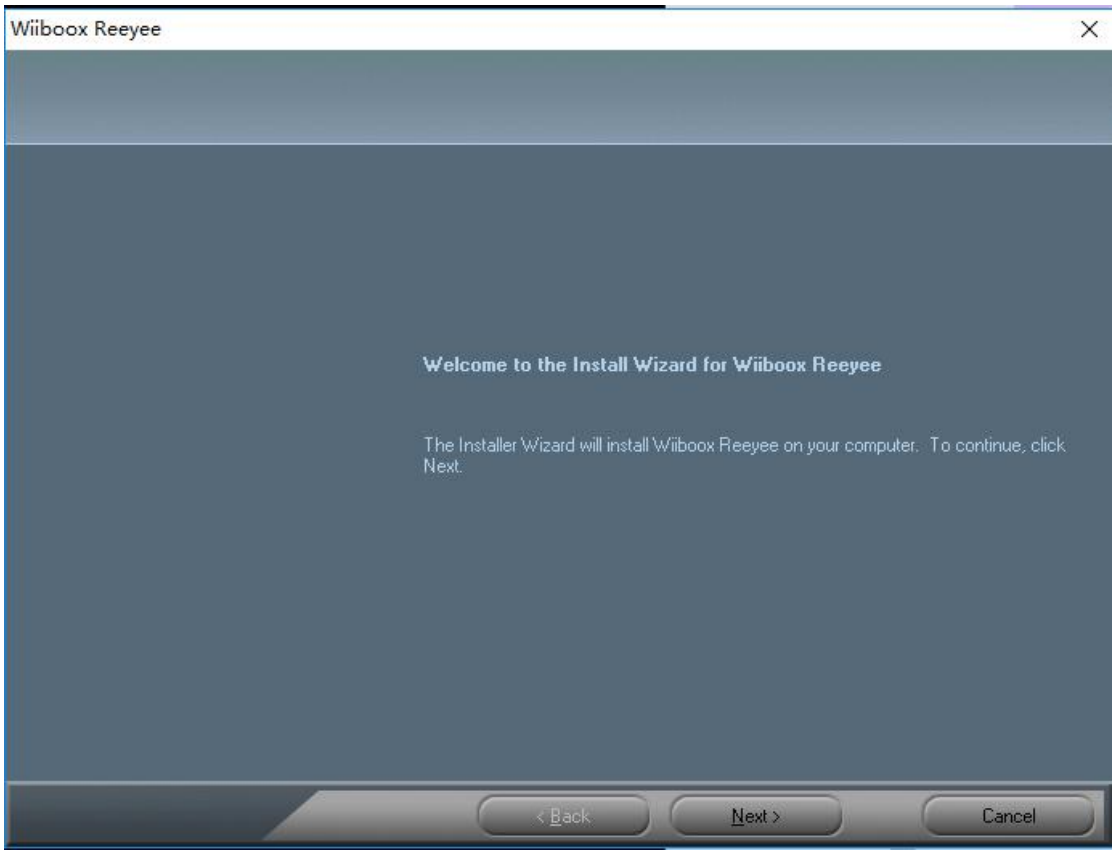


3.2 Software Installation

3.2.1 Software Installation

Double click installation package and follow the instructions like the below pictures shown:



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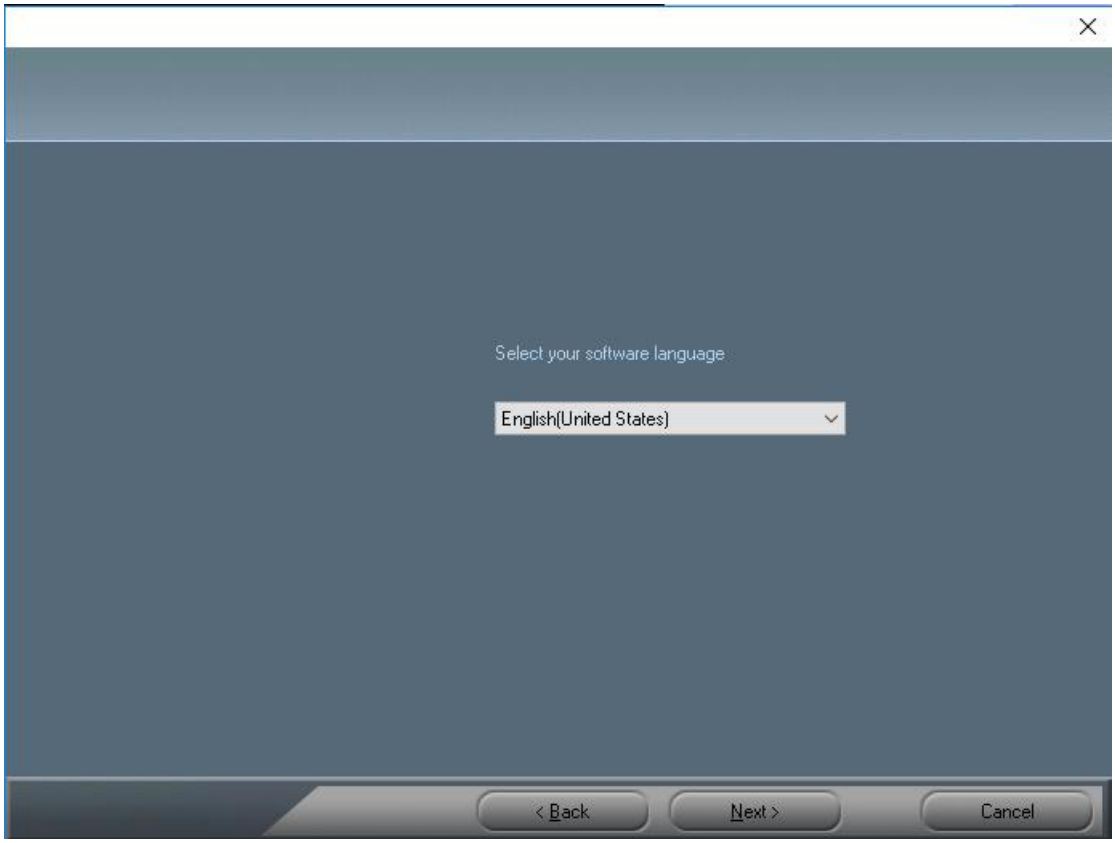
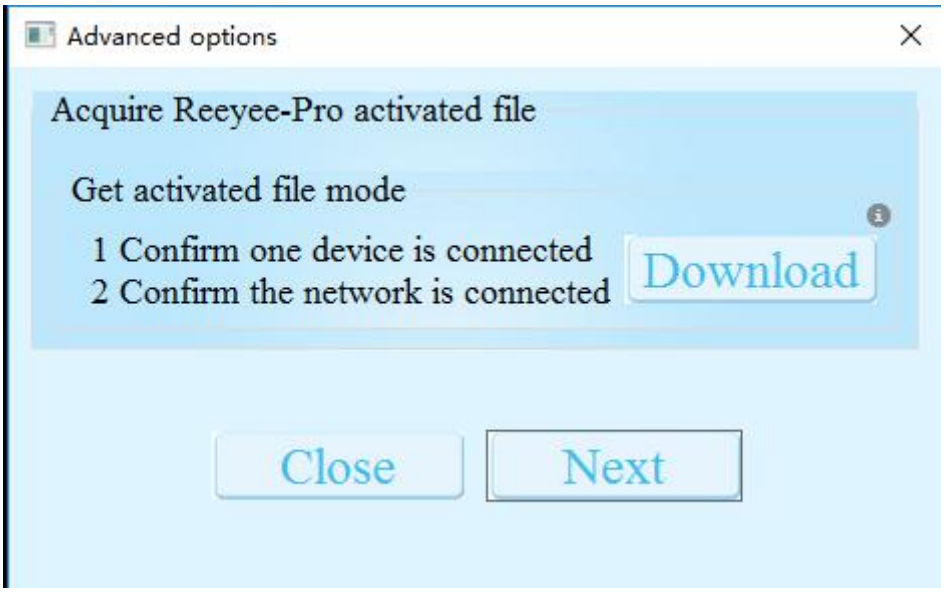


When the activation window pop-ups, please confirm there is only one device connected.
Then choose the activation mode: Online activation (Download from net work) or Local activation (Browse from your computer).



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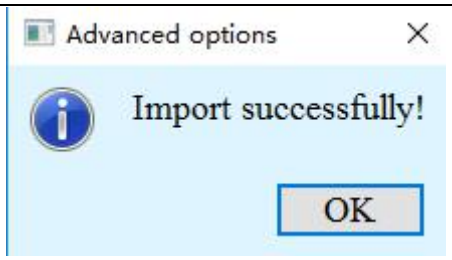
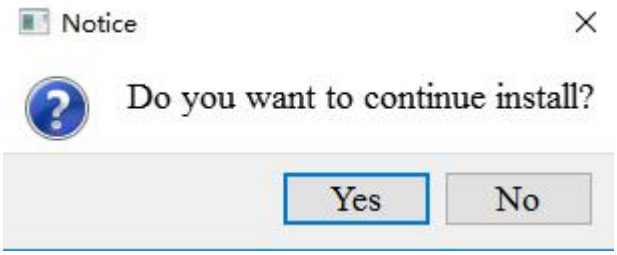


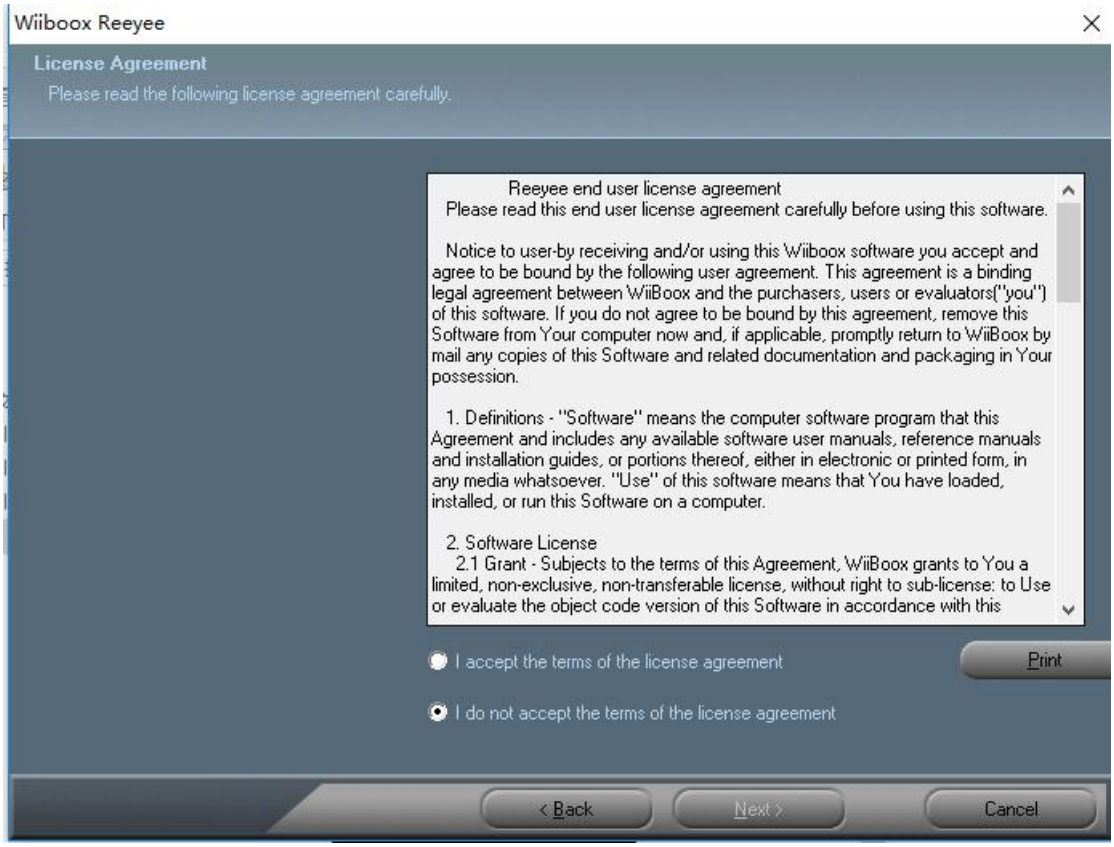
After activating a device, you can unplug the device and plug in other device to continue activating. When finishing click “Next”.

Note：

1. If you want use both S and Pro, you should activate the two device type separately.
2. When activate the Pro, please unplug the texture module.

Click “Yes” to continue the installation.





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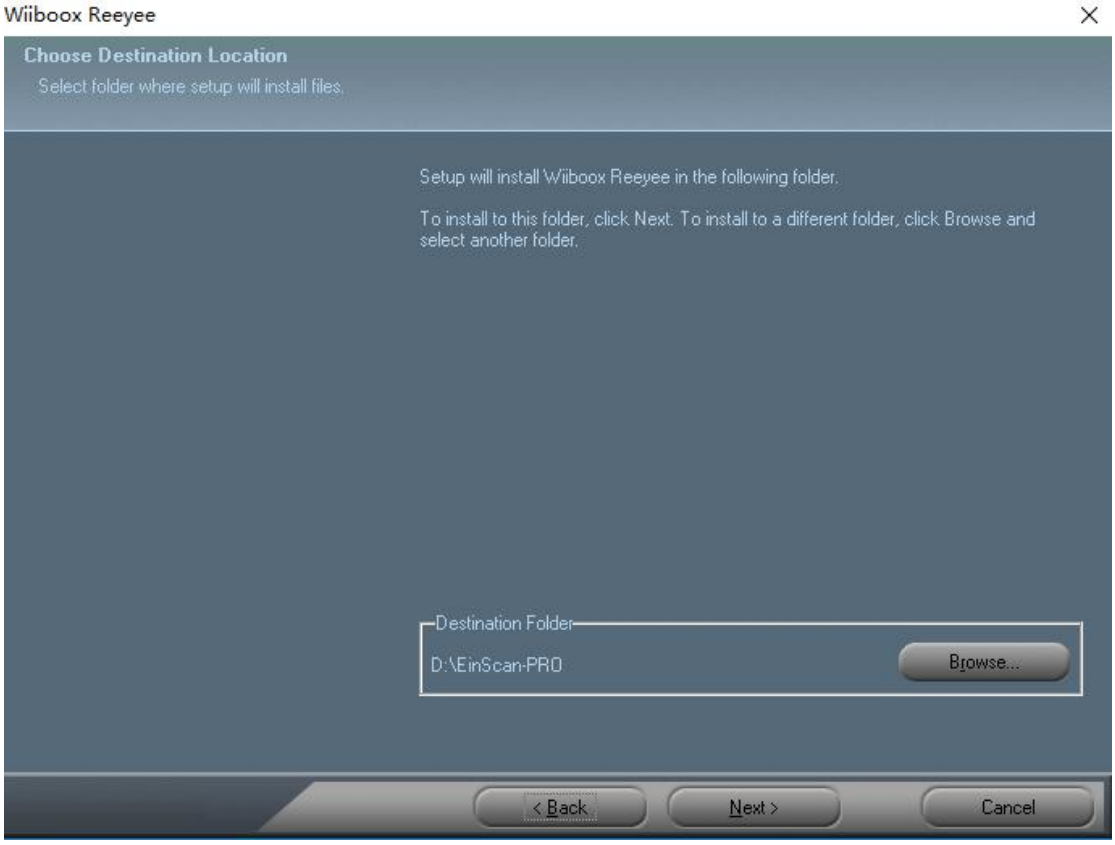
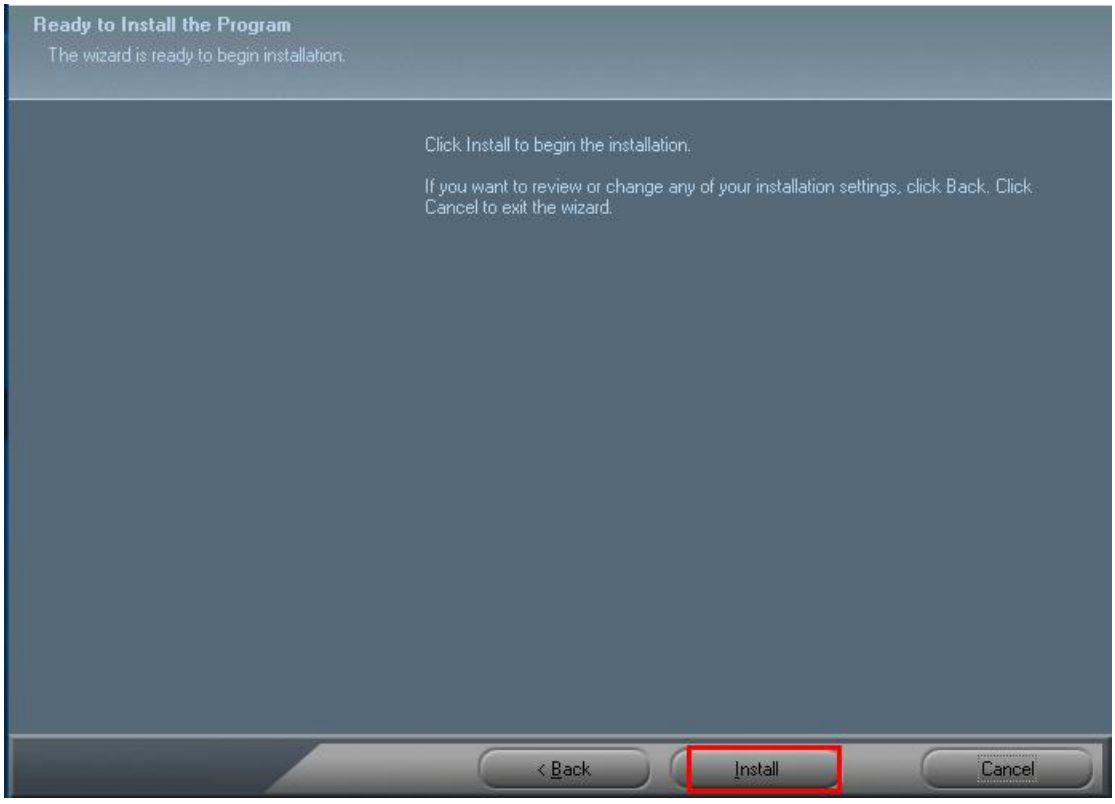
You can either choose the default installation path or click the “Browse” button to select the installation path. Default installation is suggested. Click “Next” to install.





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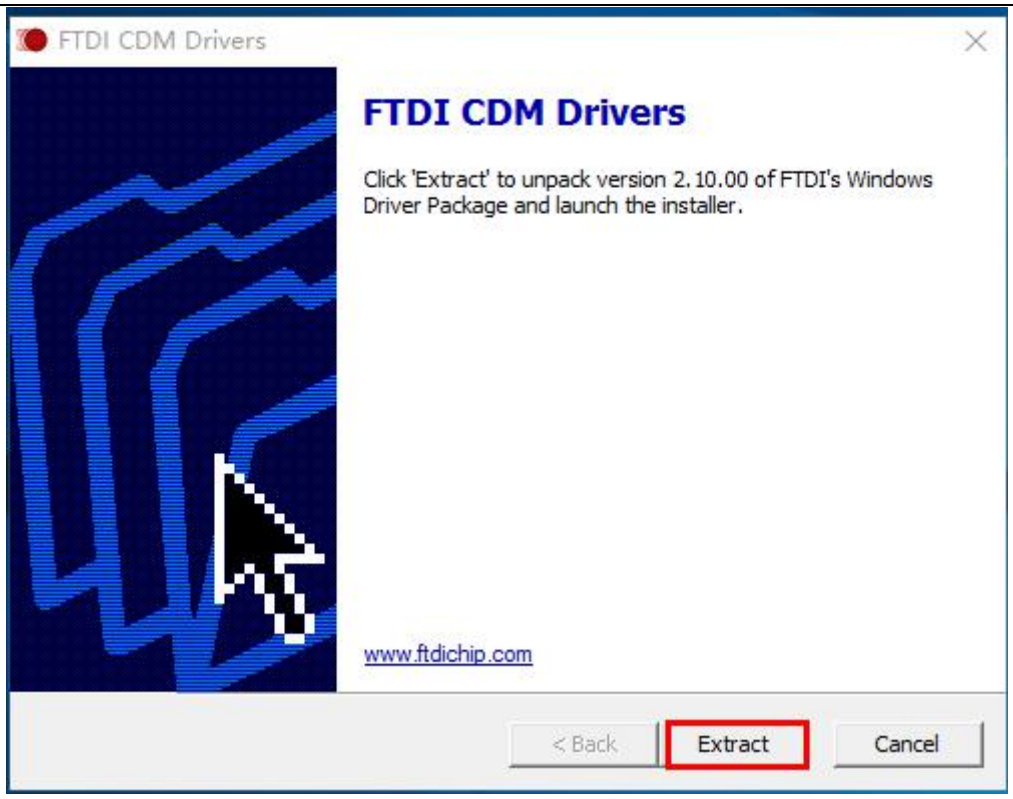

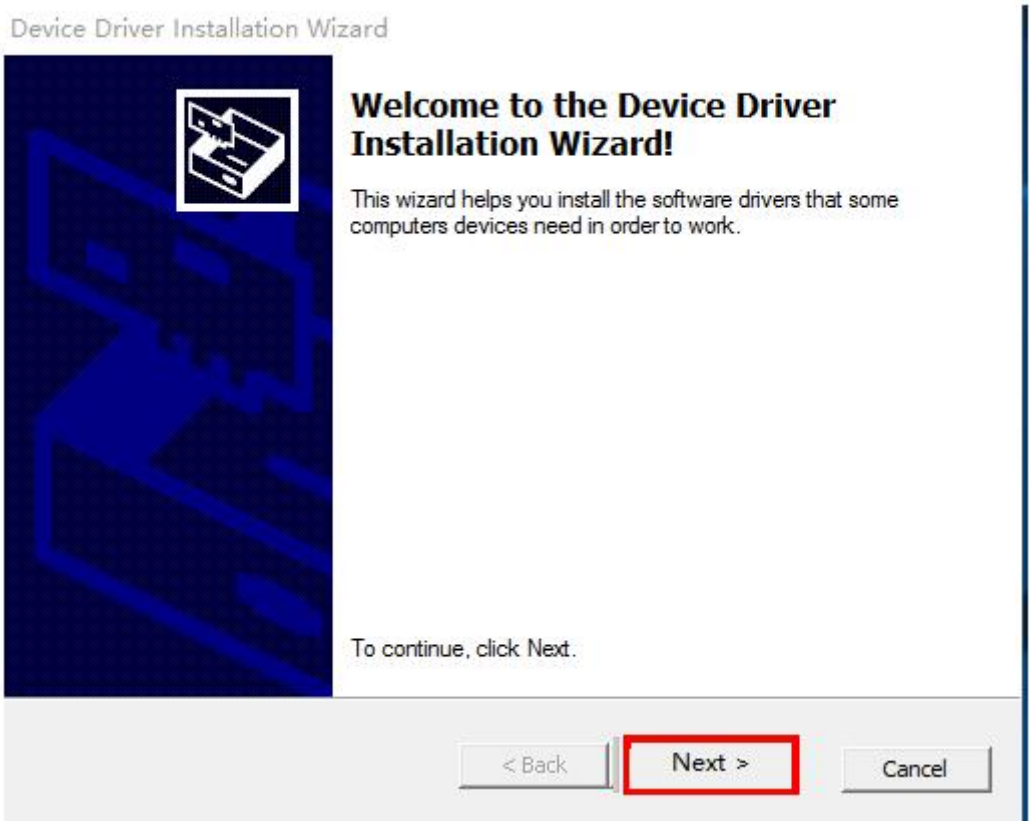

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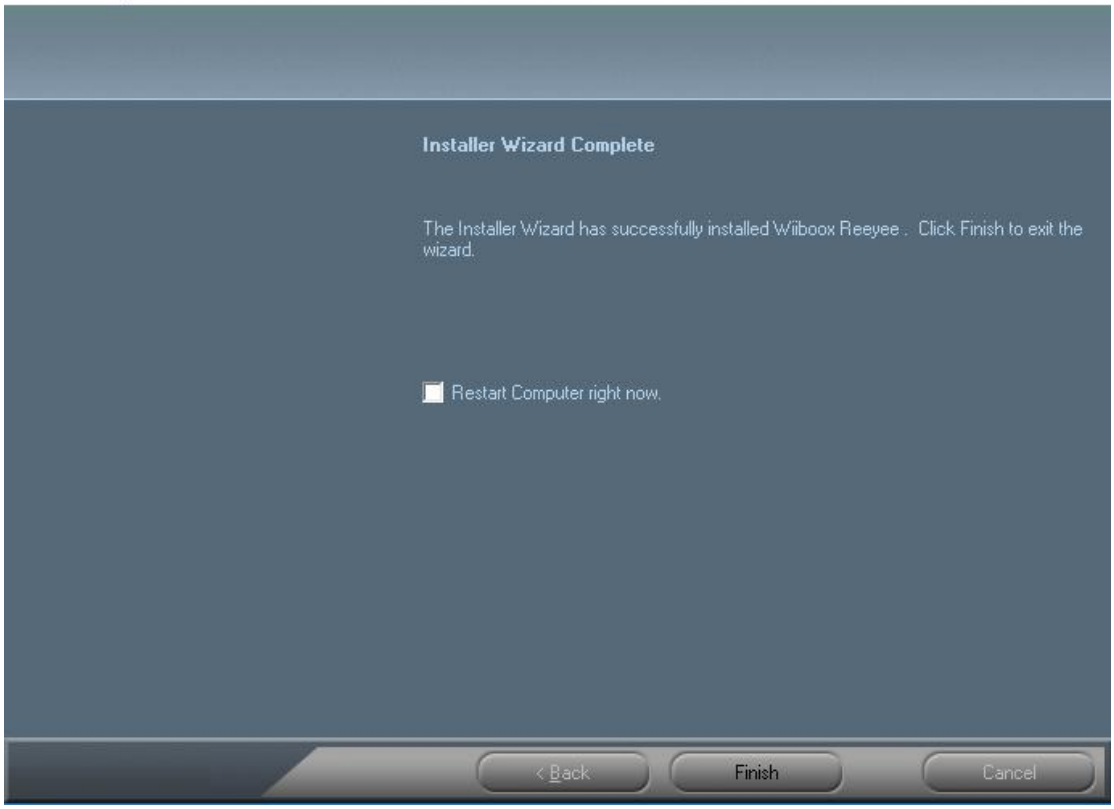

Check whether the camera driver is successfully installed. Right click “Computer” on your desktop and choose “Computer Management”--“Device Management”--“Imaging devices” to

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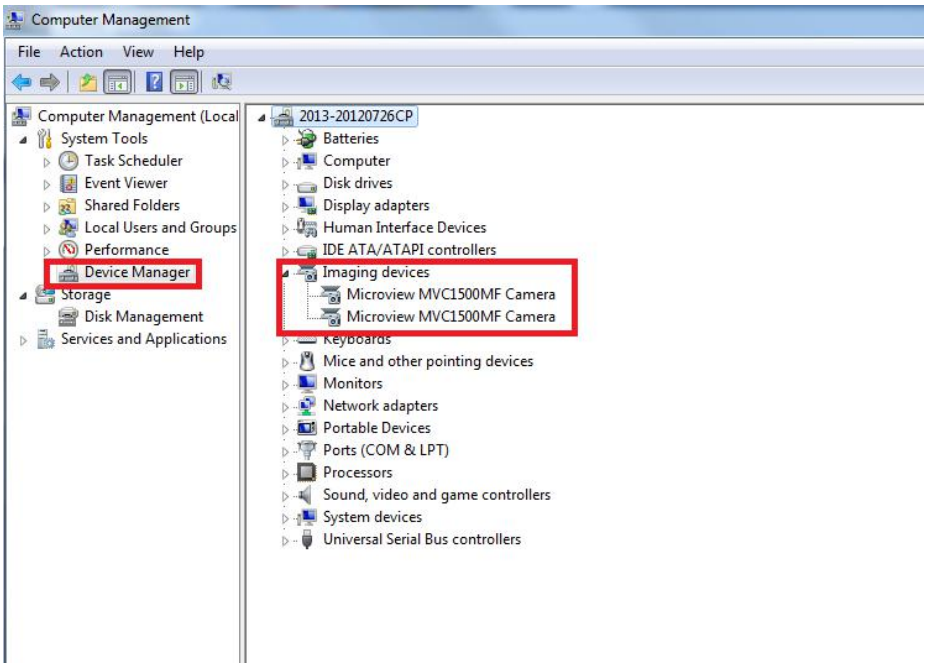
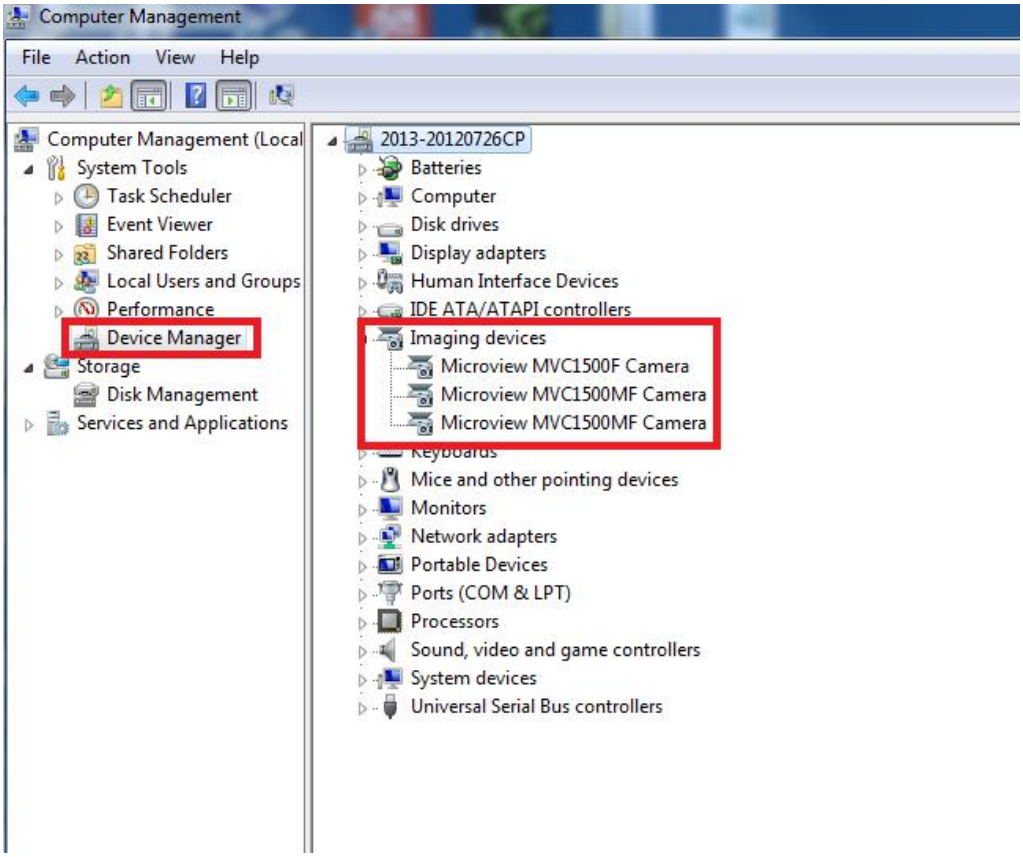
check if the two cameras display normally (two cameras will be found when there is no color module).



When there is color module, check if there are three cameras, as shown below.



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4、 Software Introduction

The software provides four scan modes: Free Scan, Turntable Auto Scan, Handheld HD Scan and Handheld Rapid Scan. Taking into account the portability and high-precision, the following is the mode selection suggestions：

4.1 Mode Selection

4.1.1 Industrial Mode

（1）Auto Scan: This mode is recommended for objects within the size of 200*200*200mm. For example, small workpieces.

（2）Free Scan: This mode is recommended for objects over the size of 200*200*200mm, while high details and resolution, as well as a comparative stable environment (without obvious vibration) are required. For example, industrial parts which require high details and resolution.

4.1.2 Handheld Mode

（1）Handheld HD Scan：When the size of the object is over 30*30*30mm, environment is not stable or with vibration, sticking mark points on the object is allowed, high resolution and details are required, this mode is recommended. For example: industrial parts, sculptures, or art works with rich details.

（2）Handheld Rapid Scan：When the size of the object is over 150*150*150mm, environment is not stable or with vibration, surface is not with much details, this mode is recommended. For example: human bodies (the whole body, face, chest, hand, foot and other parts), sculptures that do not require high details.

4.2 First Scan

In the page of “Choose Scan Mode”you can choose “Fixed Scan”, “Handheld HD Scan” or “Handheld Rapid Scan”, as shown in the below picture:

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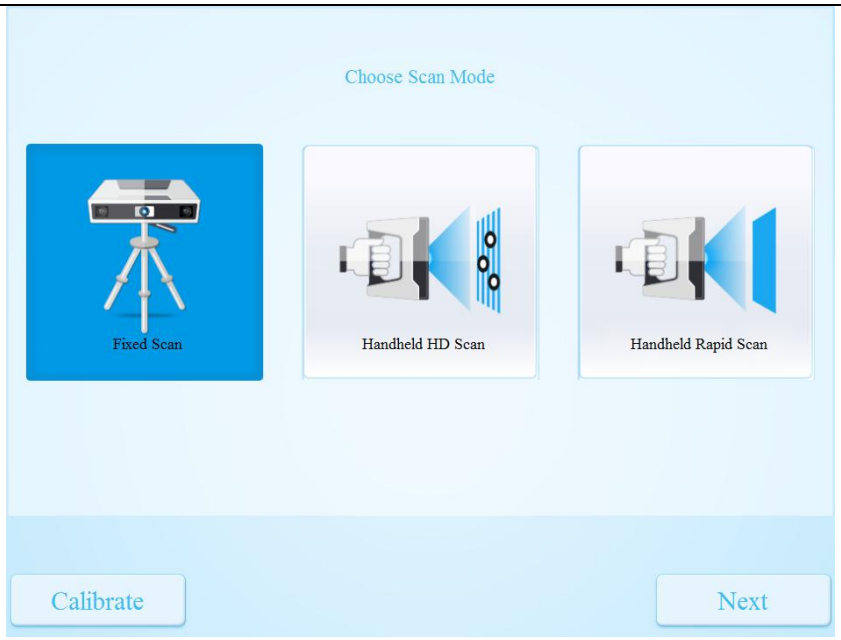

4.3 Advanced Options

Open the installation file and click “Advanced”, then you can activate the scanner and make personal settings.

5、 Calibration

Scanning cannot be entered if calibration is not done. Please do the calibration first when there is a WARNING: “No calibration data, please calibrate first”.

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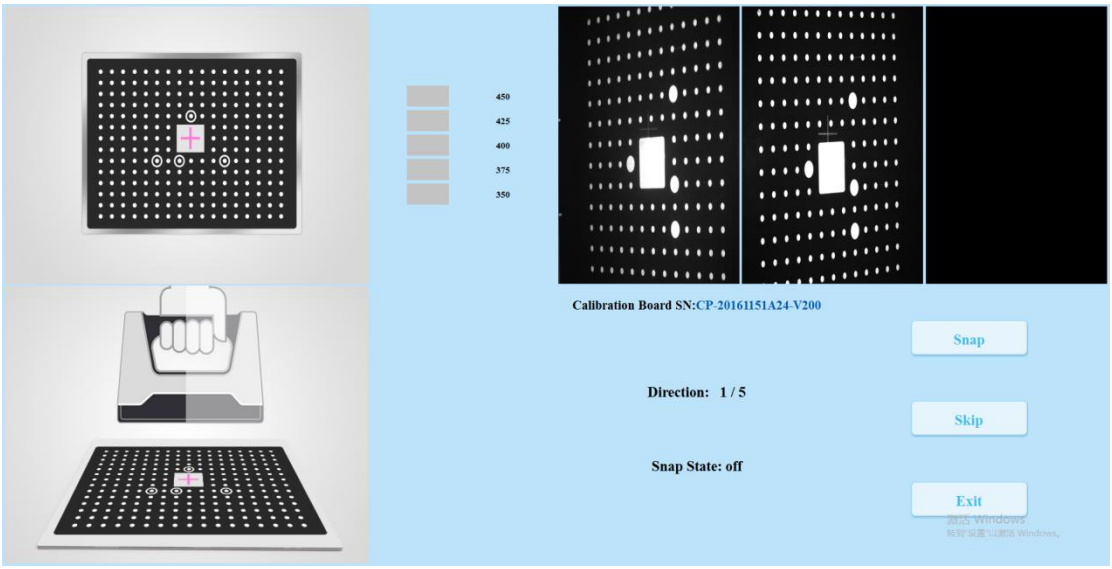
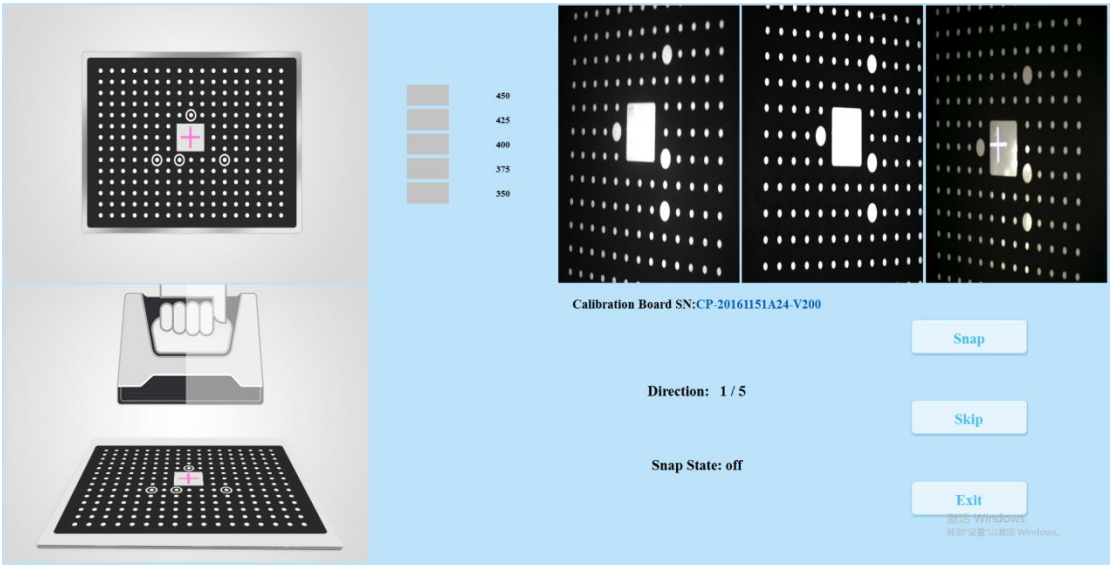
Choose scan mode and click ‘Calibrate’ to enter calibration process.

1) It will show the below picture if the device only has two cameras. (Texture camera is not attached)



2) It will show the below picture if the device has three cameras. (With texture camera)



1) There are two calibration steps if the device without texture camera:

①Camera calibrate ②High detail scan calibrate;

2) There are three calibration steps if the device with texture camera:

①Camera calibrate ②High detail scan calibrate ③Texture camera white balance.

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Note:

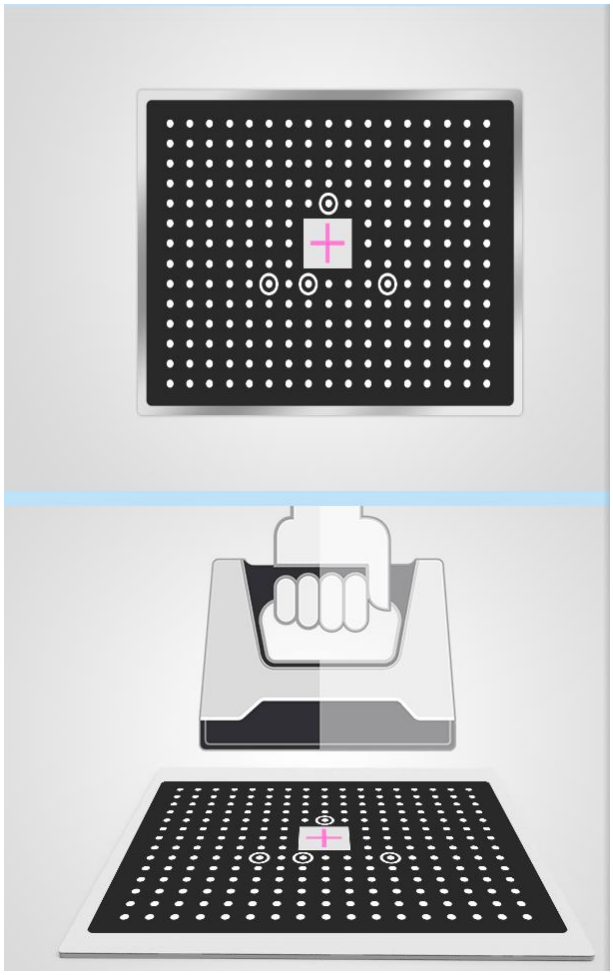
1. Step ② is not needed when Handheld HD Scan Mode is not required to be used. Both Step ① and Step ③ are needed when texture module is added for application.
2. Calibration board SN is under the camera view port.

5.1 Camera Calibration

The calibration board should be placed in 5 different positions as the software operation guide shown, and each position will be taken 5 photos.

Firstly, adjust the distance between the projector and calibration board (450mm-350mm).

The calibration positions should be as same as the software operation guide shown below when you collect the first set of data, and the "**+**" from scanner should target at the blank position clearly.



Click "Snap" or press on the scanner to capture the photos. Move the scanner from top to bottom or from bottom to top, till the distance bar appears green. That means the photos are all captured in this position.

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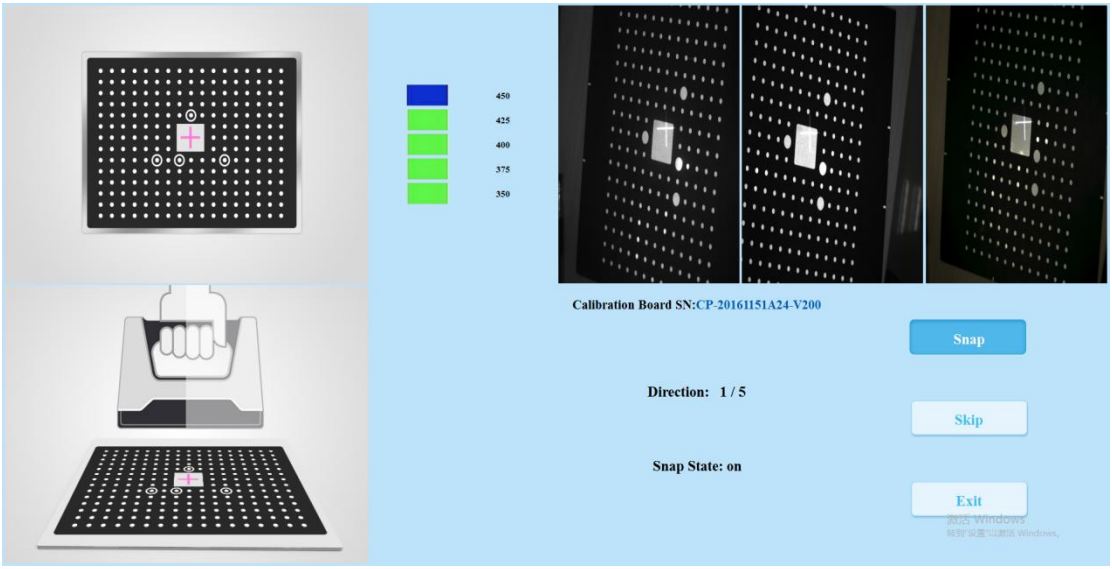
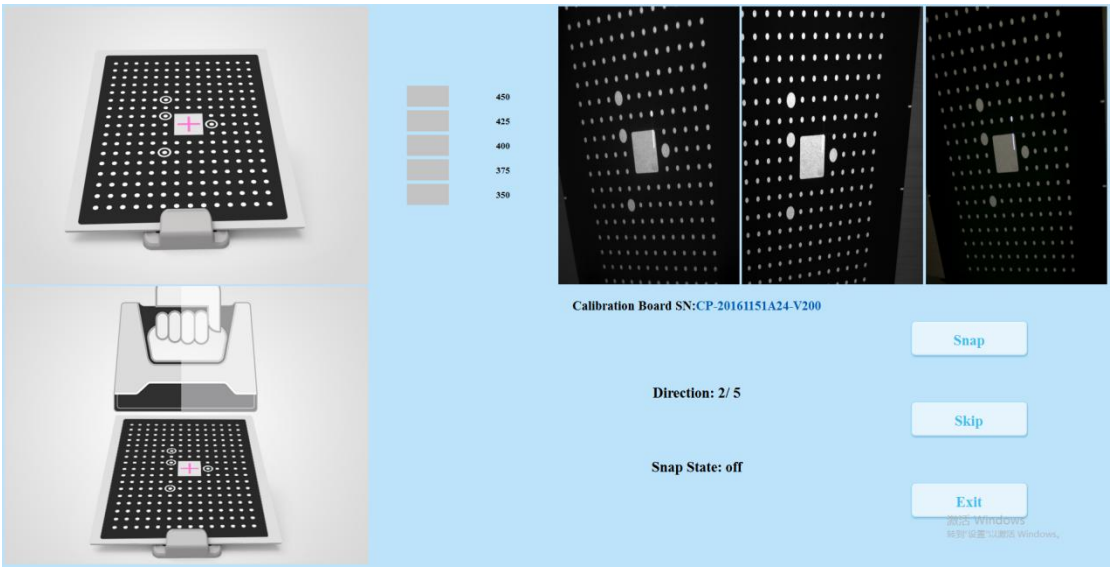
Note:

1. When the distance bar appears green, it means pictures of this position are collected. Blue means the current position.
2. Keep the "**+**" in the white square area when moving the calibration.



When pictures of one position are well collected, the software will turn to the next position as below:



Put the calibration board on the support according to the operation guide. The collection process should be as same as above.

When all photos for five positions are captured, the software will calibrate the camera automatically. You will see the distance bars as below.

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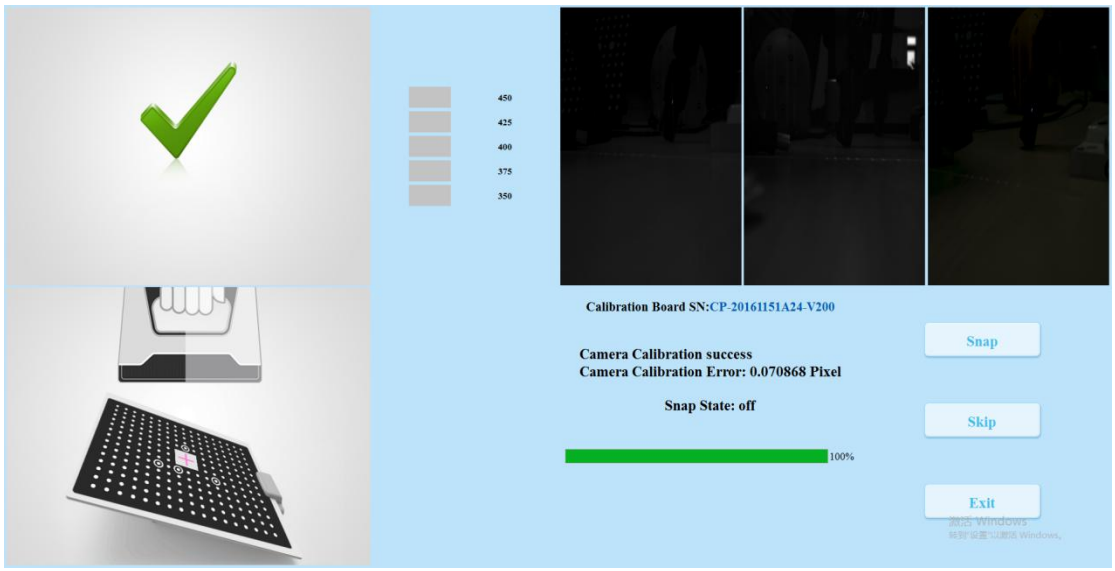
When the camera calibration is finished, you'll see "Camera Calibration success". The software will enter HD calibration mode automatically.



5.2 HD Scan Calibration

The software will enter HD calibration mode automatically after camera calibration. (Click "Skip" to enter next step if HD scan is not needed).

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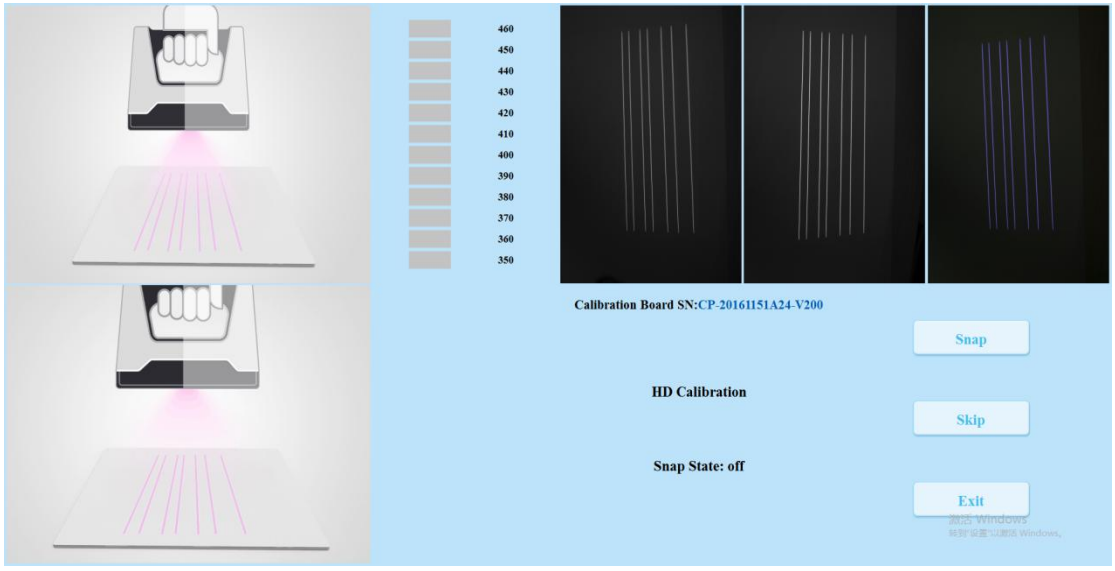
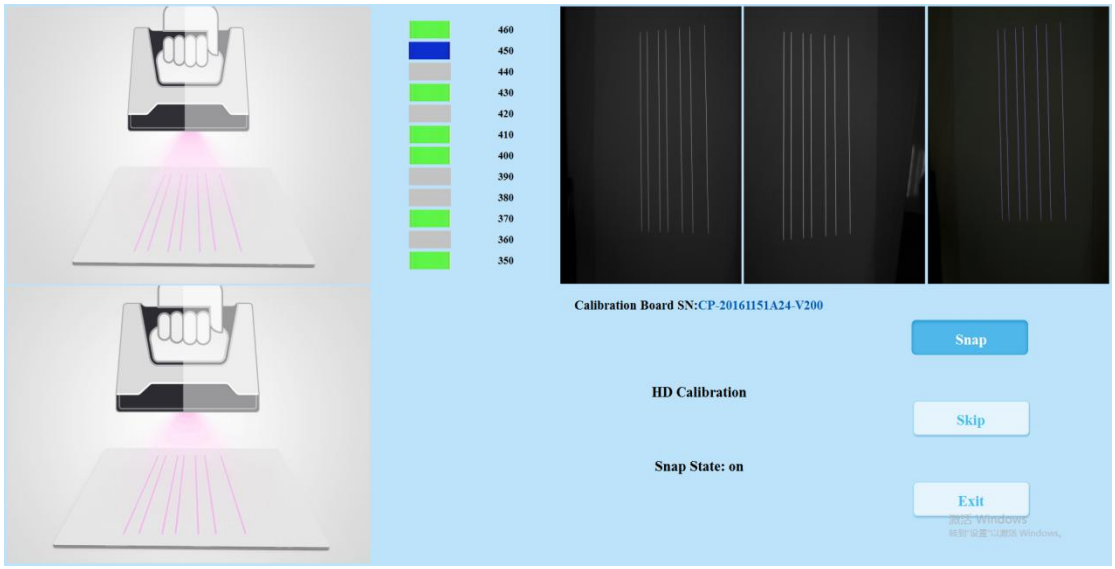


Put the calibration board according to the operation guide, with the lines facing the white smooth area at the back of the calibration board.

Click “Snap” or press on the scanner, move the scanner up and down, the software will start collect the pictures.



When the distance bars appear all green, the software starts to calibrate automatically. It will show “HD calibration complete” when calibration is finished. If there is no color camera, click “Exit” to exit the calibration page.

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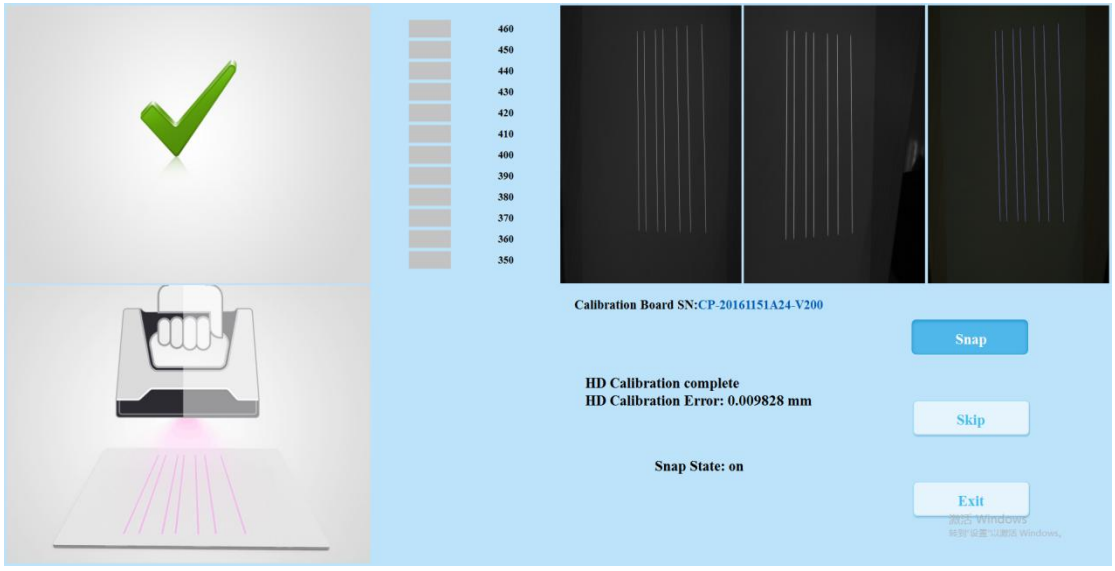
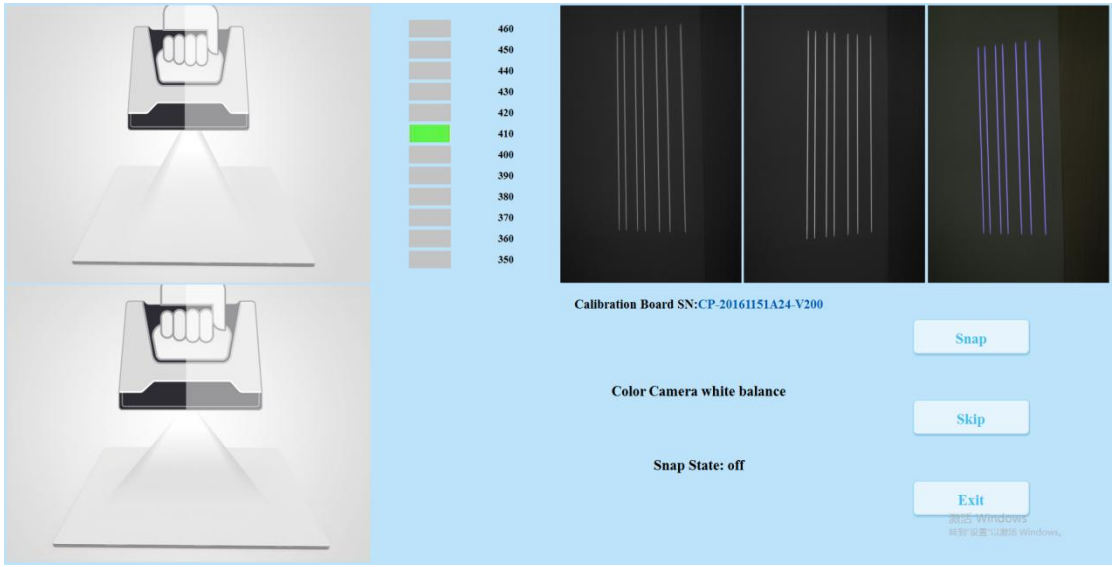


5.3 Color Camera White Balance

When the HD calibration is finished, the software will enter Color Camera White Balance Mode automatically.



During the texture calibration, 1.just place texture camera towards white area of the reverse side of calibration board. Click “Snap” or press on the scanner, and move the scanner up and down, till the green area turns blue, and the white balance test is completed. The picture below will show up when the calibration is successful.

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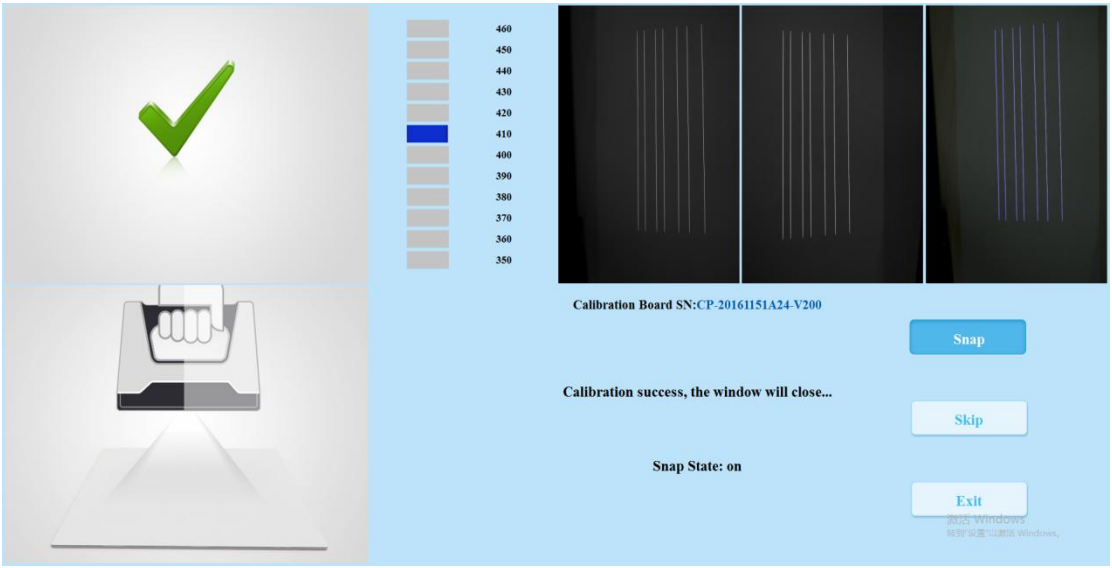

When calibration is finished, the software will close the calibration window automatically and enter the scan mode selection page.

5.4 Calibration Precautions

You must finish all the calibration steps according to the instruction when you calibrate for the first time. If resolution is lost under HD Mode, or environment light changes and influences the scanning, you can do line calibration or white balance calibration solely.
Situations as below need do calibration again:

Note:

1. When the scanner is used for the first time or after long time without using.
2. When there is strong vibration during the transportation.
3. When alignment mistake or failure frequent appear during the scanning.
4. When environment light changes under Color Scan, white balance calibration is needed.
5. When scanning data is incomplete and quality is much worse during the scanning.
6. Make sure to keep the calibration board still and then click “Snap” to collect during calibration.

6、 Fixed Scan

Fixed Scan has two scan modes： Free Scan and Auto Scan.
Choose “Fixed Scan”, as shown below. Then click “Next” .

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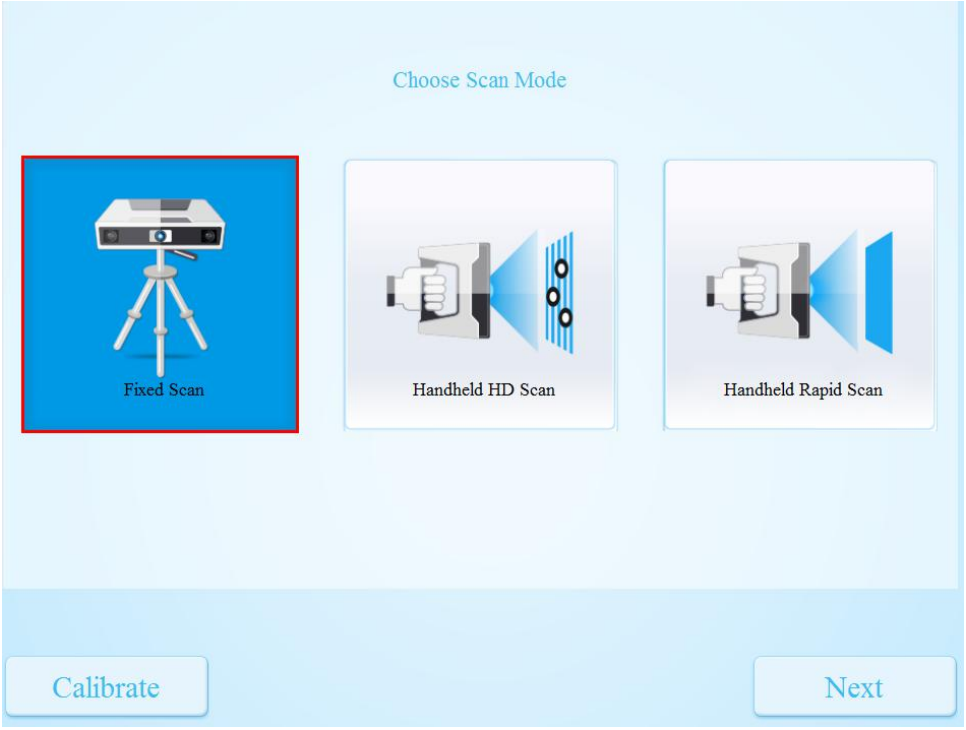
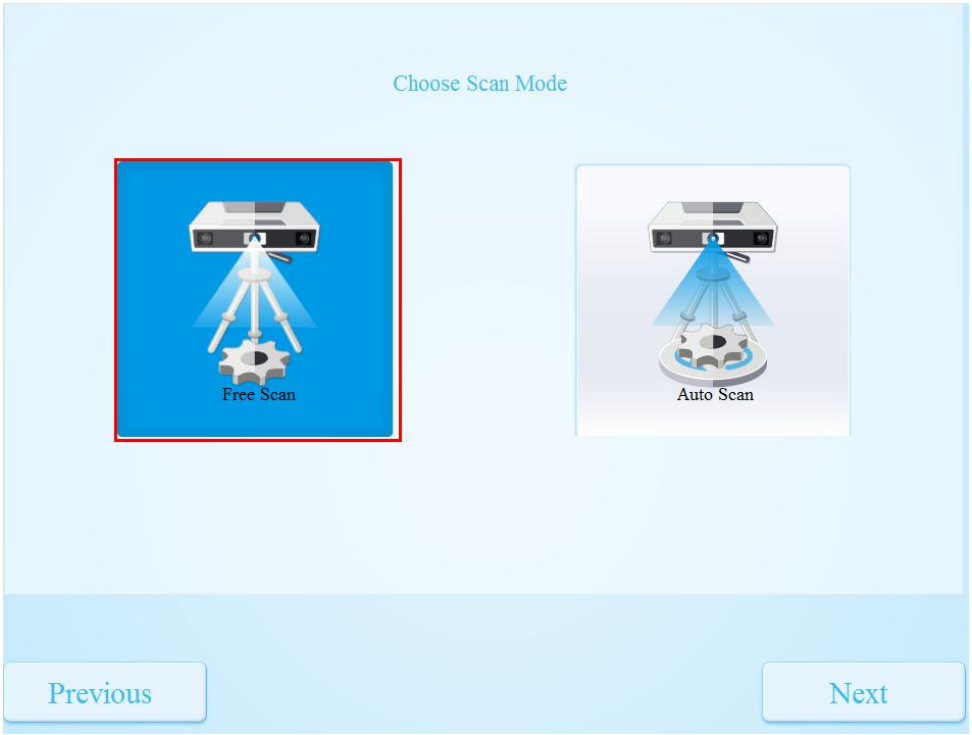


6.1 Free Scan

Choose “Free Scan”, as shown below. Then click “Next”.



Choose “New Project” or “Open Project” (Existed Project), as shown below:

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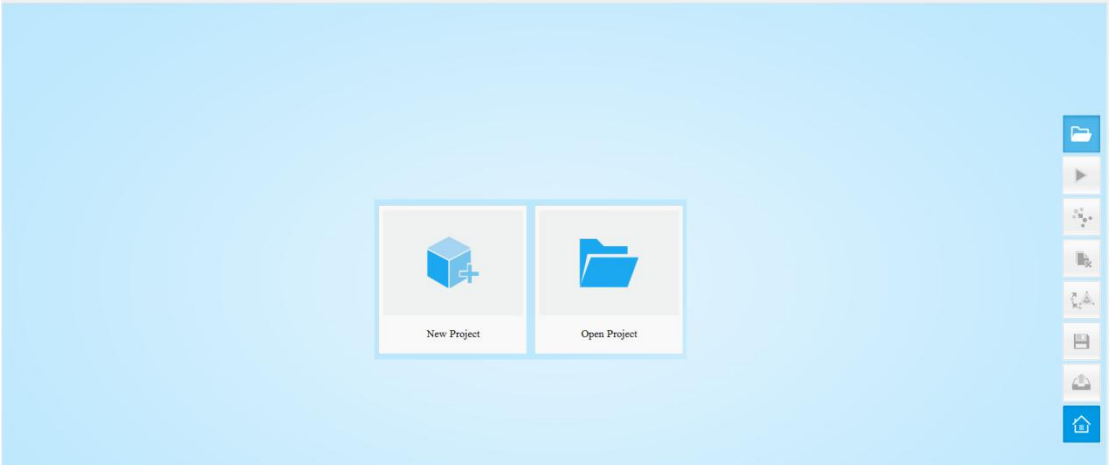
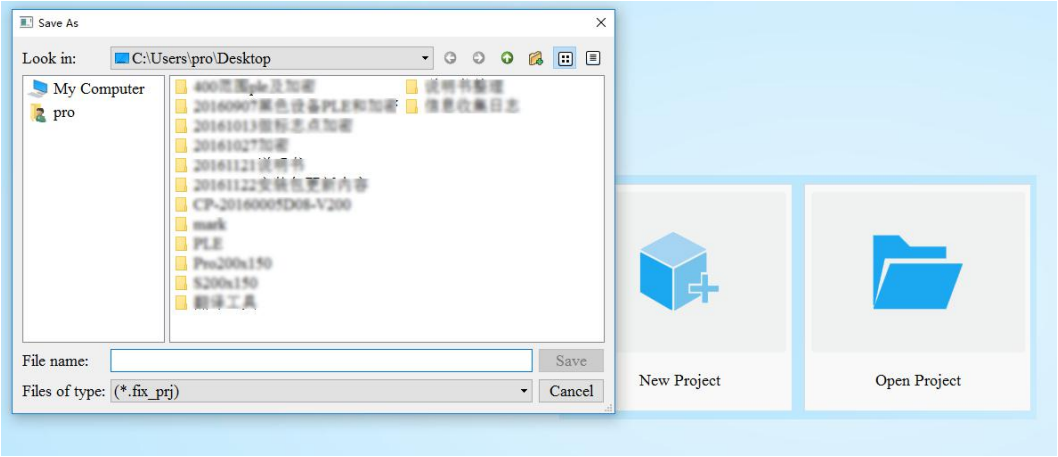
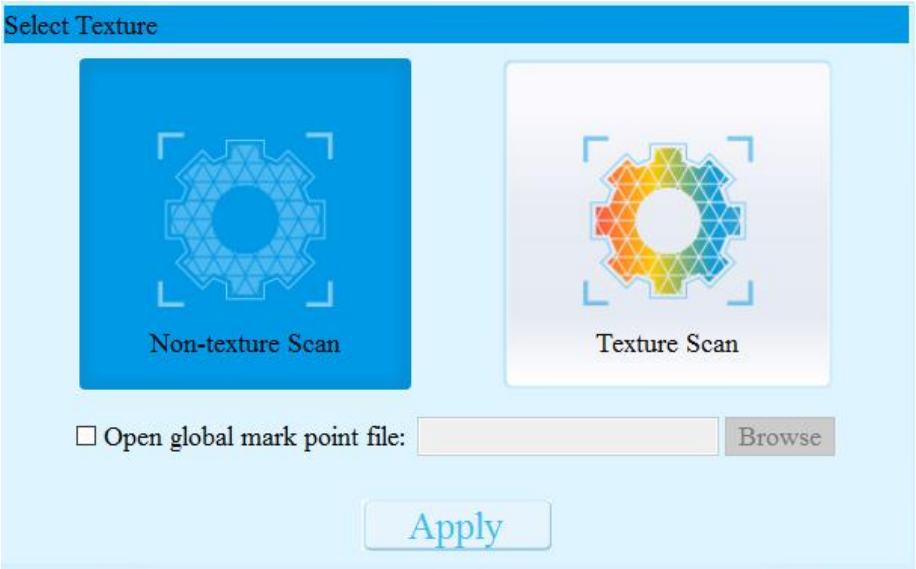


Click “New Project”, it will pop-up a dialog window as shown below. The default project save location is the desktop, then it will remember where the project saved for the last time. Refer to 8.1 New Project and 8.2 Open Project.

Type the project name, then click “Save”.



Choose “Non-texture Scan” or “Texture Scan” (Texture Scan is only active when the scanner is with texture camera) and click “Apply” .



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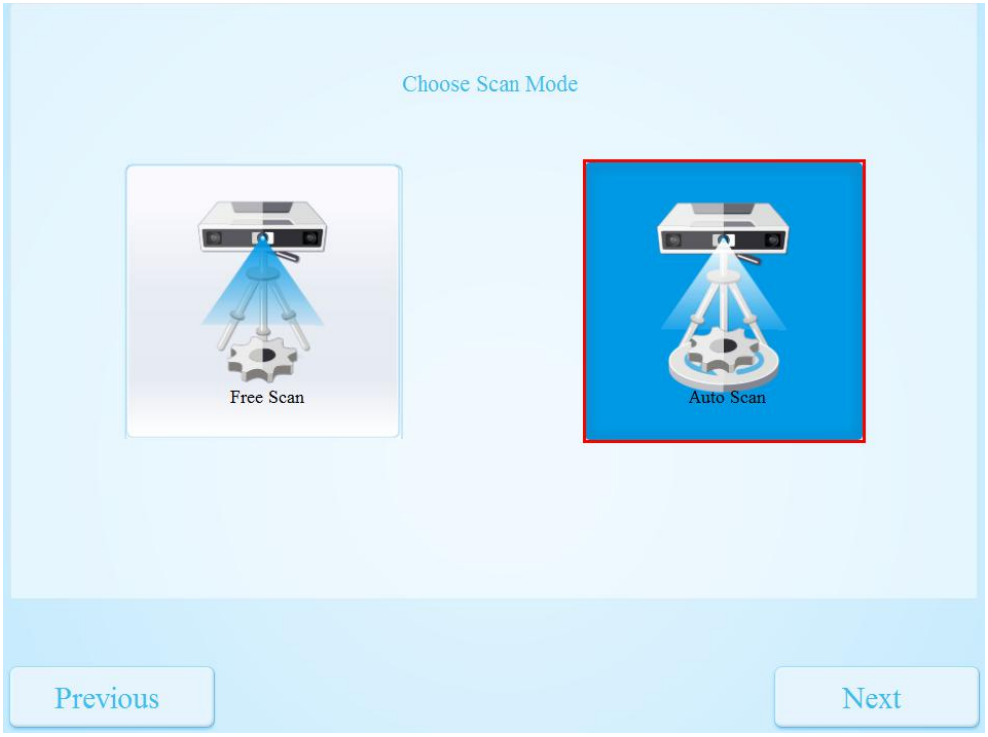
Click to start scanning.

6.2 Turntable Auto Scan

Choose Auto Scan, as shown below, then click “Next”.



Build“New Project” or “Open Project” (Existed Project), as shown below:

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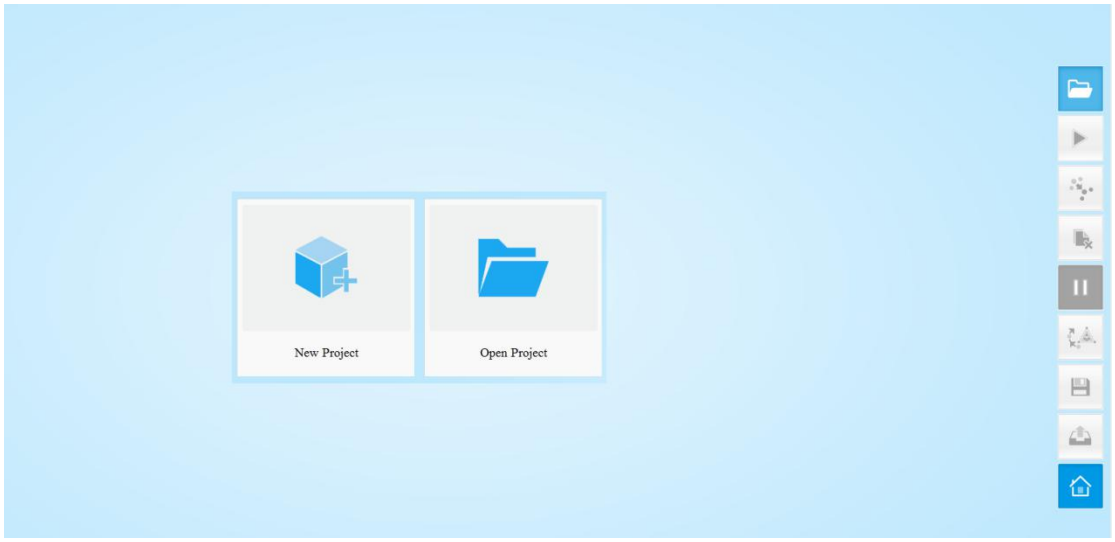
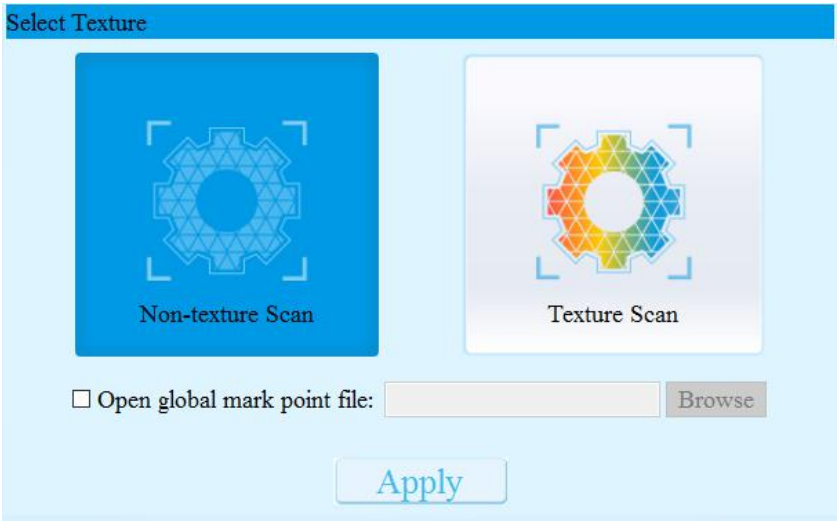


Choose “Non-texture Scan” or “Texture Scan” and click “Apply”.



Click to start scanning.

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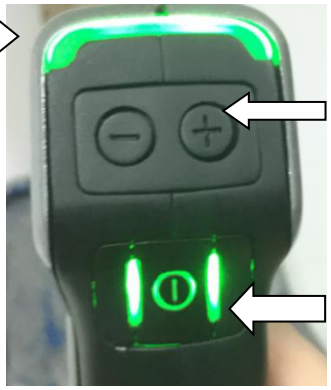
7、 Handheld Scan

7.1 Scan Head Key Function

Scanning Distance Indicator: Green for best distance; blue for too far; red for too close. The color is as same as the distance bar shows in operation interface.

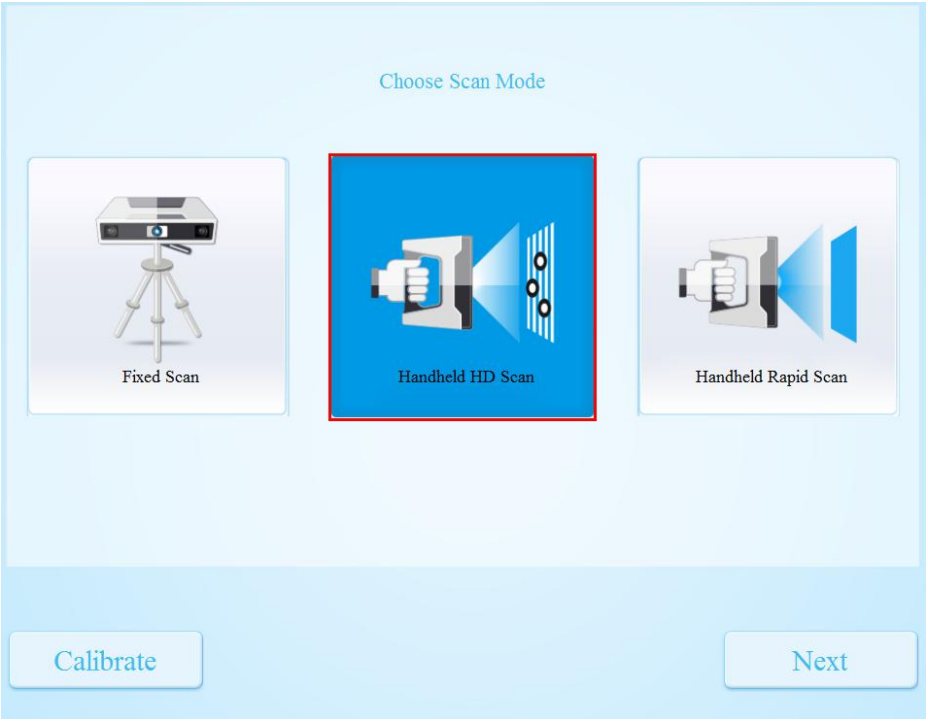


"-" & "+" Button:
1. During scanning, press the button to zoom in or out the project under exposure window.
2. Click "-" & "+" Button to adjust the brightness.

Scan/Pause Button:
1. Press the button to pause or start scanning.
2. Double press the button to activate exposure adjustment window.

7.2 Handheld HD Scan

Choose "Handheld HD Scan" and click "Next".



Click "New Project" and select resolution you need.

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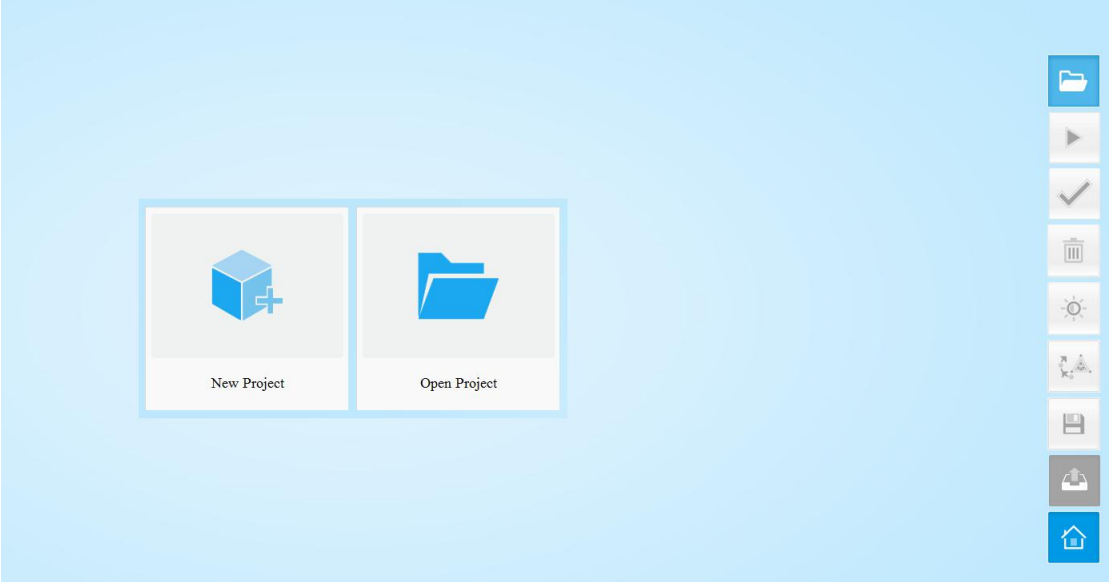

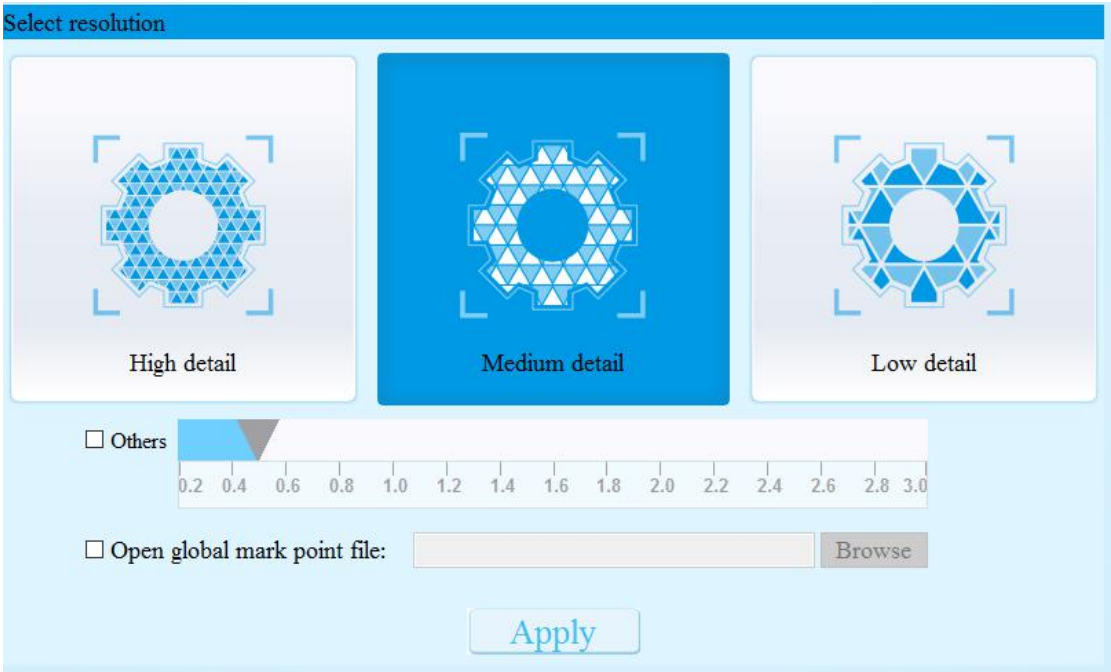

7.3 Handheld Rapid Scan

Choose Handheld Rapid Scan as shown below:

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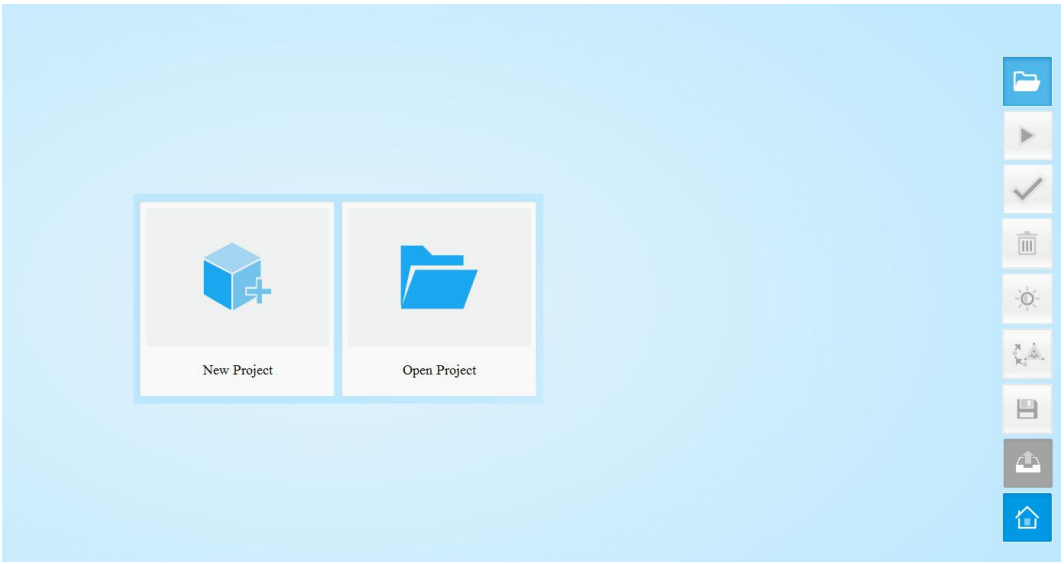

Enter the interface of Align Mode , Texture Scan and Resolution Selection. The left picture is with mark point align mode. The right picture is without mark point align.

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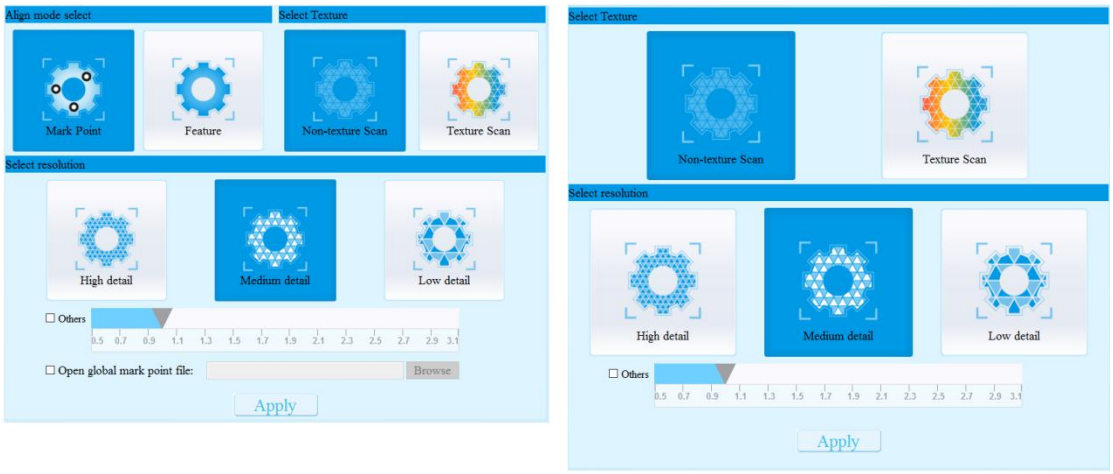
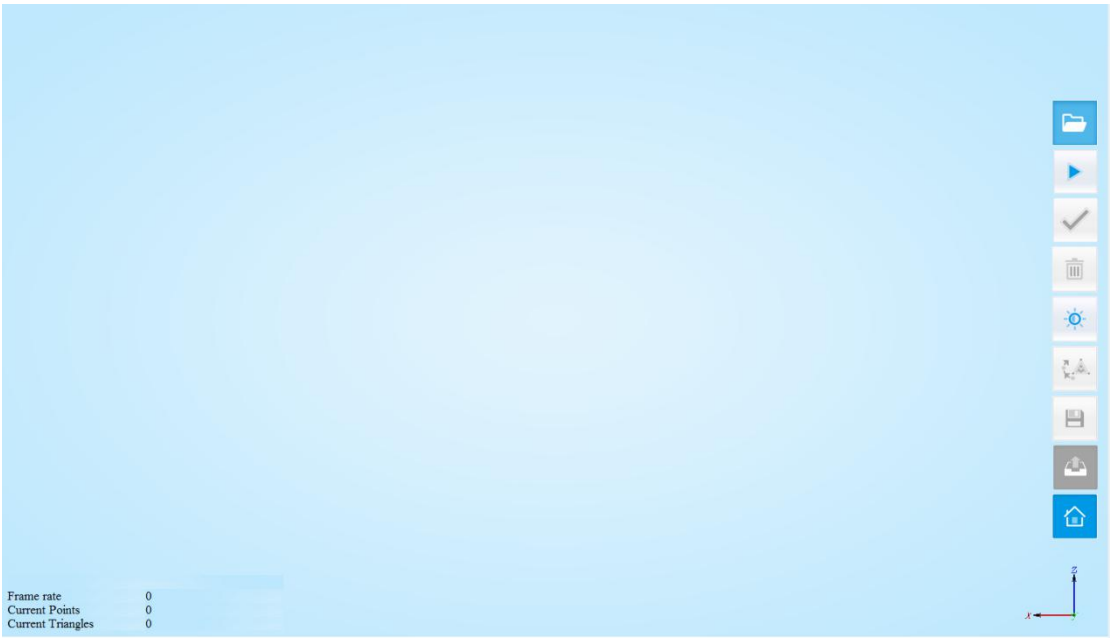


Enter the interface of scanning. Click to start scanning.



8、 Common Functions

8.1 New Project

Click “New Project”, as shown below:

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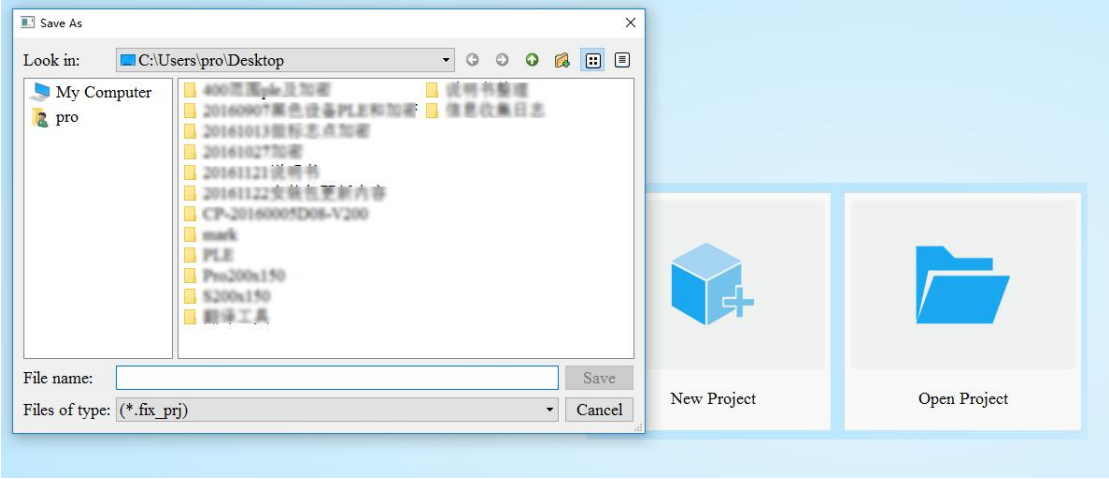
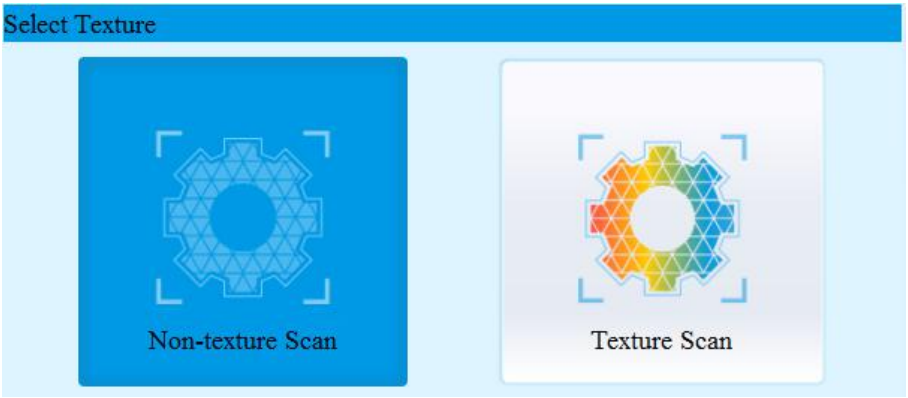


The default project save location is the desktop. Then it will remember where the user last created a new project.

- Free Scan and Auto Scan Project Suffix Name: fix_prj；
- Handheld HD scan project Suffix Name: hd_prj；
- Handheld rapid Scan Project Suffix Name: rap_prj。

8.1.1 Select Texture

The texture selection interface is shown below. Texture Scan is only active when the scanner is with texture camera.



8.1.2 Select Resolution

*Suitable for Handheld Scan Mode.

The resolution selection interface is shown below. The higher the resolution, the better the details. If selecting the “others”, you can drag the sliding block to other locations, flexible choice of point distance.

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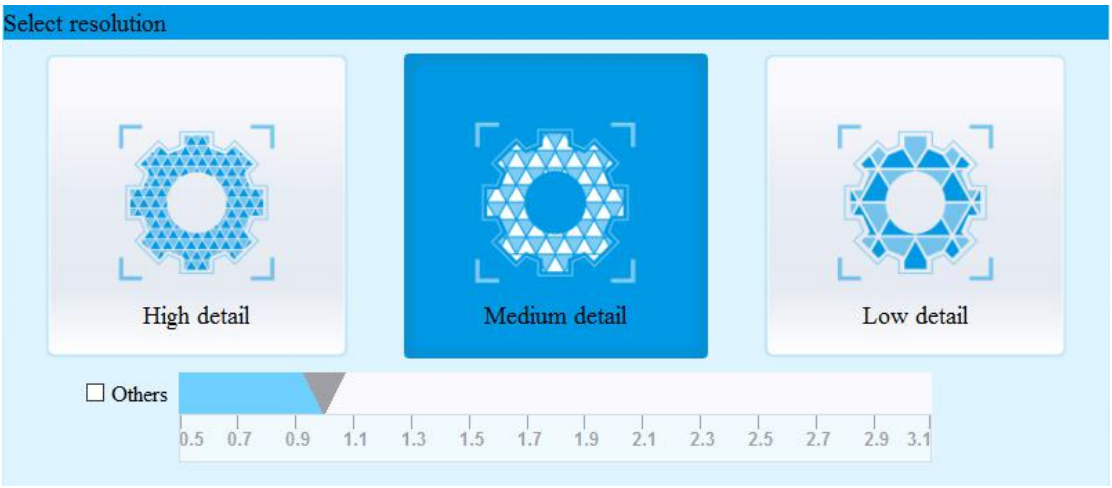


- Handheld HD Scan Point Distance Range: 0.2mm—3.0mm (high 0.2mm; medium 0.5mm; low 1.0mm);
- Handheld Rapid Scan Point Distance Range: 0.5mm—3.1mm (high 0.5mm; medium 1.0mm; low 1.5mm).

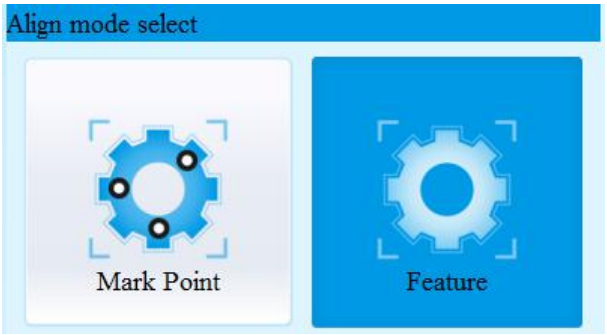
Note:

1. Higher resolution takes more time to scan and consumes more memory of graphic card, and size of the object to be scanned will be limited. Theoretically, the maximum size of scan = point distance*8192/mm. In actual process, the size of the object can be scanned depending on computer graphic card.
2. Choose high resolution, the data output is slow, please be patient.
3. When importing project or continuing the scan, the scanning will be in accordance with the imported project resolution.

8.1.3 Select Align Mode (Handheld Rapid Scan)

*Suitable for Handheld Rapid Scan.

The interface of selecting align mode is shown below, including Mark Point Align Mode and Feature Align Mode.（Mark Point Align Mode needs to buy.）



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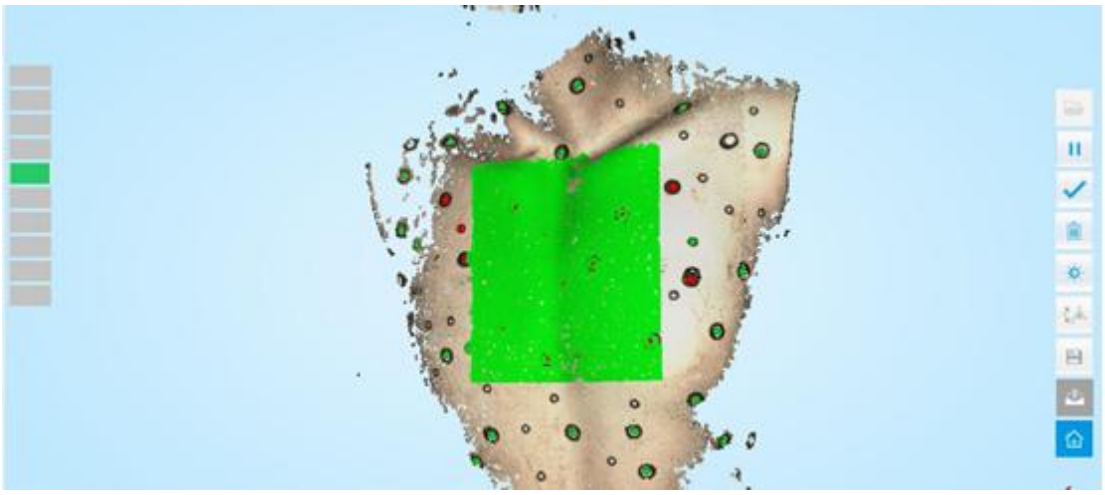
Note:

1. Mark Point align: good for objects without any features, or with symmetry features.
2. Features align: good for objects with detail features, or those allowed for reference points sticking.
3. If there is no limitation about surface points sticking, and there is enough features, you can select either Mark Point Align or Feature Align.

When selecting Mark Point Align Mode, you can use “Open Global Mark Point File” (refer to 8.3 Opening the Frame Point File).

The following figure shows the Mark Point Align Mode:



The following figure shows the Feature Align Mode:

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8.2 Open Project

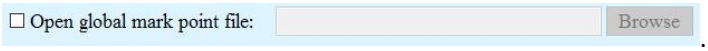
Click on the right side of the toolbar to operate the "Open Project". If you want to import another project, the opened project should be scanned under the same calibrated condition and scan mode.

Note:

1. The scanning projects created by different scan modes (Industry Fixed Scan, Handheld HD Scan and Handheld Rapid Scan) cannot be reciprocally imported. The projects created by Auto Scan and Free Scan can be reciprocally imported.
2. After importing the project, choose the scan mode based on whether the imported project is texture. The texture project cannot be continued to scan if the scanner is without color texture camera.
3. Handheld Rapid Scan: Please make sure whether the imported project is mark point align or feature align. If importing a mark point align project or global mark point project when there is no such function, you can't do further scanning but only edit or merge the project.
4. Handheld Scan Mode: When importing project or continuing the scan, the scanning will be in accordance with the imported project resolution.

8.3 Open Global Mark Point File

In the New Project interface, select



.

You can import three formats: asc, txt and p3.

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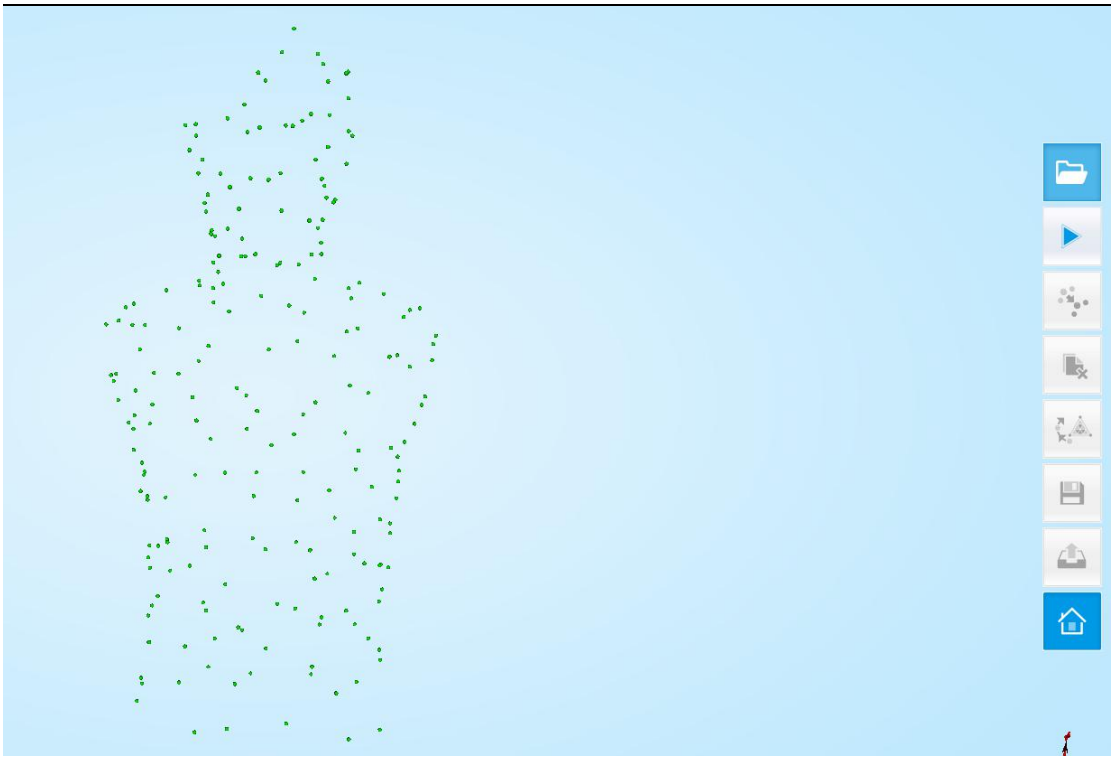

8.4 Adjust Brightness

8.4.1 Brightness in Fixed Scan

After building a new project or opening a project, it will show the window as below. You can drag the button to adjust the brightness. The brightness is appropriate when the "**+**" is clearly seen in the brightness viewing window.

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8.4.2 Brightness in Handheld Scan

You can adjust the brightness before scanning.

Click button to call up the camera view port, then drag the brightness bar above to adjust.

Click button again, then the camera view port will be hidden.

Double press on the scanner to activate brightness adjustment mode. Press “+” or “-” to adjust brightness.

Double press on the scanner to exit the brightness adjustment mode.

Observe whether the data is integrated during scan process. If not, it is able to adjust the brightness.

Brightness Judgment:

1. Handheld HD Scan: When the view port presents fringes clearly and the 7 lines appear on object completely and continuously, the brightness is good. Otherwise, you have to adjust it again. As shown below.
2. Handheld Rapid Scan: Check brightness through exposure whether the light frame is clearly shooting on the object.

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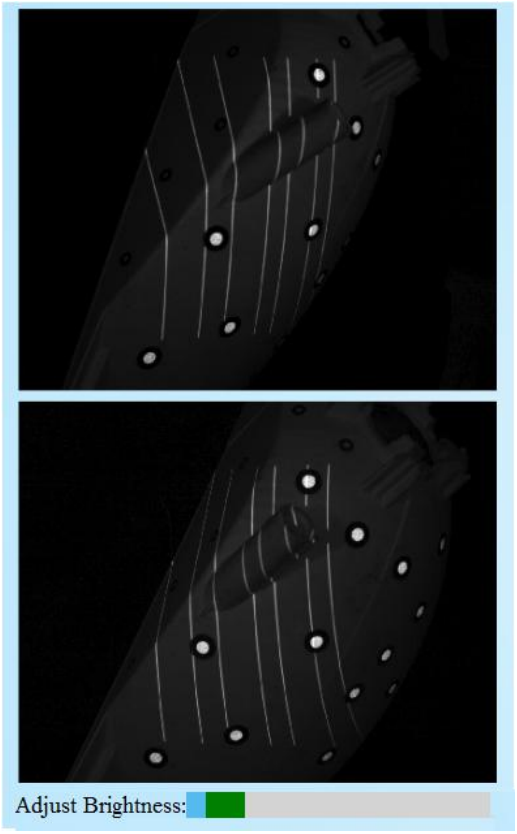

8.5 HDR Brightness

*Suitable for Free Scan Mode and Auto Scan Mode.

Free Scan and Auto Scan can be set to HDR. The HDR Brightness

is below the camera view port for scanning bright or dark objects.

8.6 Mouse Operation Prompts

Lower left corner of the interface is the “Mouse Operation Prompts”.

- After scanning or importing a project, the prompt text appears as follows:
  Hold down the left mouse button: Rotate the object;
  Hold down the middle mouse button: Pan the object;
  Scroll the mouse wheel: Scroll up and down to narrow or enlarge the object;
  Hold down Shift + left mouse button: Select the area on the object;
  Delete: Delete the selected area.

- When you do manual align, the prompt text is as follows:

Hold down Shift + left mouse button: Select point to start manual align

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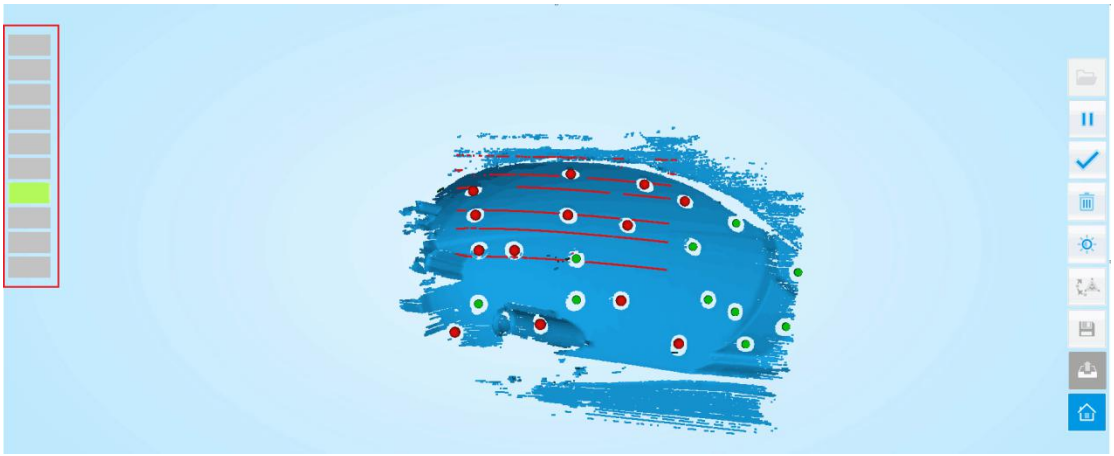
8.7 Frame, Points and Triangles

- Fixed Scan Mode: When scanning, it will show the current points and current triangles in the lower right corner;
- Handheld Scan Mode: When scanning, it will show the frame rate and current points. After merging, it will show current triangles in the lower right corner. Handheld HD Scan's scan speed is 15 frames/sec and Handheld Rapid Scan's scan speed is 10 frames/sec.
  When you edit the scan data, the current points and the current triangles will change in real time.

8.8 Distance Bars

Suitable for Handheld Scan Mode (including Handheld HD Scan and Handheld Rapid Scan).

When scanning, it will show Distance Bars on the left. As shown below, green indicates the optimum distance; blue indicates the distance is too far; red indicates the distance is too close. Get the best position according to the color bars. You can also see the light indicator on the scanner.



8.9 Edit Buttons

Edit Buttons Introduction:

① Deselect ② Revert ③Delete ④Undo ⑤Show/Hide Stripes

For Non-texture Scan, there is no such button.

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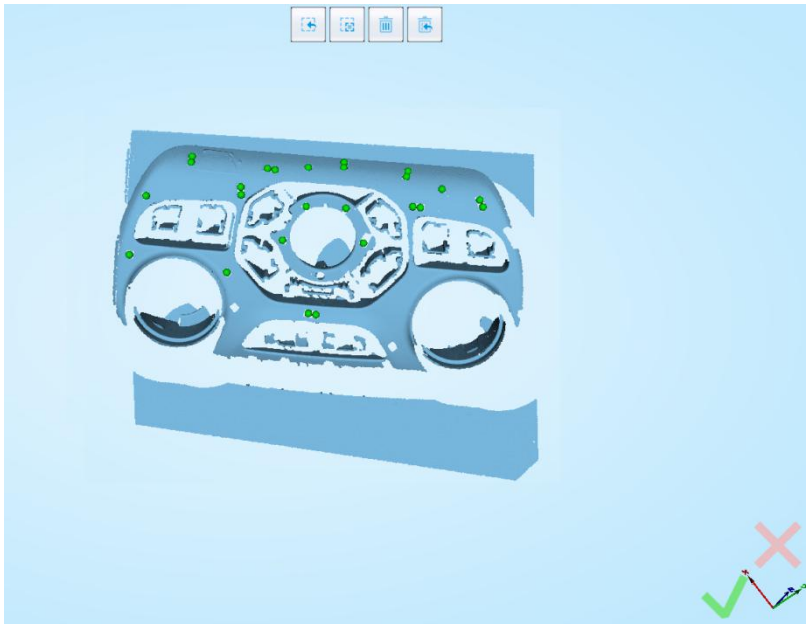
Note:

1. For Free scan and Auto Scan, both the scan data and mark points can be edited;
2. Handheld Scan mode only supports deleting scan data;
3. Handheld Rapid Scan Mode does not support deleting all the scan data.

8.9.1 Single-piece Edit

Single-piece Edit is suitable for Fixed Scan Mode (Free Scan and Auto Scan). You can edit the data of current part after each scan. As shown below, you can do the edition if the data has excess parts. Both data and mark points can be edited.



Hold down SHIFT+ left mouse button to select excess parts, as shown below:

Click Or “DELETE” to delete selected data, as shown below:

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Click on the right corner of the interface to end Single-piece Edit;

Click on the right corner of the interface to delete the current scan data.

8.9.2 Whole-piece Edit

After ending the Single-piece Edit, the right toolbar will display, and now you can edit the whole scan data. The specific operation is as same as the Single-piece Edit.
You can also do the Whole-piece Edit after importing a project, the specific operation can refer to 8.9.1 Single-piece Edit.

8.9.3 Handheld Scan Mode Edit

Under Handheld HD Scan Mode and Handheld Rapid Scan Mode, the data can be edited only when pausing scanning or importing a project, and the 2 modes does not support the deletion of mark points.

- Hold down SHIFT+ left mouse button to select excess parts;
- Click Or DELETE to delete selected data.

Refer to 8.9.1 Single-piece Edit.

Note:

1. Handheld Scan Mode does not support the deletion of mark points;
2. Use the Edit Button to delete all the data,When you continue scanning, it will restore the last deleted data.

8.10 Right Toolbar

8.10.1 Buttons Introduction

➢ The following picture shows the right toolbar of Fixed Scan Mode.

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- Free Scan Mode has no pause button.

① Project

② Start Scan

③ Align

④ Delete

⑤ Pause

⑥ Mesh

⑦ Save

⑧ Share

⑨ Main Menu

- The following picture shows the right toolbar of Handheld Scan Mode:

① Project

② Start Scan

③ Done

④ Delete

⑤ Adjust brightness

⑥ Mesh

⑦ Save

⑧ Share

⑨ Main Menu

8.10.2 Project Button

Click the Project Button, as shown below. Refer to 8.1 New Project and 8.2 Open Project.

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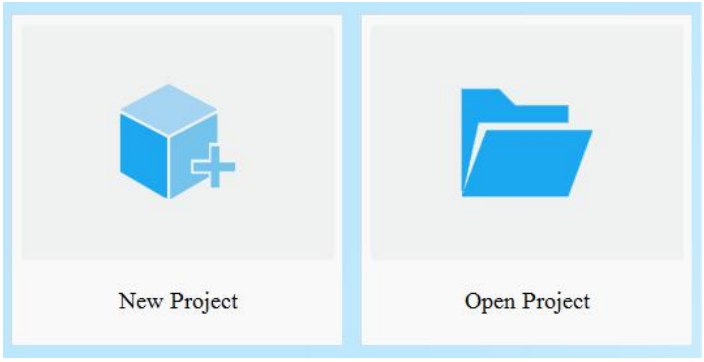

8.10.3 Start Scan Button

Fixed Scan Mode

Note: Before scanning, please adjust the distance between the object and device (suitable working distance is 350 ~ 450mm), till the "**+**" is clearly seen on the object.

a) Free Scan

> **Note**:
> You can use Mark Point Align, Feature Align and Manual Align. Mark points will be recognized and align automatically when there are mark points on the object.

1. Click to start scanning. When the scan is completed, change the position of object or scanner for next scan.
2. If using Feature Align, make sure the overlap area of currently scan area and the last scanned data is more than 1/3. If using Mark Point Align, the common points should more than 3.
3. Click scan button to reach automatically align, until the whole scanning completed.

b) Auto Scan (Align mode selection)

1. The default is encoded point align mode. You can also choose Mark Point Align, Feature Align or Global Mark Point Align, as shown below.
2. Align mode can be re-selected after the turntable has rotated one circle. If you import global mark point file when building a new project, the align mode is global mark point, and the project cannot be changed into other align mode.Refer to 8.3 Open global mark point file.

Before scanning, you can set the scan times per round under Turntable Scan. The default setting is 8 times.

Click to start scanning. After the turntable has rotated one circle, you can change turntable

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steps and align mode.

Note:

1. When you choose encoded point align mode, please make sure that the object won't block the mark points on the turntable. Or, there will be no fringe pattern, while turntable will still rotate.
2. If the scanned object is too high and will block the mark points on turntable, you can stick mark points on it (if allowed) to continue auto scan. At this time, please make sure that the encoded marks on the turntable are covered, so as not to affect the scanning. As shown in Figure1 below.
3. Feature align: When scanning, it will verify and scan 3 pieces of data. As shown in Figure2 below.

Figure1

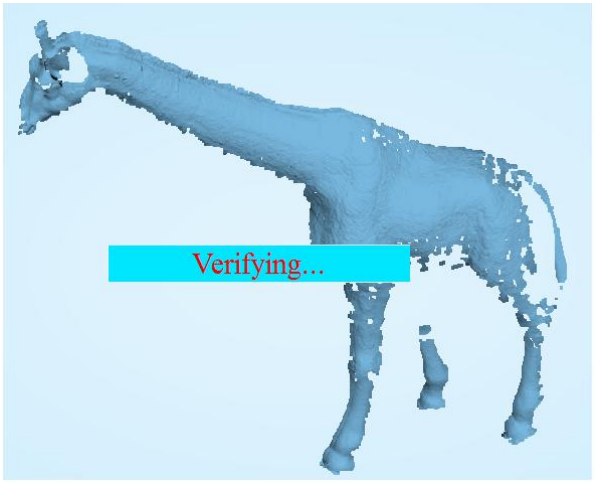

Figure2

Handheld HD Scan Mode

HD Scan relies on reflective mark points to align. Stick mark points on the object in random, avoiding sticking in one line.

Note:

1. The single scan range is 210*150mm.
2. Public areas alignment requires at least 4 mark points.
3. While placing the points, uniformly stick the mark points on the object, and make sure that there are at least 4 points in each single scan area.

After building a new project, click or the button on the scanner to start scanning.

Handheld Rapid Scan Mode

- Mark Point Align Mod: Before scanning, you should stick mark points on the object in random, avoiding sticking in one line. The green area is the current scan, as shown below:

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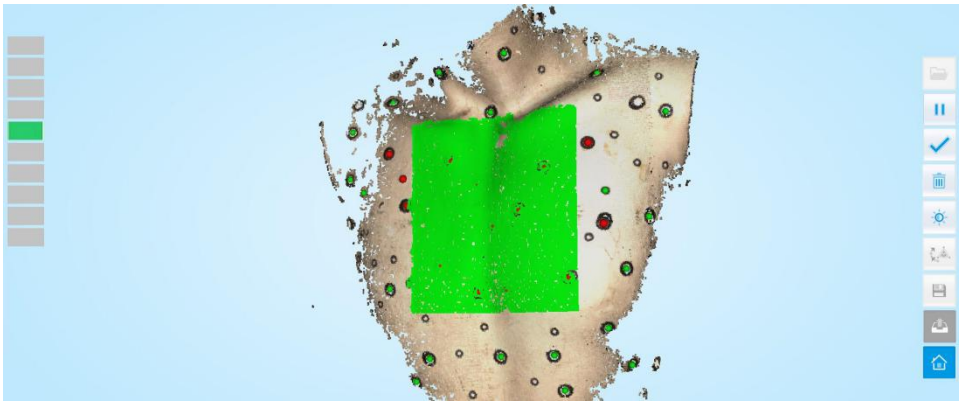

When the position tracking fails, it will appear **Tracking Lost** You need to go back to the previous marks to the previous scan area and do the position tracking again to continue scan.

- Feature Align Mode: When starting scanning, keep the scanner opposite to the object for 3 seconds, and start to move when scan data shows. To improve the scan efficiency, the movement should be continuous and uniform.

Note：
When the scanned data quality is not good, please check the distance. If the brightness is proper in good distance condition, please check brightness through exposure tp see whether the light frame is clearly shooting on the object.

8.10.4 Manual Align

Fixed Mode(Free Scan and Auto Scan): Please use Manual Align if automatic alignment fails during scanning as shown below.

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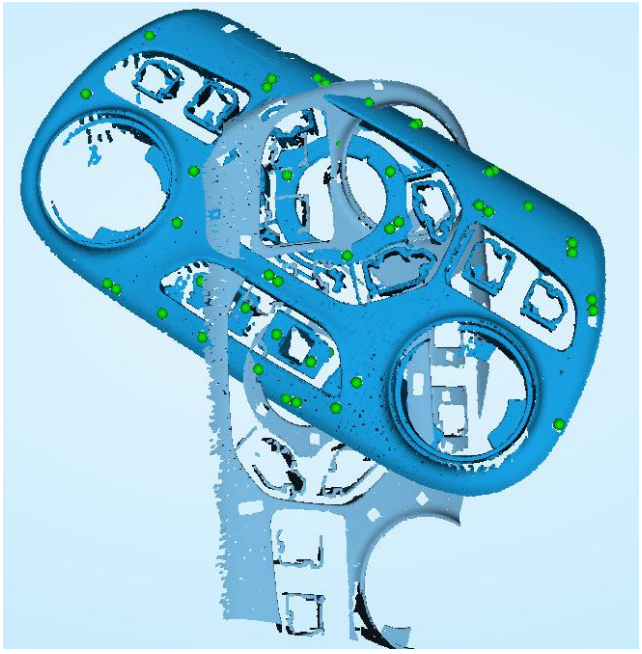
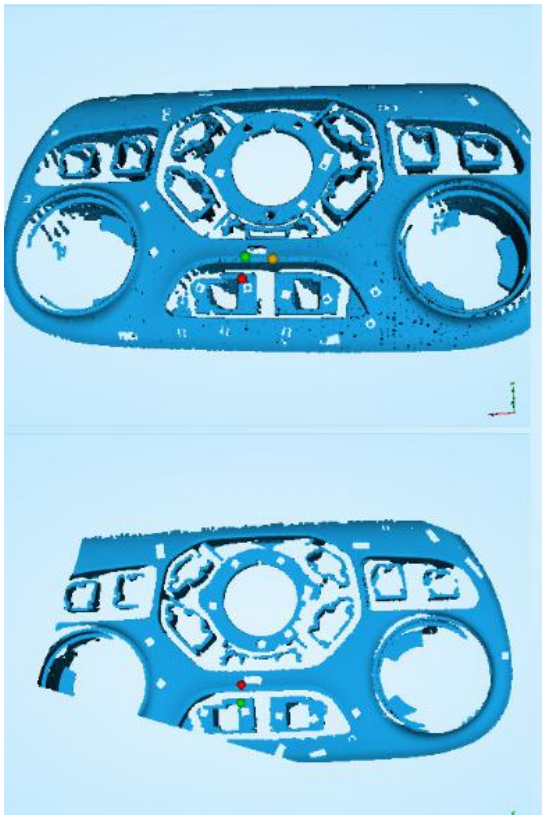


Click button to open Manual Align view port on the left side of the software. Hold down SHIFT button, and click left mouse button to select at least 3 non-collinear points in the 3D preview window for Manual Align.



The data will be corrected after manual alignment as shown below.

If manual alignment fails due to incorrect selection of corresponding points, click to re-select points.

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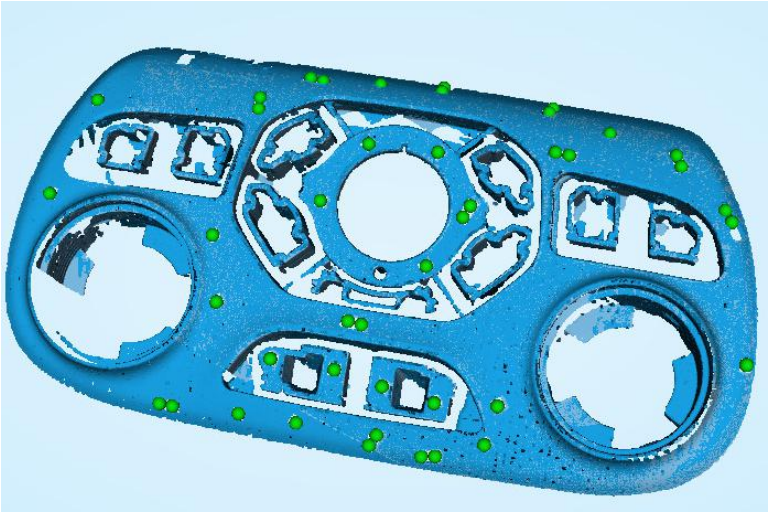

8.10.5 Delete Current Data

*Suitable for free scan and auto scan.

If you are not satisfied with current scanning data, or there is not enough overlapping region, click to delete current data and then change the position of the scanner or the object to scan again.

When you are in Auto Scan Mode, you can click to stop the current scan. The current data will be deleted directly.

Note:

When import project, click button the free scan is remove the single data; Auto scan is to delete all the data.

8.10.6 Pause Button

*Suitable for Auto Scan Mode and Handheld Scan Mode.

- Auto Scan: Click or press the button on the scanner to pause the scanning. Click to resume scanning.
- Handle HD Scan and Handheld Rapid scan: Click or press the button on the scanner to pause the scanning and check with it. Click to continue.

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8.10.7 Delete Button

*Suitable for handheld mode.

Click to delete current scans. Reminder will appear as below:

8.10.8 Done Button

*Suitable for Handheld Scan Mode.

Click when scanning is completed, as shown below:

Note：

1. The higher resolution, the slower it saves. Please be patient.
2. After clicking , if you continue to close the program, data loss may occur.

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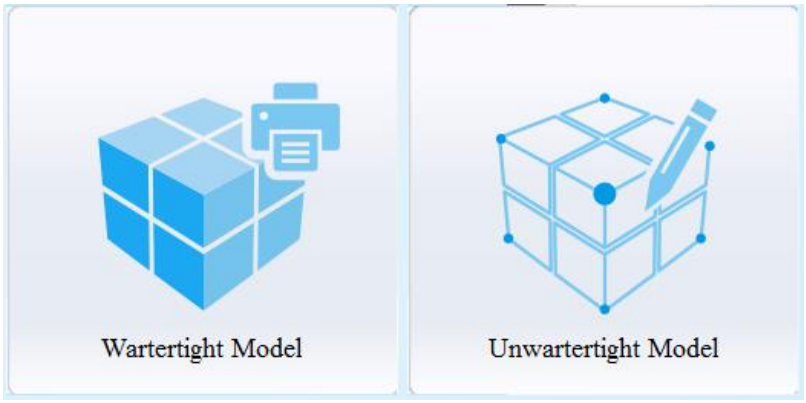
8.10.9 Mesh button

When the scan is completed, click to proceed to post-processing. You will see two modes after clicking the button, as shown in the pictures:



Unwatertight Model: For unclosed models.
Results are shown in the picture:

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Watertight Model: For closed models.

Results are shown in the picture below：

Texture watertight results are shown in the picture below:

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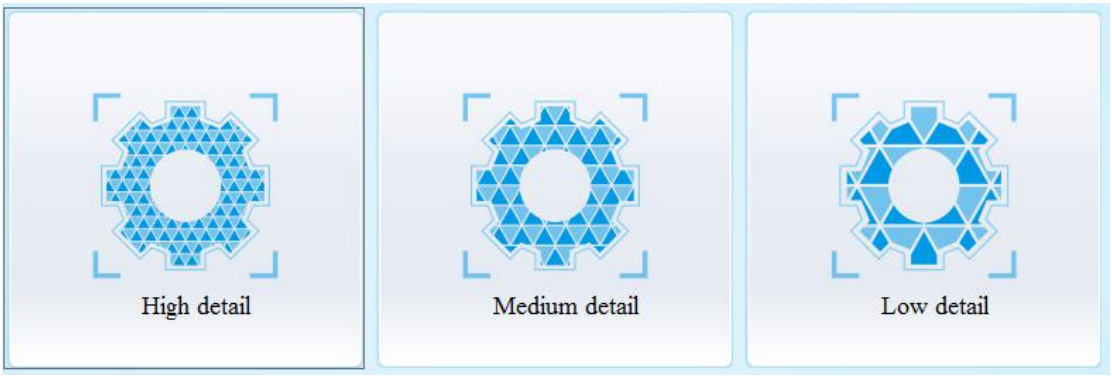
Select the object details.

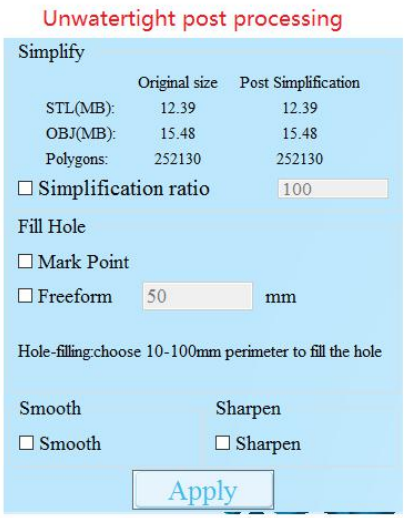


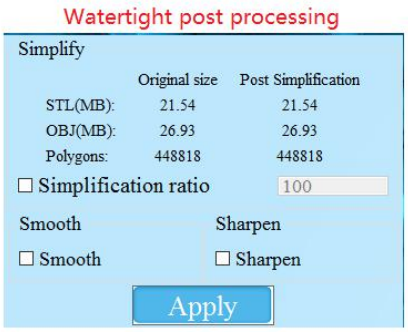
Note:

1. Select High detail for objects with fine texture; select Medium or Low detail for objects in smooth surface or with less detail. The time for data processing is in relation to the detail setting. The higher the level of details is, the longer time the processing takes.
2. Watertight usually slower than unwatertigh. High resolution takes more time. Please be patient.

8.10.10 Data Post processing

After meshing, the following dialogue box of data post processing will appear. You can simplify the data according to your request: filling holes, sharpening or smoothing the data, as shown below:





➢ **Data Simplification**

After simplification, the polygon numbers, size and surface detail of data will be reduced

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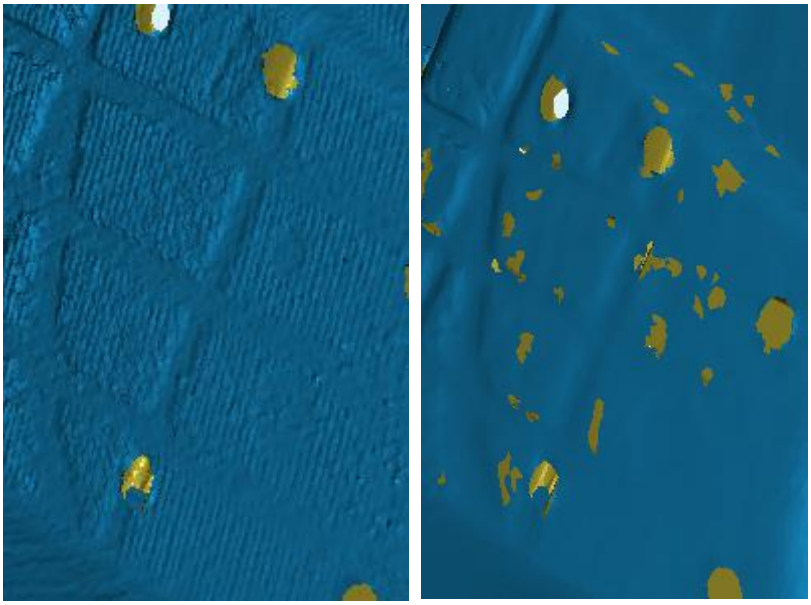
accordingly. Check the Simplification Box and set the ratio. The default is 100%.

Example: The comparison of detail between before simplification and after simplification (at 30% simplify proportion).

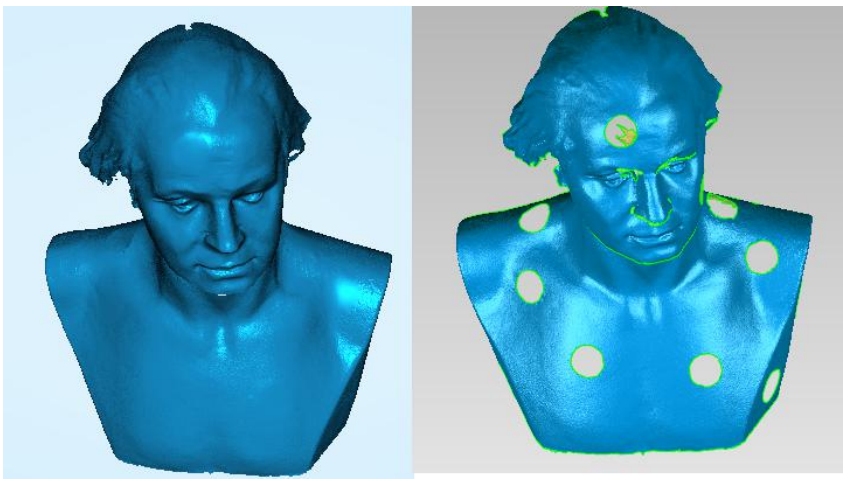


Before simplification After simplification

➢ Fill holes

The default does not check the mark point and fill hole. If you want to fill hole, you need set perimeter before. Choose 10-100mm perimeter to fill the hole.

Mark point fill hole as an example.



After Before

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Note：

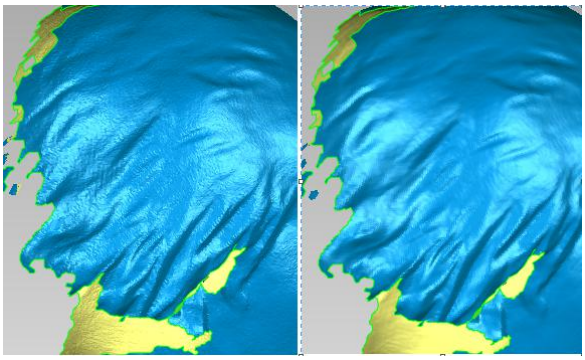
1、 If the edge of the hole is not smooth may cause the effect is not good, not recommended to fill hole.

2、Hole-filling: choose 10-100mm perimeter to fill the hole;

3、Handheld Rapid scan , feature align mode without mark point fill hole option.

- **Smooth**

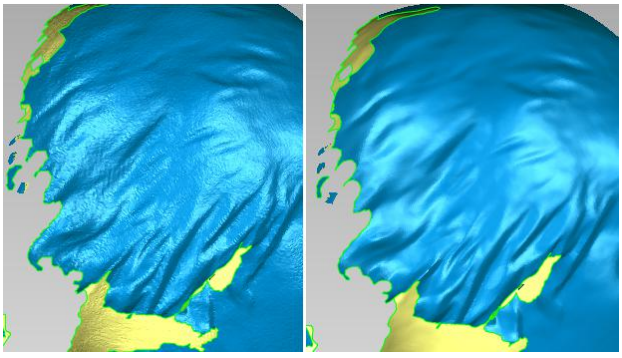
Smoothing the data will improve data quality. The figure below shows the results before and after smoothing:



Before After

- **Sharpen**

Smoothing the data will improve the overall clarity of the data. The figure below shows the results before and after sharpening:



Before After

8.10.11 Save Button

Save Data： Clicking before merging, the data can save data as asc and p3. After merging, the data can be saved as asc, stl, ply and obj. To save color texture, please select ply

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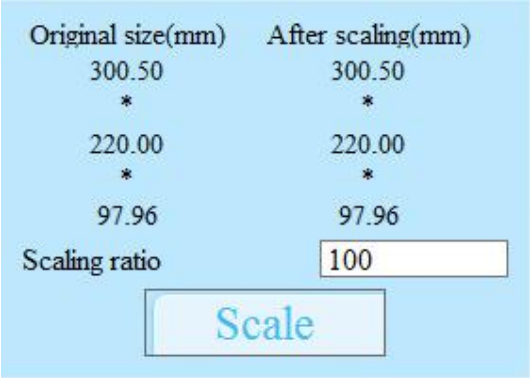
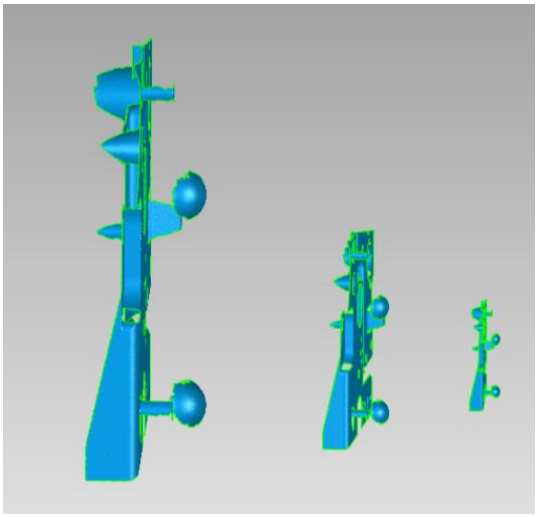
and obj. To save global mark point file please select p3.

Note:
In Fixed Scan Mode, before merging, the data can be saved as asc (single). After merging, the data can be saved asc(whole) or asc (single).

Scale: Scaling the volume of scanning data can keep the quantity of triangular facets and size of data unchanged.



Scaling Results as reference: From left to right shows double size, original size and half size respectively.



8.10.12 Main Menu

If you want to change the scan modes, click to go back to the homepage to select the scan mode.

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9、 FAQ

1. What if the merging fails when the turntable has rotated one circle?

Solution: When scanning under Auto Scan Mode, 1) try to adjust the distance between the scan head and turntable within 350-450mm, 2) make sure the mark points on the turntable could be clearly seen by the two cameras, 3) try to reduce the blocks.

2. What if the merging fails without mark points when the turntable has rotated several circles or when it is under Free Scan Mode?

Solution: Make sure there are at least 1/3 overlap between the current scan area and the previous scan area and the object surface should be featured. For objects which are symmetric and without rich features, mark points or manual merger is recommended.

3. How to scan objects that are transparent, semi-transparent or black?

Solution: Scan after spraying on the surface.

4. Under Handheld HD Scan Mode and Handheld Rapid Scan Mode, what if there are straggling points?

Solution: 1) Adjust the brightness, until the reflected graph and mark points are clear to be seen. 2)Try to make sure the background environment is single, for example, to use a black cloth or 500mm away from other objects. 3)Do not scan opposite to the computer screen.

5. Under Handheld HD Mode, what if only the mark points could be identified while there is very less data captured?

Solution: Please do the HD Scan calibration again, and during the calibration and capturing process, please make sure the calibration board and scan head are still.

6. Under Handheld Rapid Scan Mode, how to continue scanning when the merging fails?

Solution: 1) Move back to the scanned part (undeformed) for 3 seconds where there are features and details. 2) Start to scan again.

7. What should I do if the software collapses after I create a new project?

Solution: Make sure the project path is Chinese or English path.

8. How to scan thin-walled workpiece?

Solution: First, scan thin-walled parts should have transition zone which can stick with markers to guarantee scanning can be transited from one side to another. Then follow the following steps.

(1) Stick markers on the transition zone. Make sure from the camera view port that there are no less than 4 mark points evenly distributed and not in one line.

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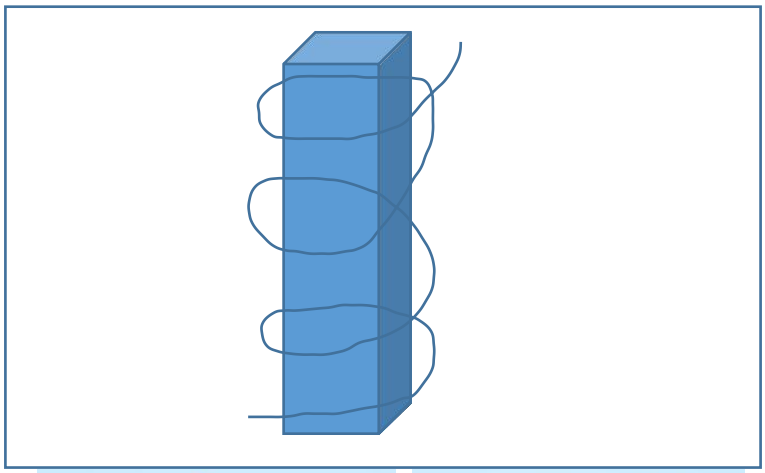
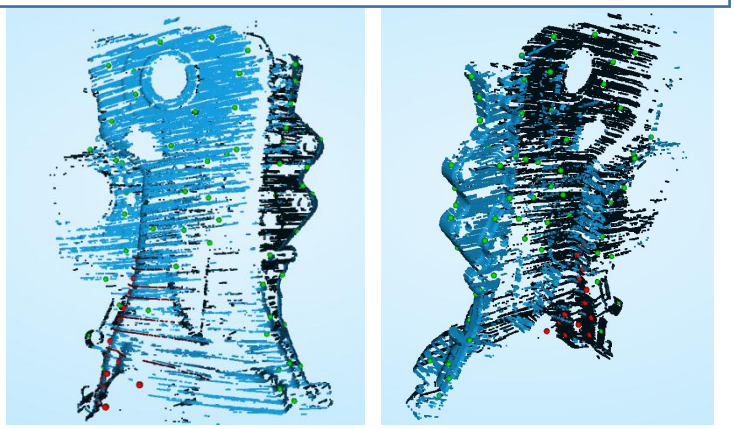
(2) Scan markers on the workpiece rapidly. Do spiral rotating via transition zone. Scan as many mark points as possible on both sides and transition zone to build frame. The faster, the better.





(3) After building frame, scan the surface of workpiece slowly and carefully to finish the whole scan.

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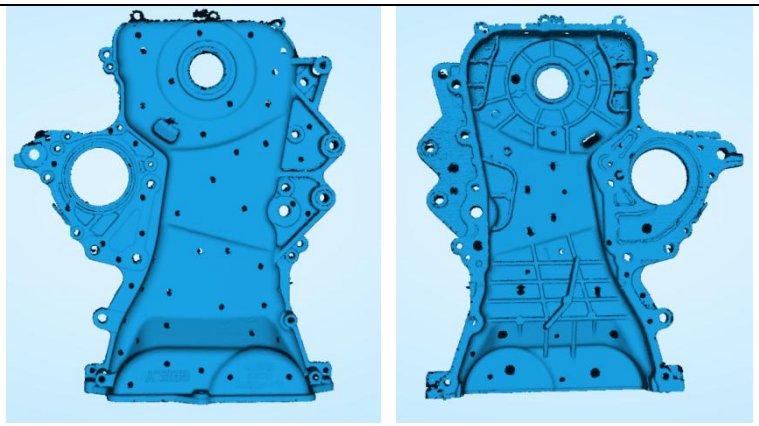
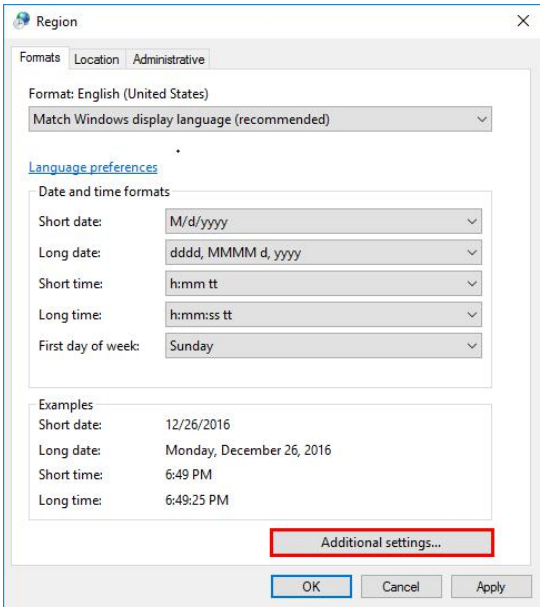


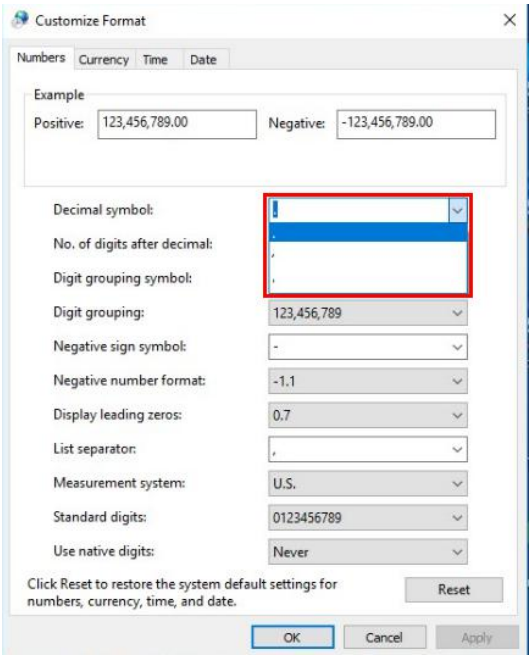
9. **Under Auto Scan Mode, if the turntable is not moving, but with a humming sound, how to solve?**

Solution: Disconnect power line and connect again in few seconds.

10. How to solve if after scanning there is no data?

Solution: 1) Open control panel→Region,



2) Click “Additional settings”-- “decimal symbol choose ”.

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