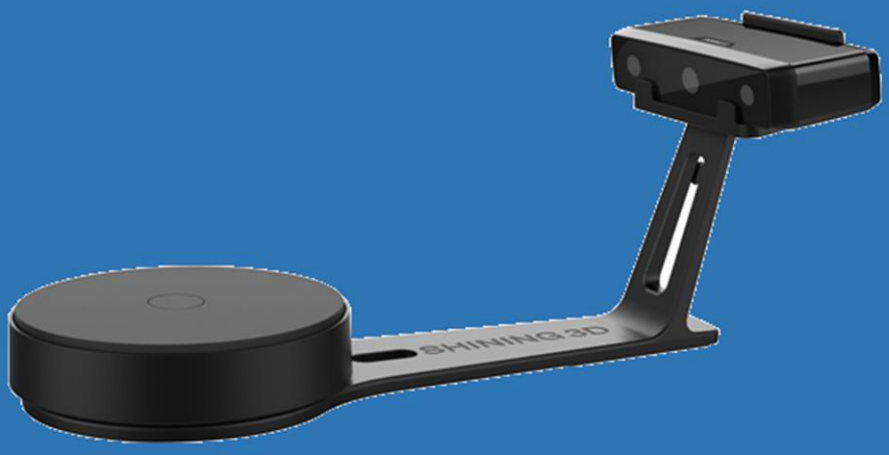
SHINING 3D

EinScan-SE

Desktop 3D Scanner

User Manual



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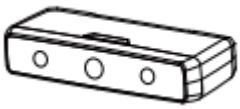
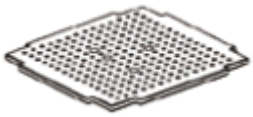
Device List and Specification

Device List

Items	Picture	Quantity
Scanner Head		1
Turntable		1
Scanner Stand		1
Scanner Bracket		1
Calibration Board		1
Calibration Board Holder		
Power Adapter		1
Power Cord		1
USB Cable		1
USB Cable		1
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Specification Parameter

Model	EinScan-SE	
Scan Mode	Fixed Scan	Auto Scan
Mode of Alignment	Feature ; Maunal	Turntable ; Manual
Accuracy	≤0.1mm	
Minimum scan volume	30mm*30mm*30mm	
Maximum scan volume	700mm*700mm*700mm	200mm*200mm*200mm
Range of Single Capture	200*150mm	
Scan speed	<8s	<2mins
Point distance	0.17mm~0.2mm	
Texture	Yes	
File Format	OBJ, STL, ASC,PLY	
Camera Resolution	1.3 Mega Pixels	
Light source	White light	
Stand-off Distance	290—480mm	
Weight (unpacked)	2.5kg	
Weight (packed)	4.9kg	
Dimension	570*210*210mm	
Power Supply	50w	
Input Voltage	DC: 12v, 3.33A	
Calibration Board	Standard	
Turntable	Standard	
Load Capacity of turntable	5kg	
Outdoor Operation	No (affected by strong light)	
Special Scan Object	For transparent, reflective and dark object, please spray powder first before scanning	
Printable Data Output	Yes	

System Requirement

Items	Recommended PC configuration
Operating System	Win7，8，10，64bit
Port	at last one USB2.0/3.0 port
RAM	>8G
Graphic Card	NVDIA Series
Graphic Memory	>1G
CPU	Dual-core i5 or higher

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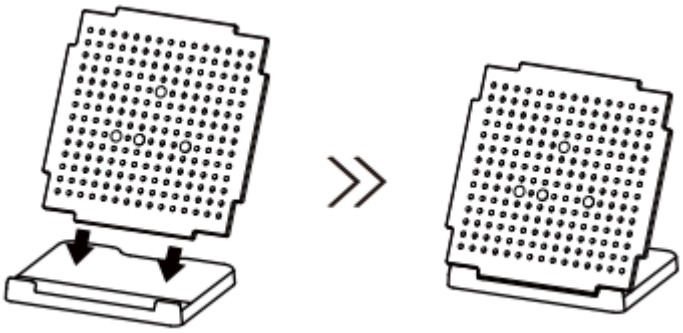
Installation Notes

Scanner Set-up

◆ Step 1. Place the scanner head onto the bracket.

◆ Step 2. Insert calibration board onto the board holder .

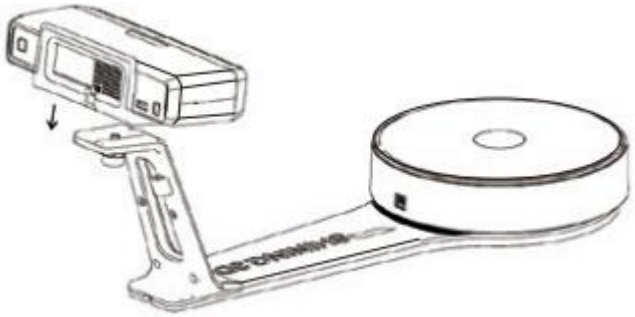
NOTE : Rotate the calibration board only while calibration.



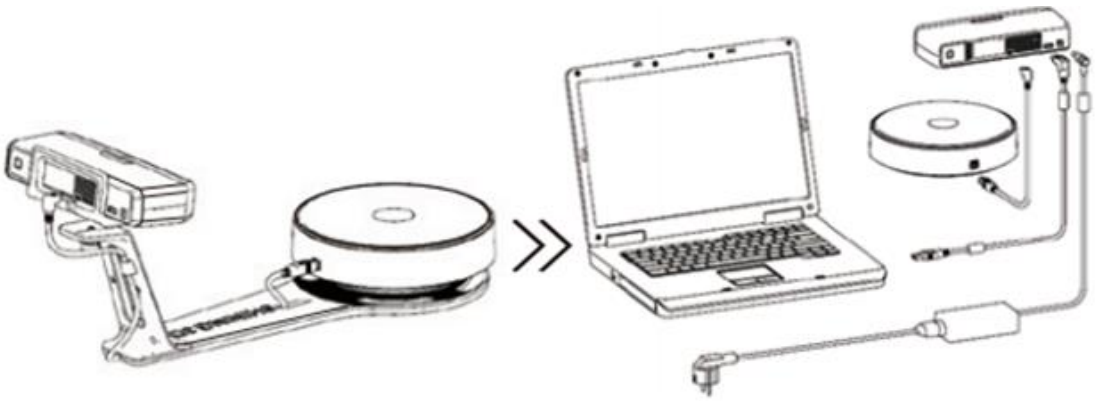
◆ Step 3. Turntable and Scanner installation.

1) Place the turntable onto scanner stand

2) Screw the scanner into the socket on the stand.



3) Plug power cord into outlet and the back of scanner;Plug USB cable into back of scanner and computer USB port;Plug USB cable into back of scanner, and turntable

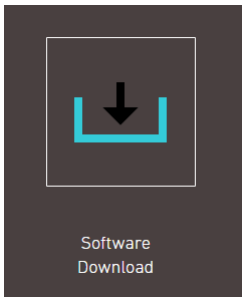


Scanner Turn-on/off

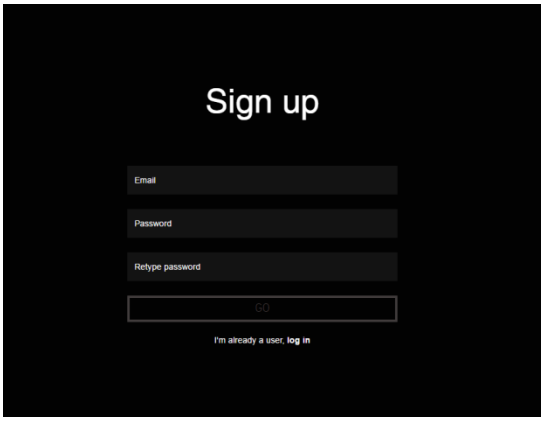
- Hold on the touch switch for about one second to turn the scanner on;
- Double-click on the touch switch and stay for one second each time to turn the scanner off.

Software download

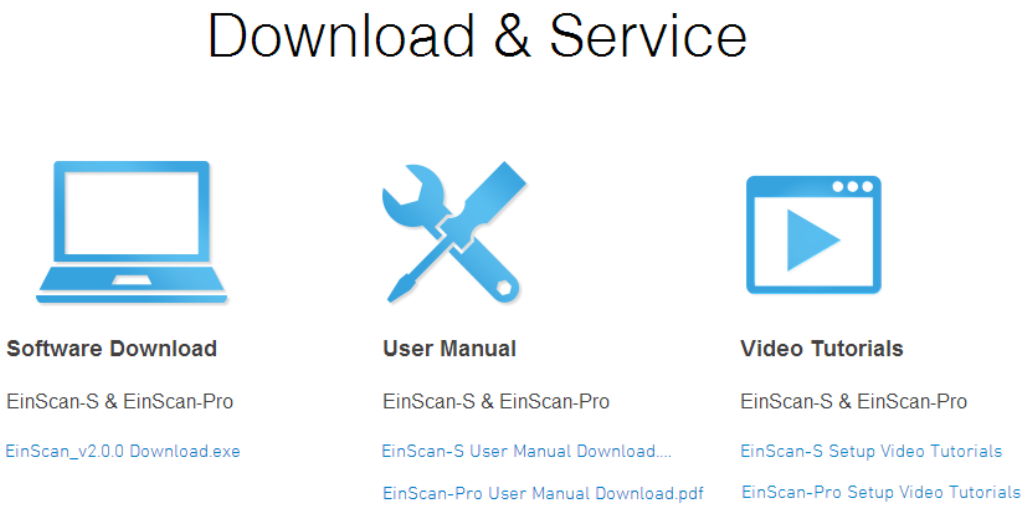
Firstly, enter the Support page: http://www.einscan.com/support. Click “Software download”, as shown below:



Secondly, please complete the registration, if registered, click log in.



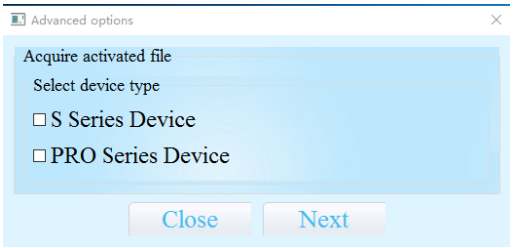
After take the survey, it will enter the page http://www.einscan.com/software-download



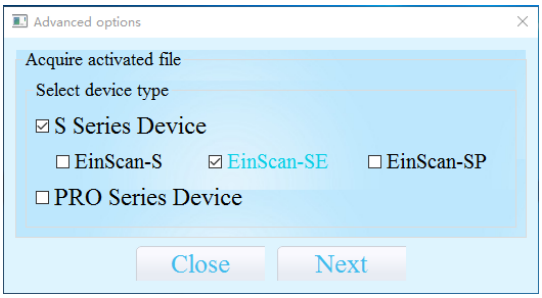
Finally, click the icon to jump to the page of any file to download the software.

Software Installation

Double click installation package, Follow the instructions as the window pops up. Users can either choose the default installation path or click the Browse button to select the installation path. Default installation is suggested.



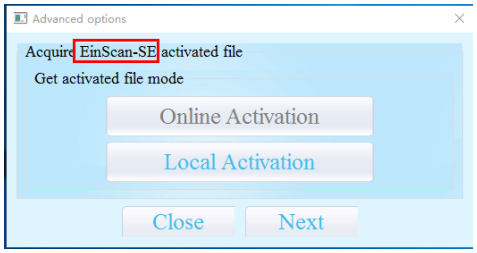
When the acquired activated file window pop-ups, you can choose multiple device types, then click “Next”.



Please confirm there is only one device connected. Choose the mode to get activated file: Online activation and local activation. After activating a device, you can unplug the device and plug in other device to continue activating. When finishing click “Next”.

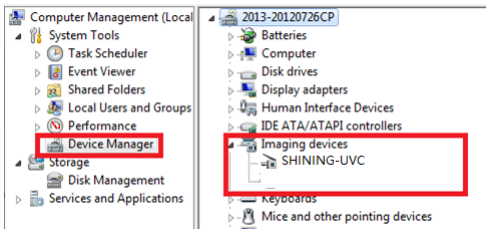
Note:

If you want use both series of S and pro, you should activate the two device type separately. Or you can activate device after installation, refer to Advanced options.



When installation is finished, there will be a shortcut of the software

on the desktop.

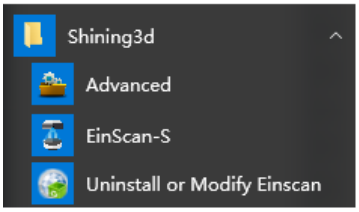


In the next step, we need to check whether the camera driver installation is successful, right click “Computer”, choose “Computer Management”-“Device Management”-“Imaging devices” to check if the camera display normally.

Note: You should One-click on the touch switch to turn the scanner on.

Software Uninstall

Open the start menu, choose Shining3d----Click “Uninstall or Modify Einscan”, as shown below.



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Software Instroduction

The software provides Fixed Scan, Turntable Auto Scan.

Mode selection

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

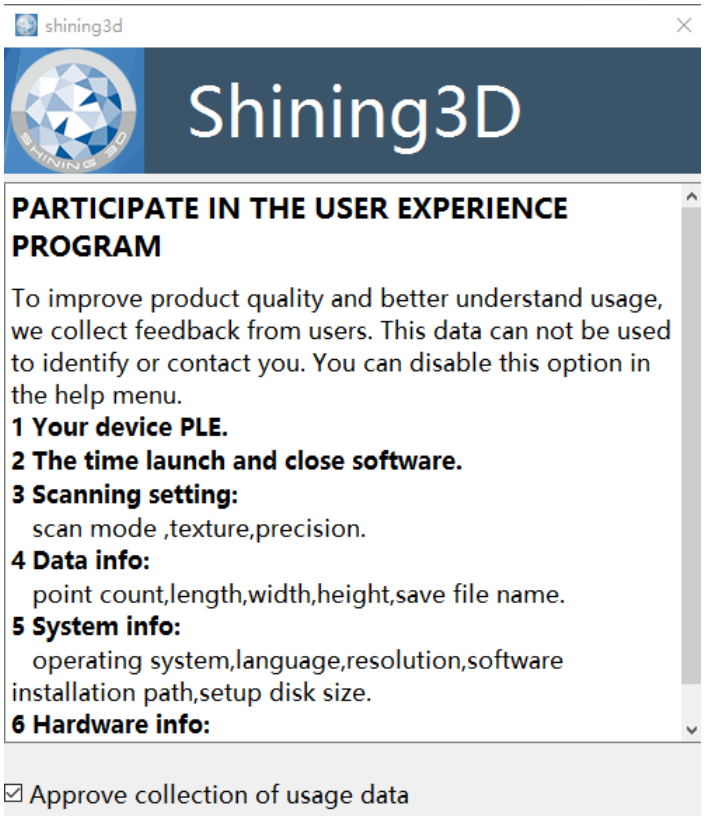
(2) Fixed Scan: This mode is recommended for objects over the size of 200*200*200mm, as well as a comparative stable environment (without obvious vibration) are required.

Not recommended to scan objects within the size of 30*30*30mm.

Special objects

Before scan objects in transparent, semi-transparent or black shall spray on the surface.

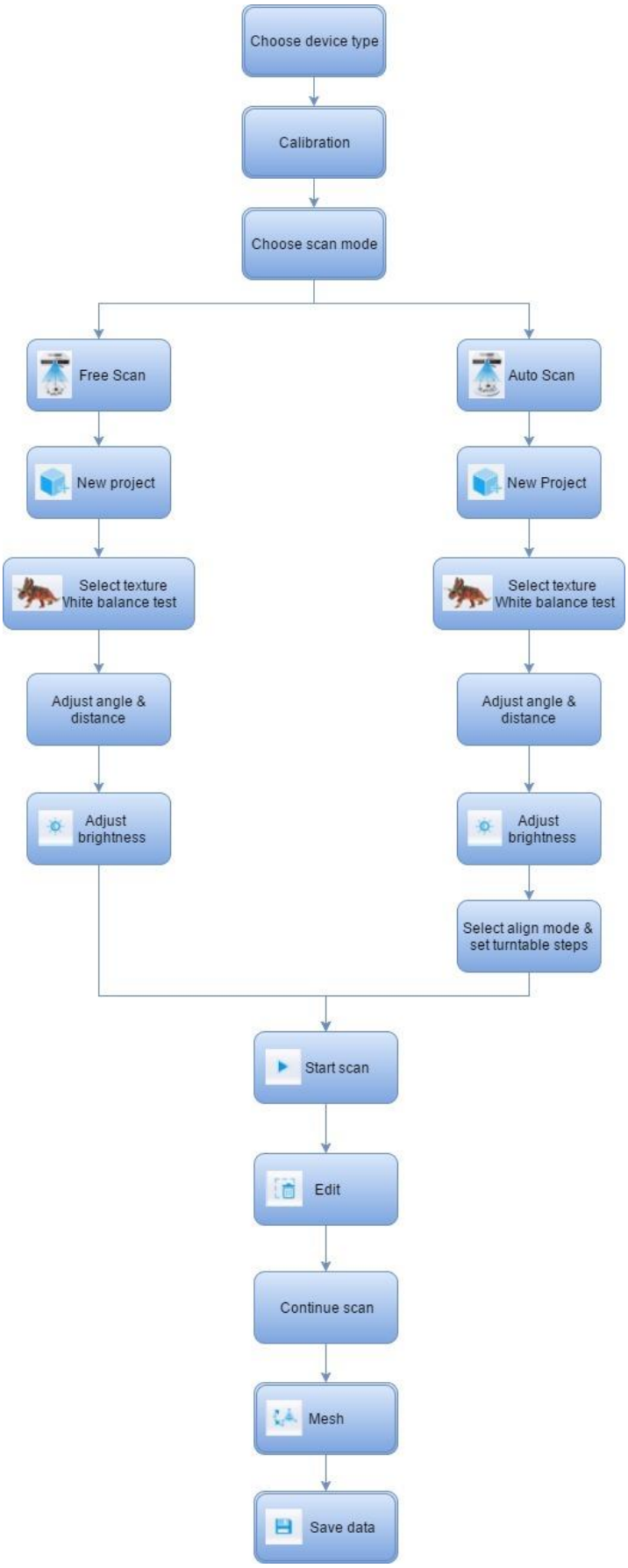
First time open the software to enter the home page, there will be User Experience Program pop-up, view the details of the plan as shown, and determine whether to participate in the program, or not.



Choose the EinScan-SE，as shown below：

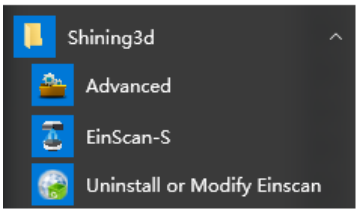
Operation Procedure

First Scan


Choose device type
Calibration
Choose scan mode
Free Scan
New project
Select texture
White balance test
Adjust angle & distance
Adjust brightness
Auto Scan
New Project
Select texture
White balance test
Adjust angle & distance
Adjust brightness
Select align mode & set turntable steps
Start scan
Edit
Continue scan
Mesh
Save data

Advanced Options

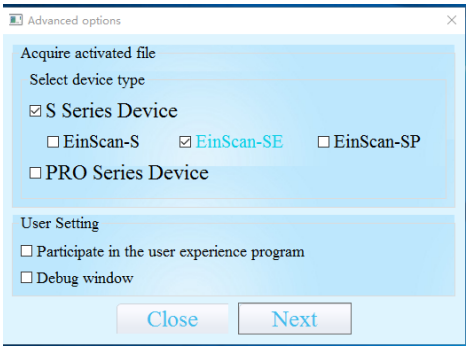
Open the start menu, choose Shining3d----Click “Advanced”, as shown.



Advanced option window，you can do acquire activated file, set user experience program and open or close debug window.

- **Acquire activated file**

Choose device type (multiple choose), click “Next”, connect the device type as the pop-up window show and confirm there is only one device connected. Choose the mode to get activated file: Online activation and local activation. After activating a device, you can unplug the device and plug in other device to continue activating. When finishing click “Close”.

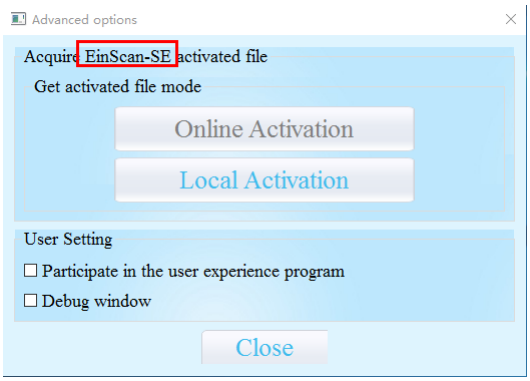


- **User Experience Program**

Check the box of User Experience Program mean enabled.

- **Debug Window**

Check the box of Debug window. Start the software again, and the debug window will appear.



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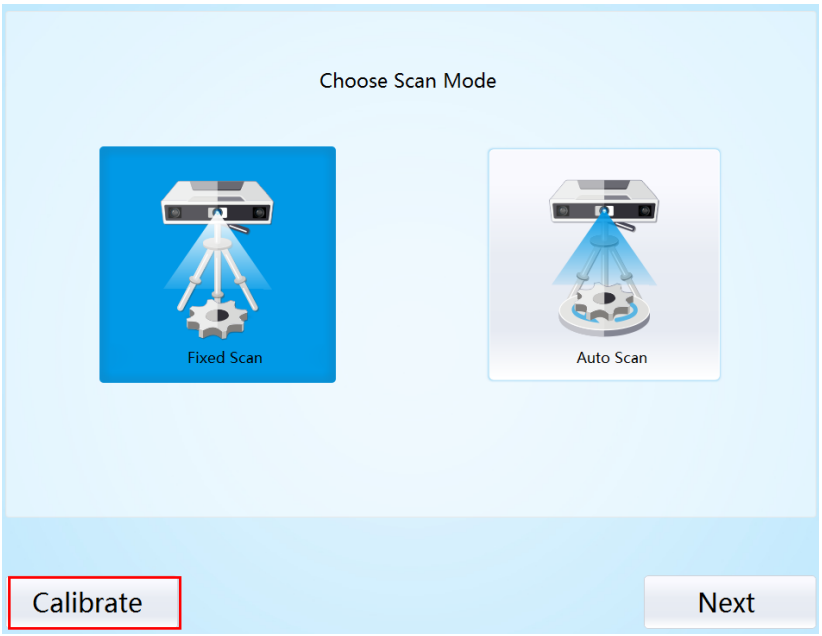
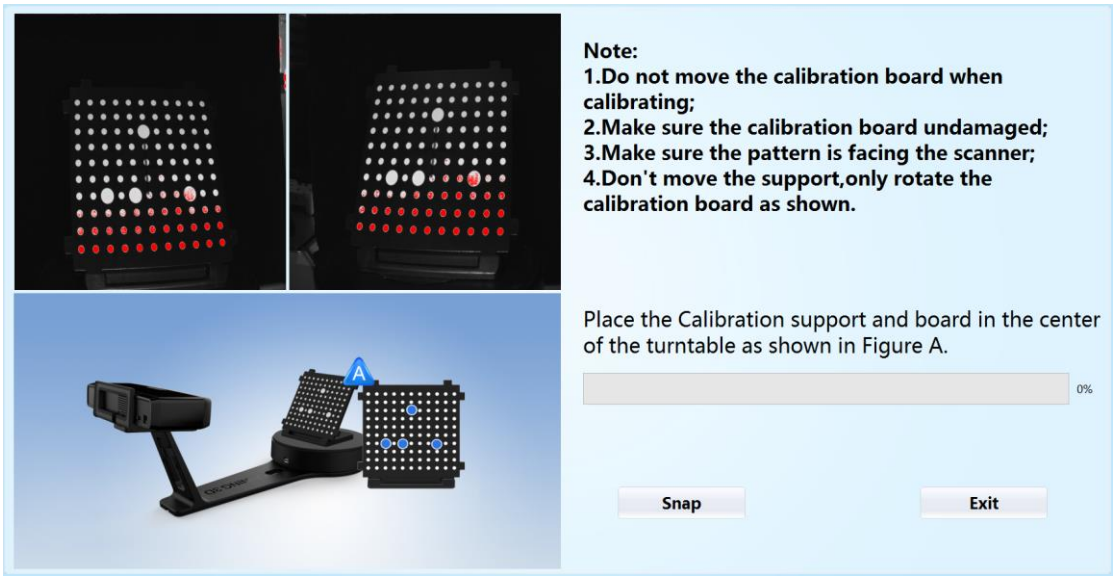
Calibration

Scanning cannot be entered if calibration is not done after installing the software. There is a WARNING: No calibration data, please calibrate first.

Click ‘Calibrate’ to enter the interface of calibrate.



The interface of calibrate:

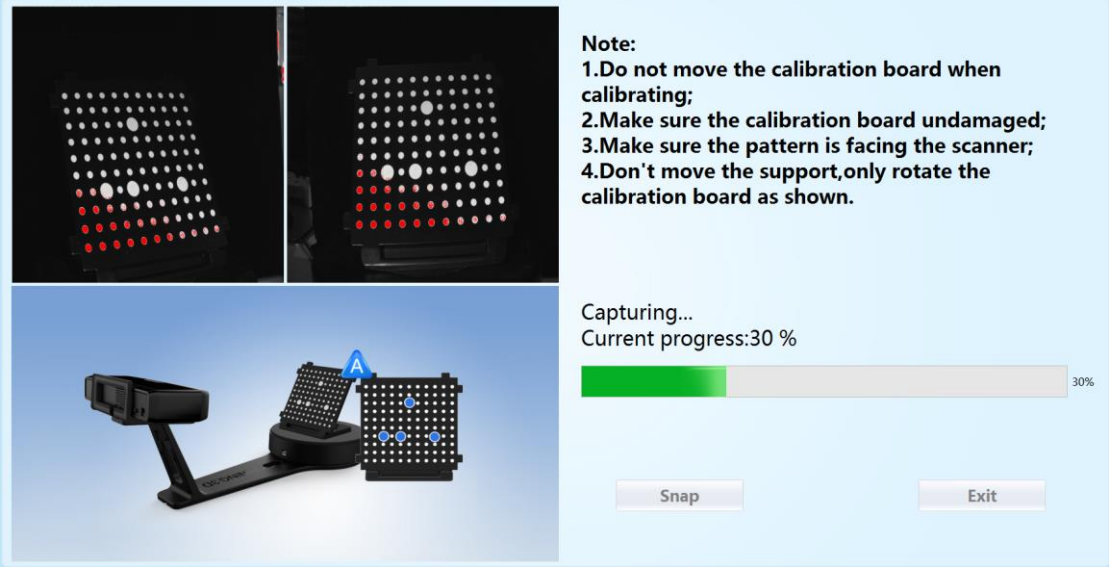


Calibrating your scanner is important in order to get accurate scan results. The following describes the three steps required to successfully calibrate your scanner.

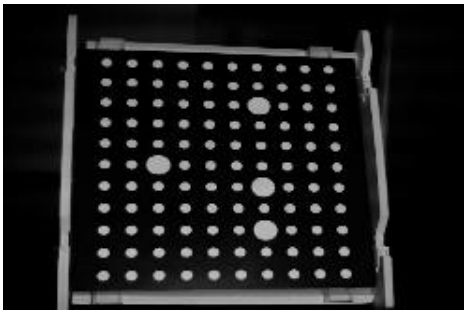
Follow the software operation guide, adjust the distance between the projector and calibration board, and the cross from scanner should target at the calibration board n clearly.

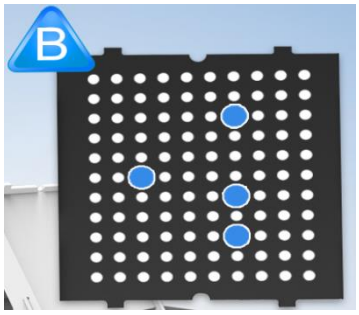
Place the calibration support and board in the center of the turntable as shown in Figure A. Check that the calibration board is located at the center of the turntable with the Figure A pattern facing the scanner and click “Snap”. Do not interfere or touch the calibration board during the calibration sequence.

⚠ **Don’t move the support. Only rotate the calibration board.**



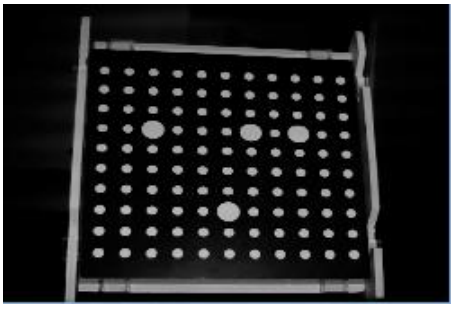
After the 1st calibration sequence, the turntable will stop and the display will show what is in FigureB. Being careful not to move the support, remove the calibration board, rotate it 90° counterclockwise and place the board back onto the support as shown in Fig. B.

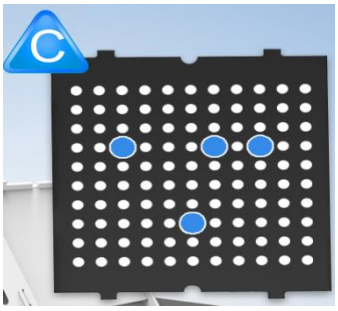




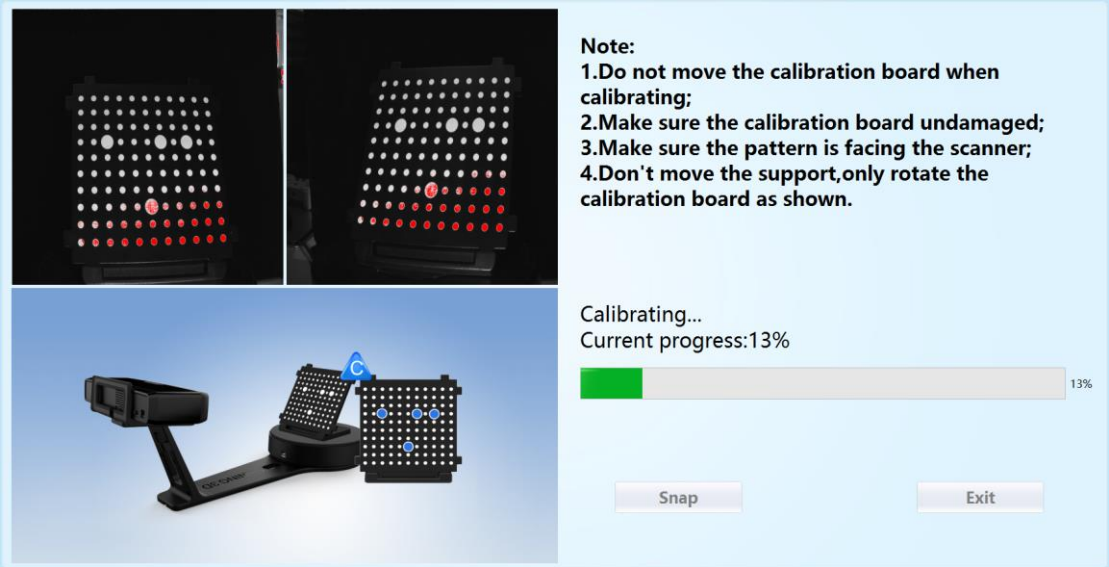
Note：Don’t move the support. Only rotate the calibration board.

Being careful not to move the support, remove the calibration board, rotate it 90° counterclockwise and place the board back onto the support as shown in Figure C.





Upon completion of the 3rd calibration sequence, the software will automatically calculate and archive the current conditions. This calculation may take several seconds but once complete, you are ready to start automatic turntable scanning.



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

If the calibration fails, please try to re-calibrate following the instructions above. If calibration fails again, please contact your local support representative.

Calibration Precautions

You must finish all the calibration steps according to the instruction when you calibrate at the first time.

Situations as below need do calibration again:

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.

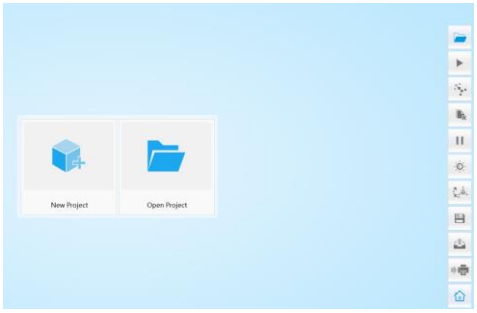
④ When scanning data is incomplete and quality is much worse during the scanning.

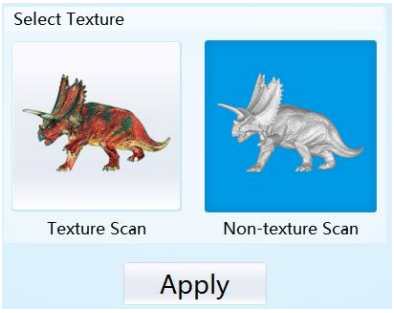
5

Auto Scan

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

Enter the interface of New Project and Open Project, the default project save location is the desktop, then it will remember where the user last created a new project. Click “New Project”, enter the project name, then click ‘Save’ to enter the interface of Non-texture Scan and Texture Scan selection.



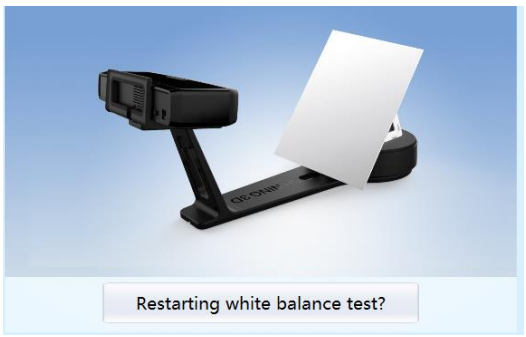


Choose ‘Texture scan’ to enter the white balance test.

White Balance Test

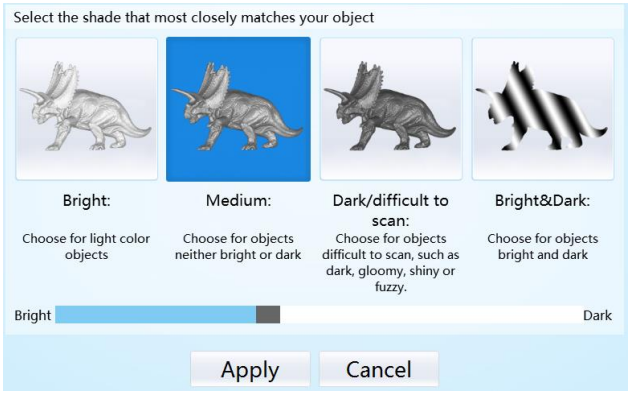
When scanning a colored object, you’ll need to perform a white balance test to achieve better scanning results. Place a sheet of white paper as shown below on the calibration plate and click “ Restarting white balance test”.

After the white balance test has completed, you are free to continue with the texture scan.



Adjust Brightness

Adjust the distance between the object and device (suitable working distance is 290 ~ 480mm), until the cross is clearly to be seen on the object.



Most users will find that the automatic settings work just fine but for more complex objects or lighting conditions, you can manually adjust scanner settings.

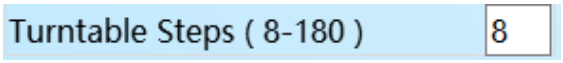
Choose your desired brightness setting if the object is over or under exposed. Click “Apply” to confirm, or click ” Cancel ” to not save.

Enter the interface of auto scan.

Work distance： Adjust the distance between the object and device (suitable working distance is 290 ~ 480mm), until the cross is clearly to be seen on the object.

Adjust Brightness

Click the bottom on the right toolbar to open the adjust brightness window. Click the button again, and the camera viewport will be hidden. This function is the same as the adjust brightness when new a project.



Turntable Steps

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

HDR

Enable HDR brightness can scan bright and dark objects. The same function as Adjust brightness “Bright&Dark”.

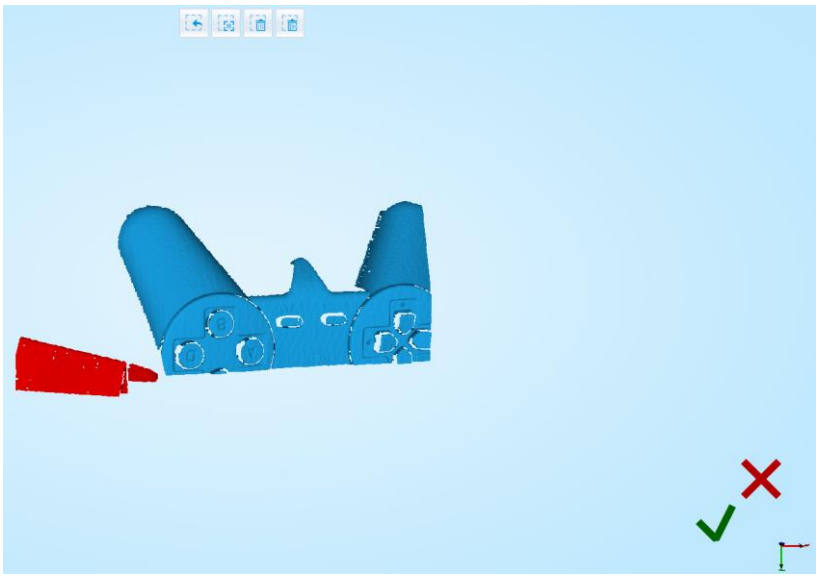
Start Scan

Click the button to start scanning. After the turntable has rotated one circle， you can change turntable steps and align mode.

Edit buttons:①Deselect ②Revert ③Delete ④Undo⑤Show/Hide Stripes

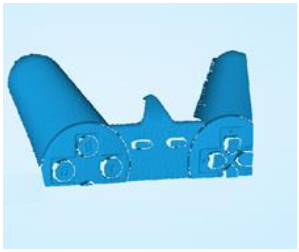
You can edit the current part data after each scan. You can do the below edition if the data has excess parts.

SHIFT+Left mouse：Select excess parts, the selected section is displayed in red, as shown below.



Delete selected data

Click the button and “DELETE” in the keyboard to delete selected data.



Undo

You can only undo the last deleted data.

Show/Hide Stripes

Click the button to switch the texture display and hide. Non-texture scan, there is no such button.

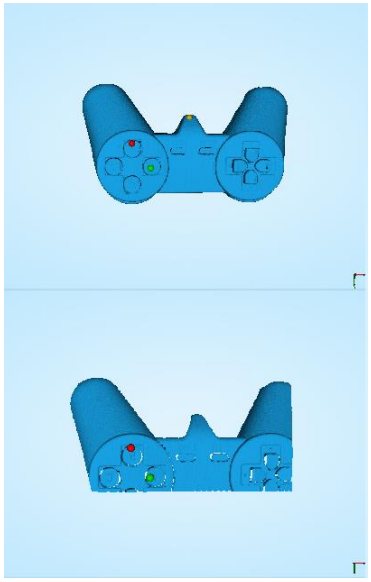
End single-piece edit

Click to save data and exit the single-piece edition; Click , delete the current scan data.

After end the single-piece edit, the right toolbar will display, and now can edit the whole scan data. The specific operation is the same as the single-piece edit.

Manual Align

If automatic alignment failed during scanning, you can use manual align. Click the button to open Manual Align view port on the left side of the software. Keep SHIFT down, and click left mouse button to select at least 3 non-collinear corresponding points in the 3D preview windows for Manual align, As shown on the right.



Delete Current Data

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

When auto scan mode is scanning, you can click the button to stop the current scan. The current data will be deleted directly.

> **Note:**
>
> When import project, click button the fixed scan is remove the single data; Auto scan is to delete all the data.

Pause

Click the button, scanning will pause; Click again to resume scanning.

Mesh

When the scan is completed, click the botton, proceed to post-processing. You will see two modes after clicking the button: Watertight and Unwatertight. Watertight usually slower than unwatertigt. Texture scan mode will take more time compared to Non-Texture scan mode.

Watertight

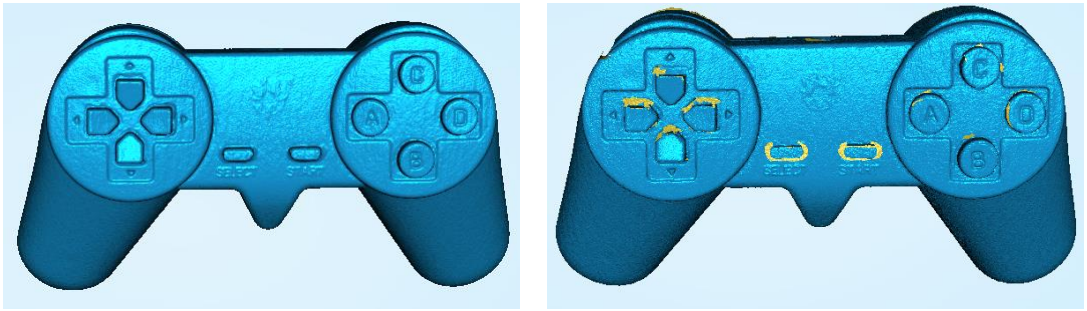
Closed model can be printed directly. After choose this mode, you should select the object details.

Select High for objects with fine texture, select Med or Low 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. It may keep for a long time in 95%, please be patient.

Select the object details:

Unwatertight

Unclosed model. The following picture is the watertight and unwatertight model.

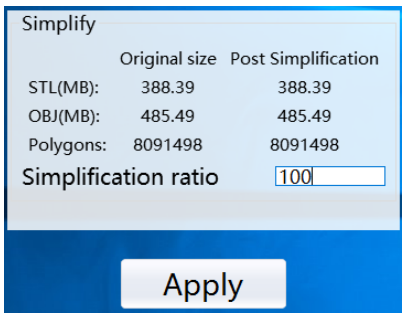


Watertight Unwatertight

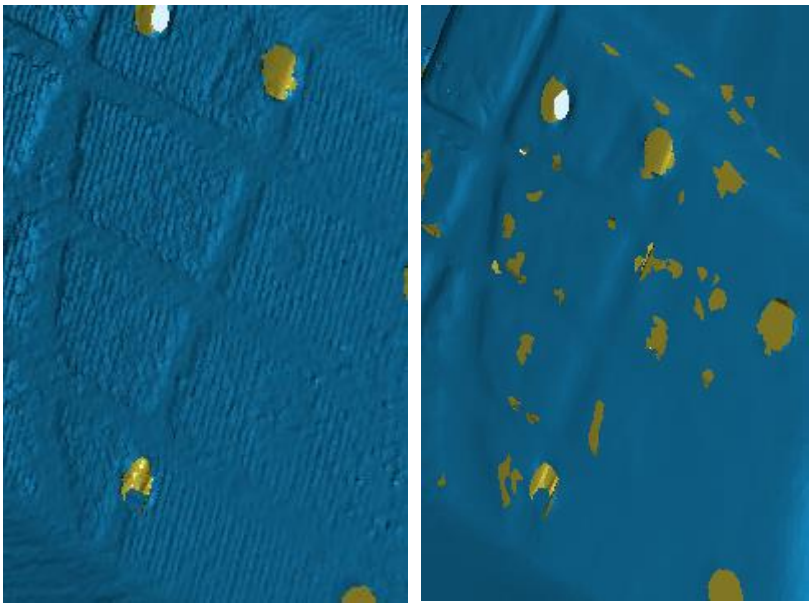
Texture watertight results :

Data simplification

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



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



Before simplification After simplification

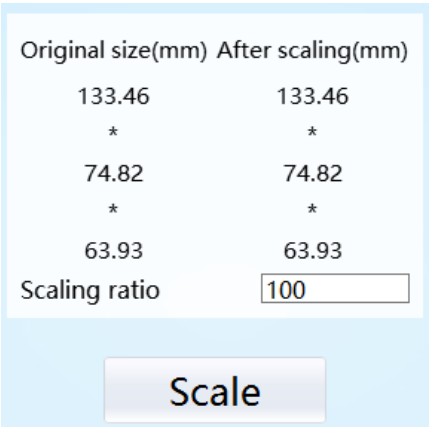
Save

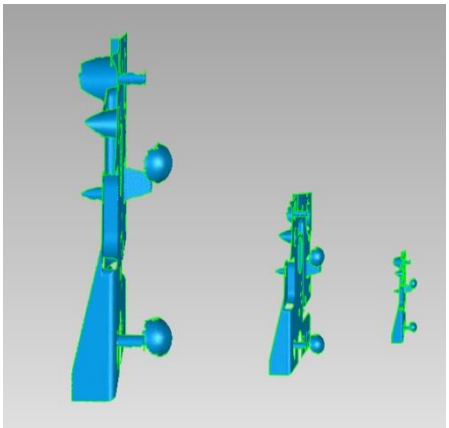
Before merging can save data as asc single. After merging, it can be saved as asc, stl, ply and obj. To save color texture, please select Ply and obj.

Scale

Scaling the volume of scanning data, while the quantity of triangular faces and size of data will not be changed.

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





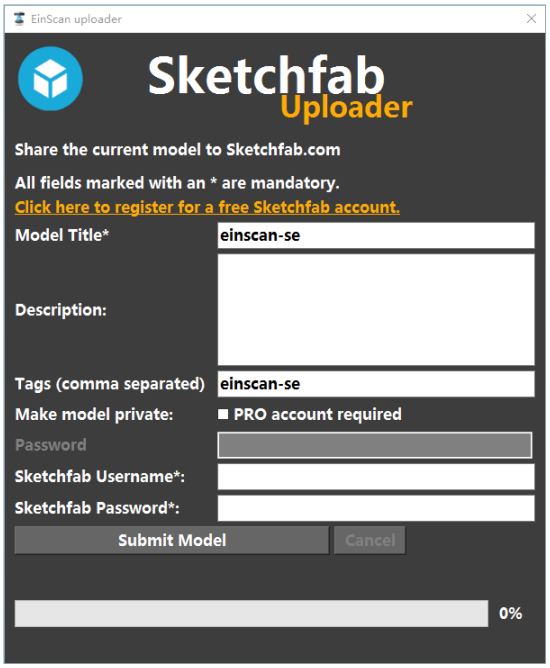
Scale window Scale result

Share

Click the button after merging to share data, it will show the dialog as below.

You can share your model to Sketchfab, while model title, username and user password are required. Register an account and look at the shared model at http://sketchfab.com.

> **Note:**
> Sketchfab Normal account can only upload data maximum 50M, while Professional account can share maximum 200M, and set model as private.



3DPrint

This button allows you to import a model that has been watertight directly into the 3D printing software.

Note: you should install the 3dStar software.

Project

You can new or open projects. The default project location is the desktop, then it will remember where the user last created a new project.

> **Note:**
> The projects created by auto scan and fixed scan can be reciprocally imported.
> After importing the project, direct access to scan, choose the scan mode based on whether the imported project is texture.

Main Menu

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

Mouse Operation Prompts

Lower left corner of the interface is the mouse operation prompts:

- After scanned or imported project, the prompt text is as follows:

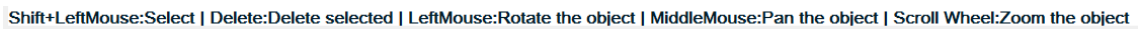
  Hold down the left mouse button: Rotate the object;

  Hold down the middle mouse button: pan the object;

  Hold down the mouse wheel: Scroll up and down to the object; scroll down to enlarge the object;

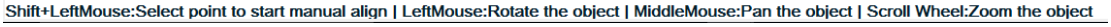
  Hold down the Shift + left mouse button: select the area on the object;

  Delete: Delete the selected area.



- Auto scan's manual align, the prompt text is as follows:

Press and hold shift + left mouse click: Select point to start manual align



Current Points and Triangles

When scanning it will show the current points and current triangles in the lower right corner. When you edit the scan data, the current points and the current triangles change in real time.

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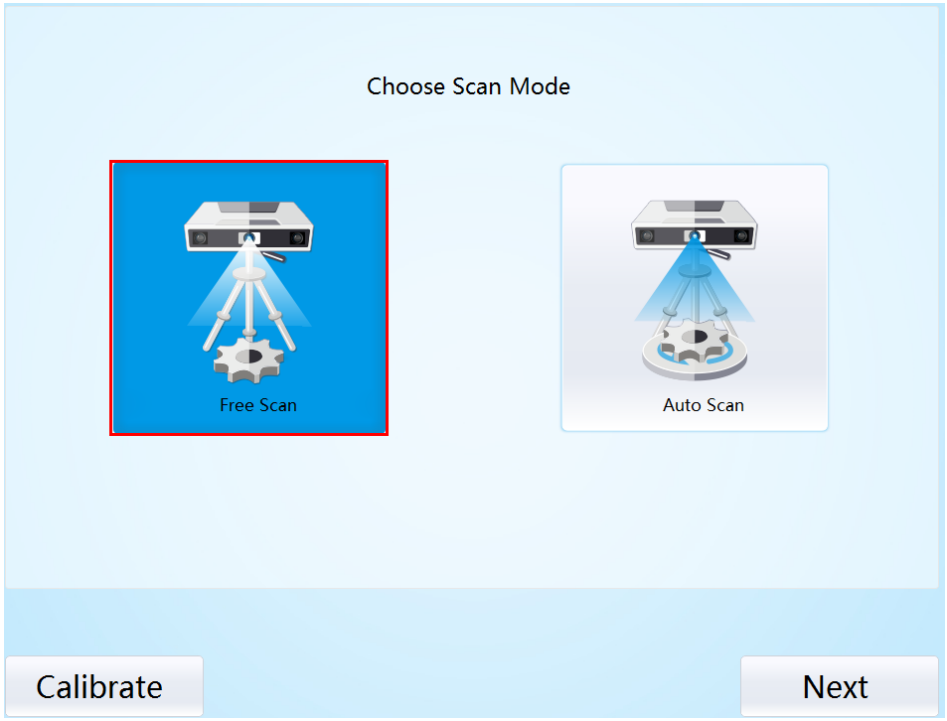
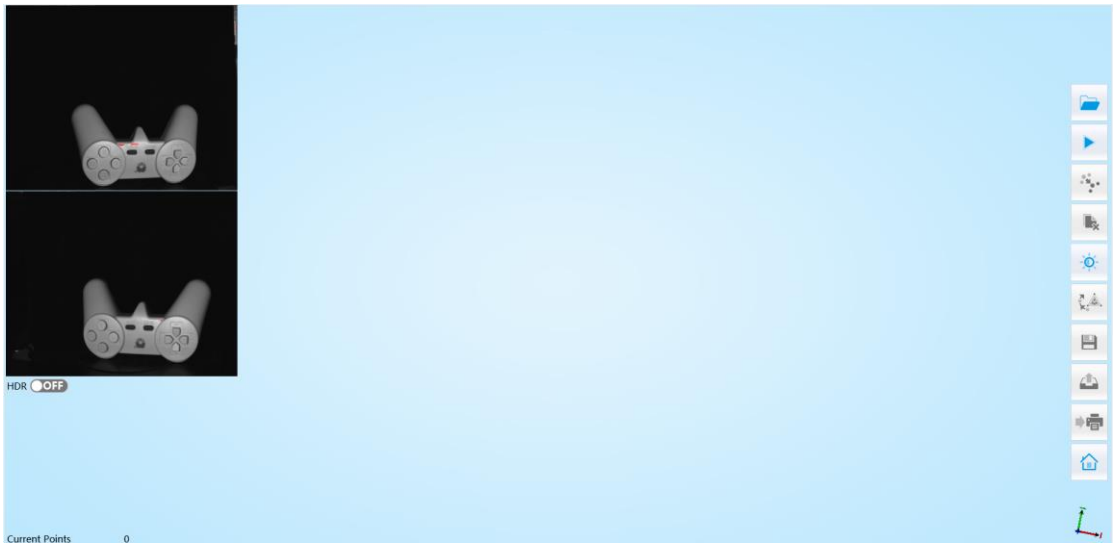
Fixed Scan

Fixed Scan

Choose the Fixed Scan mode, as shown below, enter the scan interface, refer to Auto Scan to new project ,the select texture and adjust brightness.



After new a project, the scan interface is as shown below:



Adjust the distance between the object and device (290 ~ 480mm), adjust brightness, refer to Auto Scan.

Click to start scanning. When the scan is completed, change the position of object or scanner for next scan. Make sure the overlap area of currently scan area and the last scanned data is more than 1/3. Then click scan button, the data will automatically align, until the whole

scanning completed.

Edit, manual align, delete current data, mesh, save data and share refer to Auto Scan.

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FAQ

FAQ

1. How to scan objects in transparent, semi-transparent or black?

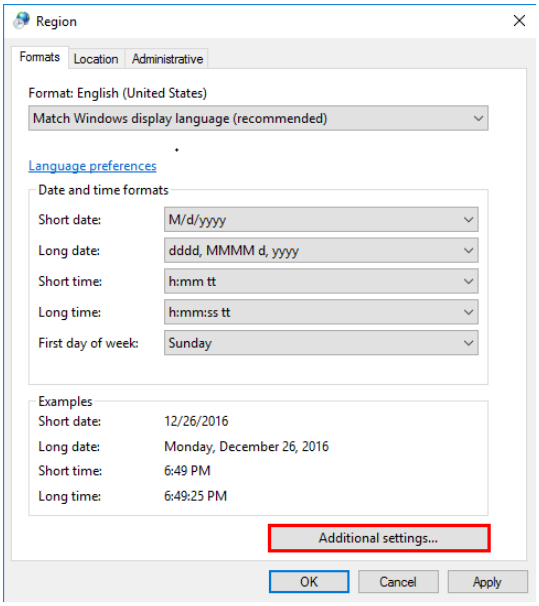
Solution：Scan before spraying on the surface.

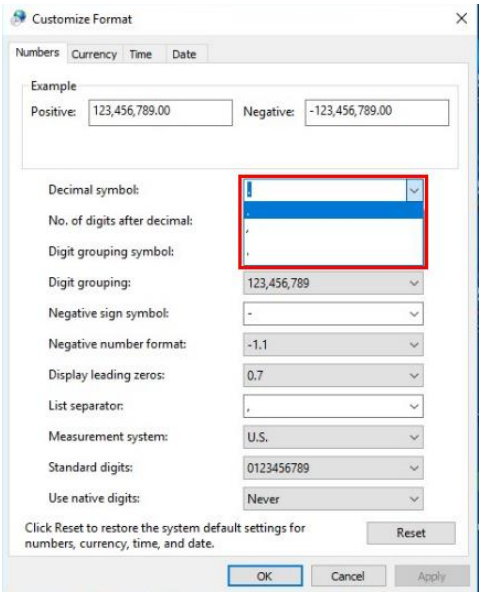
2. Under auto scan mode, if the turntable is not moving, but with a humming sound, how to solve?

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

3． How to solve if after scan there is no data?

Solution：Open control panel→Region, then click “Additional settings”, decimal symbol choose “.”





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Help

Contact us

Email: einscan_support@shining3d.com

More scanning information

More scanning information can refer to http://www.einscan.com ---Support