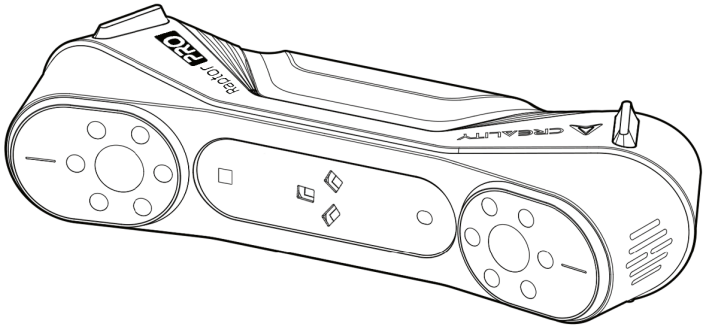
manual



Creality Raptor Pro 3D Scanner

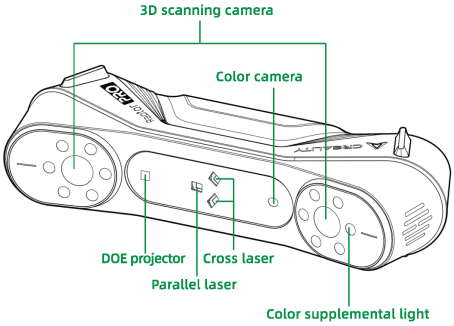
Quick Guide V1.0

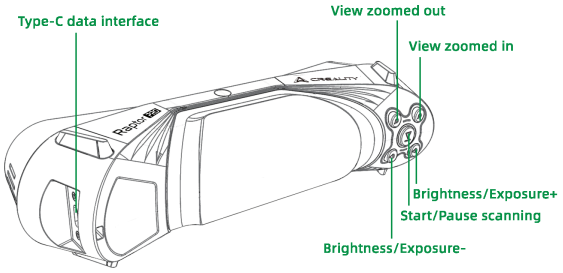
1. PRODUCT INTRODUCTION

Raptor Pro is a high-precision metrology-grade 3D scanner with an accuracy of up to 0.02mm, equipped with blue light, white light and infrared light sources. It is improved with large scanning area and high-speed scanning by crossed laser lines (22 lines), fine scanning of parallel laser lines (7 lines) and infrared scanning, and it can adapt to a variety of complex environments. It is widely used in automotive parts inspection, reverse engineering and product design, especially suitable for accurate scanning of medium and large complex parts, realizing full-size inspection, reverse design, 3D printing and additive manufacturing and other applications. At the same time, it is also suitable for high-precision scanning of human bodies, faces and cultural relics to meet the needs of diverse industries.

2. PRODUCT INFORMATION

2.1 Scanner Introduction





2.2 Scanner Button Description

Button	Scanner Feedback	Indicator light feedback
▶|	Press once to start scanning; press again to pause scanning; press for ≥3S to end scanning. Double-click to switch between 7-line laser or 22-line crossed laser.	The middle indicator light flashes once
	Press once to increase the laser brightness by one level in laser line mode and the IR camera exposure by one level in infrared mode .	/
	Press once to reduce the laser brightness by one level in laser line mode and reduce the IR camera exposure by one level in infrared mode .	/
	Short press once to zoom in one level.	/
	Short press once to reduce the view by one level.	/

*When the distance indicator starts flashing during scanning, it means that the scanning tracking is lost and the scanner needs to return to the scanned area to re-track.

*When the device is in standby mode, the indicator light will enter a breathing state to save power.

2.3 Indicator light Instructions

Indicator light with color	Status or Meaning	Reference Color
Green steady	The device is operating normally or the scanning distance is appropriate	
Red and flashing	The device is in an abnormal state	
Yellow and flashing	The device is in upgrade state	
Orange red long light	Scanning distance is too close	
Orange solid	Scanning distance is short	
Light blue solid	Longer scanning distance	
Dark blue solid	Scanning distance is too far	

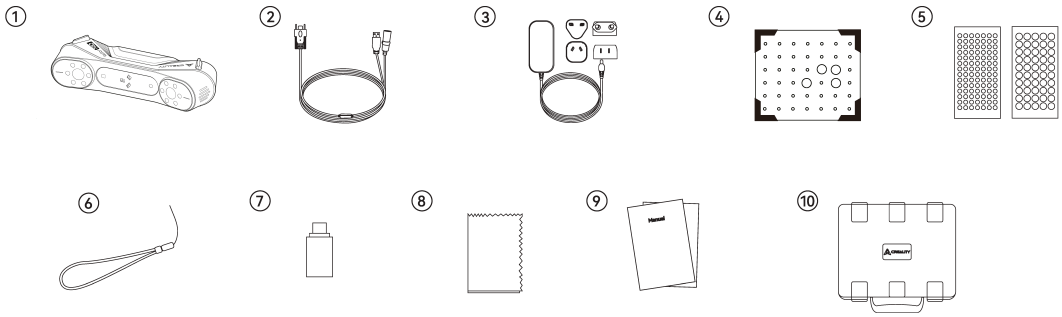
3. 3D SCANNER PRODUCT PARAMETERS

Creality Raptor Pro			
Working mode	Blue 7 parallel laser lines	Blue 22 crossed laser lines	Infrared binocular structured light
Accuracy	Maximum 0.02mm[1]		Maximum 0.075mm
Volumetric accuracy	0.02mm+0.08mm/m		0.075+0.1mm/m
Scan rate	420,000 points/second	660,000 points/second	3,580,000 points/second
Resolution	0.05mm-2mm		0.1mm-2mm
Scan speed	Up to 60fps		Up to 30fps
Part size (minimum)	5mm x 5mm x 5mm		150mm x 150mm x 150mm
Scanning area	270mmx170mm@300mm	270mm x 170mm@300mm 341mm x 232mm@400mm 397mm x 290mm@500mm	630mm×550mm@1000mm
Working distance	160mm-400mm	200mm-550mm	170mm-1000mm

Color Map	Support		
Tracking mode	Marker/Global Marker		Marker/Geometry/Texture
3D imaging camera resolution	1920x1200		
RGB color supplemental light	12 white LEDs		
Outdoor Scanning	50,000 lux or less	100,000 lux or less	30,000 lux or less
Marker recognition enhancement	12 blue LEDs		
Laser class	Class I (eye safe)	Class II (eye safe)	Class I (eye safe)
Button	Mechanical		
IMU	Support		
Output Formats	OBJ/STL/PLY		
Input Power	12V 2A		

Connection standard	Type C/USB3.0
Dimensions	215mm×50mm×74mm
Weight	403g
Calibration plate	High Precision Glass Calibration Plate
Wireless Scanning	Support (requires accessories)
System Support	Windows/macOS
Operating temperature range	-10℃ to 40℃
Operating humidity range	10-90%RH
[1] Accuracy is evaluated in laboratory conditions and actual results may be affected by operating environments such as temperature, vibration, and other factors.	

4. PACKING LIST

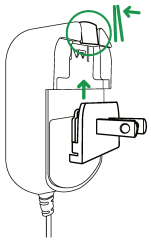


1. Raptor Pro 3D Scanner	6. Lanyard
2. USB 3.0 data cable (Type-C/Type-A)	7. Type-C adapter
3. Adapter + adapter	8. Cleaning cloth
4. High-precision glass calibration plate	9. Instruction manual, Certificate & Warranty Card
5. Reflective markers (D6mm, D3mm)	10. Waterproof box

5. DEVICE CONNECTION

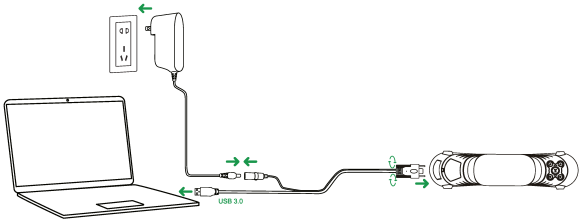
5.1 Adapter installation and connection

The user selects the appropriate adapter head according to the country they are in, then presses the adapter lock and pushes the selected adapter head upwards. The specific operation is as shown in the figure below:



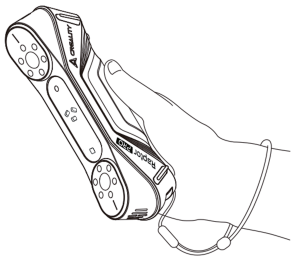
5.2 Device Connection

(1) Insert the Type-C port of the data cable into the scanner and tighten the screws .
(2) Connect the DC power cable female end of the data cable to the DC male end of the adapter .
(3) Plug the Type-A port of the data cable into the USB 3.0 port of the computer .
(4) Plug the adapter into a power socket.
The specific operation is shown in the figure below:



5.3 Usage Notes

When using the device, tie the lanyard around your wrist (as shown below) to prevent the device from falling and causing damage.



6. CREALITY SCAN SOFTWARE SYSTEM OPERATION

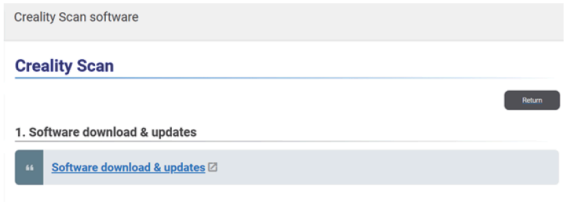
6.1 Creality Scan Software System Requirements

System requirements		
	It is recommended to use a computer with the following configuration or higher: i7-Gen 10 CPU, Nvidia graphics card (8 GB VRAM), 32 GB RAM Windows 10/11 (64bit) Minimum configuration: i7-Gen 7 CPU, Nvidia graphics card (6 GB VRAM), 16 GB RAM Windows 10/11 (64bit)	 Software Icon
	It is recommended to use M1 /M2/M3 series processors and 16GB memory	

6.2 Creality Scan software download and installation

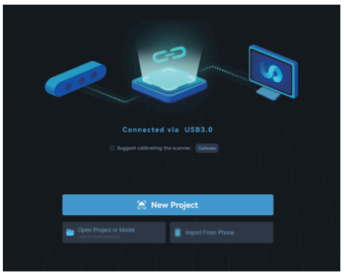
Scanner software download address: https://wiki.creality.com/en/software
Go to the official Creality Wiki software download page, click Creality Scan software, find the appropriate software version to download.

Note: After you have completed the software installation on your MAC, please authorize the 3D scanner to read and write files so that you can optimize the point cloud and generate a model when using the software.

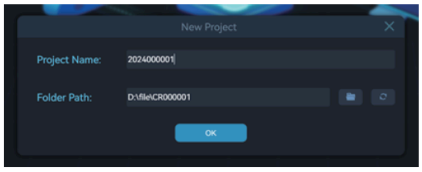


7. FIRST SCAN

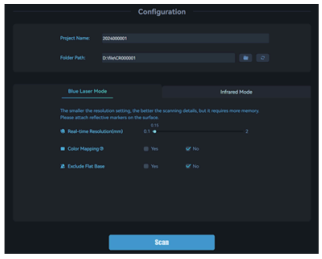
(1) Connect the device and open the installed Creality Scan software.
(2) Click [New Project] in the Creality Scan software , as shown below:



(3) Enter the project name in the pop-up bar, select the folder path, and then click the [OK] button, as shown below:



(4) Enter "Project name", select "Folder path", and select the scanning mode and related configuration items according to the characteristics of the scan object. Finally, click the [Scan] button to enter the scan preview interface, as shown below:



8. SCANNING STEPS

(1) Scan mode selection

If you need to scan the object with high precision and detail, please select the "Parallel Lines" mode in the " Laser Type ". In this case, you will need the assistance of marker points. When the object is small, you can stick the reflective mark on the table , and there is no need to stick the mark on the surface of the object . If the object is large, you can select the "cross line" mode in the " laser mode " , and you need to stick the markers on the surface of the object for high-speed scanning.

When scanning in laser mode, you need to select an appropriate resolution. The smaller the resolution, the finer the scanned model, but it will consume more memory and may also affect the scanning frame rate. If you want to scan the other side of the object, please use the multi-project merge function of the Creality Scan software to stitch the point clouds of multiple scans into a complete model.

The detail with " No Color" option is better than that with "Color" option in blue laser mode.

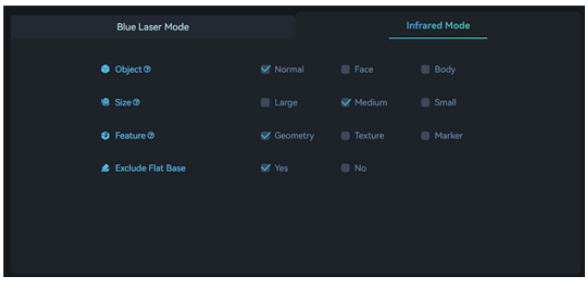
Infrared mode can be used to scan targets such as faces and bodies without the need to attach markers. Infrared scanning also supports texture mode and marker mode scanning.

For more information about Raptor Pro,

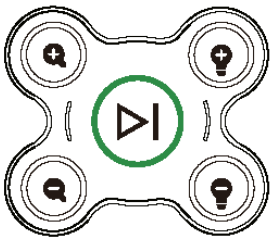
please visit: https://wiki.creality.com/3d-scanner

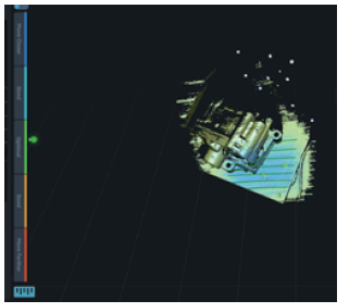
blue laser mode is as follows:

The reference configuration for infrared mode is as follows:

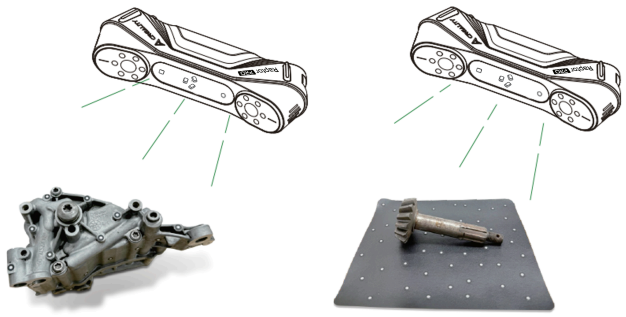


(2) Adjust the scanner and the scanned test piece to a suitable distance, that is, when the scanner indicator light is green (as shown in the right figure), or the distance indicator bar on the software interface is at the best, it means that it is at the best scanning distance.

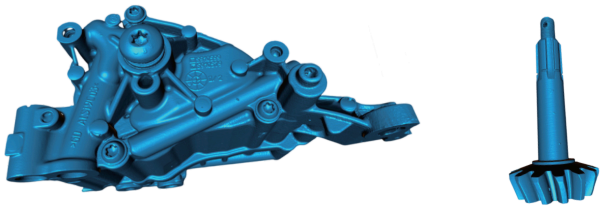




(3) Short press the button on the scanner , or click the button on the software interface , and keep the scanner pointed at the object to start scanning.



(4) Use the scanner to perform a 360° scan of the object. When the scan is completed, press and hold the scanner for more than 3 seconds , or click on the software interface to complete the scan. Perform post-processing in the Creality Scan software to obtain a complete 3D model (set the appropriate resolution). The effect is as shown below:



Note: The above button operations can also be performed in the Creality Scan software. For specific software operations, please visit: https://wiki.creality.com/3d-scanner.

9. FAQs

(1) How to get better model details?

① The laser line mode is more precise than the infrared mode;

② During the scanning process, adjust the exposure time of the IR camera to ensure moderate exposure; in the laser line mode , the laser intensity also needs to be adjusted;

③ Try to maintain the best distance;

④ When optimizing the point cloud, you need to set a smaller point distance; when the object size is small, the point distance can be set to 0.1mm (note that the smaller the point distance, the more memory and processing time will be consumed);

For more scanning tips, please visit: https://wiki.creality.com/3d-scanner

(2) How do I scan the bottom of an object?

① Creality Scan software provides the function of multi-project stitching, which can obtain a complete model of the object through multiple scanning and stitching;

② First scan the visible part to get a partial model, then flip the object over and continue scanning through repositioning to get the complete model (this method is only applicable when the marking points are attached to the surface of the object) .

(3) When do you need to use the marker mode?

Parallel line mode and cross line mode require reflective marking points;

Infrared mode: When the geometric features of the object surface are not rich, you can stick reflective markers on the surface of the object and scan it in marker mode.

(4) When can texture mode be used?

When the surface geometric features of an object are not rich but the texture is very rich (such as a vase), you can scan it directly using the texture mode.

(5) When is calibration required?

When the device is not used for a long time (such as a week), or before high-precision scanning is required, calibration should be completed .

(6) Can I use the calibration plate from other scanner models?

The calibration plate of other scanner models cannot be used. Each time you calibrate, you need to scan the QR code on the back of the calibration plate first, otherwise the calibration accuracy will be affected. Please keep the calibration plate properly.

(7) What precautions should be taken when storing calibration plates?

After each use, please carefully put the calibration plate back into the bag and keep it properly. Do not contaminate, scratch, or squeeze the calibration plate with heavy objects to avoid loss or damage of the calibration plate.

(8) How to perform calibration?

in the Creality Scan software and perform calibration according to the animation prompts.

(9) How to choose between global markers and local detail scanning?

For large objects, we recommend scanning the global markers first, followed by scanning the point cloud. Following this approach will result in higher scanning accuracy. For certain areas where we need better detail, we can utilize the Local Detail Scanning feature to scan those specific regions with a smaller resolution (for example, 0.2mm), capturing rich geometric details.

10. TROUBLESHOOTING

● **What to do if the system cannot recognize the scanner :**

Confirm that the device cables are properly connected;

If the device is connected correctly, try to reconnect the power cord to see if the scanner can be reconnected;

If it is still not connected, please connect the USB cable of the device first, then plug in the power cord.

● **The Win computer cannot connect to the scanner;**

If you are using a desktop computer, it is recommended to connect to the USB 3.0 port on the back of the host;

Confirm that you are using Windows 10/11 64bit system;

of the scanner software Creality Scan must be in an all-English path.

● **What to do if you can't see the preview video stream in the application on Windows system?**

Check whether the computer configuration meets the minimum configuration requirements of the scanner;

Check that the device is powered using the adapter that comes with the package and make sure it is connected properly;

Open Windows Device Manager and check in "Cameras" whether there is a camera related to " Raptor Pro ..." ;

Open Windows Settings - Privacy - Camera, confirm whether the system camera permission is turned on, and confirm whether the desktop application has permission to access the camera.

● **What should I do if I can't see the preview video on the Mac application?**

Check whether the computer configuration meets the minimum configuration requirements of the scanner;

Check that the device is powered using the adapter that comes with the package and make sure it is connected properly;

The scanner is updated to the latest firmware version;

Use a separate USB Type A to Thunderbolt or USB3 adapter. Try not to use a multi-function, multi-device USB C adapter.

Install Creality Scan directly in the App directory. Do not install it in a subdirectory under the App directory.

● **In Windows system, what should I do if the USB3.0 interface is recognized as USB2.0?**

You can try to quickly reinsert the USB cable, or first connect the USB cable to the USB 3.0 port on the PC, and then connect it to the USB type-C port on the scanner.

For more questions, please refer to the creality wiki : https://wiki.creality.com/en/3d-scanner

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Facebook Community
Discussion , sharing , and troubleshooting

Creality Wiki
The step-by-step guide to help you get started

CLASS 2 LASER PRODUCT

CAN ICES (B) / NMB (B)

FCC statements:
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.
NOTE: The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications or changes to this equipment. Such modifications or changes could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-Consult the dealer or an experienced radio/TV technician for help.

IC statements:
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.

Cet appareil est conforme avec Industrie Canada RSS exemptes de licence standard(s).
Son fonctionnement est soumis aux deux conditions suivantes:
(1) cet appareil ne peut pas provoquer d'interférences, et
(2) cet appareil doit accepter toute interférence, y compris celles pouvant causer un mauvais fonctionnement de l'appareil.

This Class B digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

CE: This product can be used across EU member states.