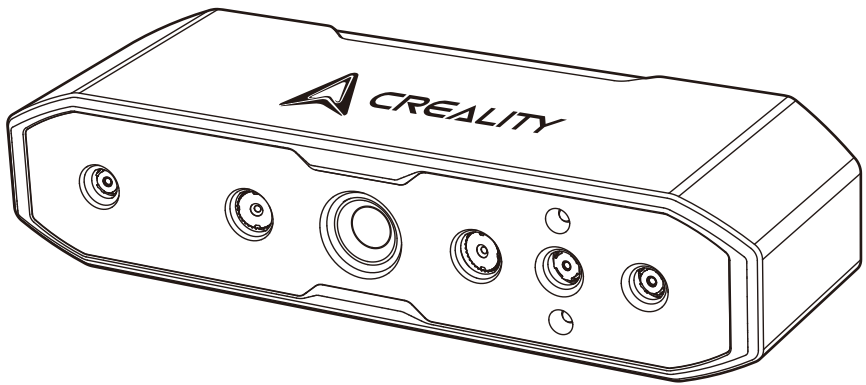
CREALITY



CR-SCAN OTTER

3D SCANNER

SMALL TO LARGE, SCAN IT, MAKE IT

Product Manual V1.0

01. Product Introduction

CR-Scan Otter is a high-precision, handheld, all-in-one 3D scanner compatible with scanning small, medium, and large objects. With a maximum accuracy of 0.02mm. From small screws to human bodies and large automotive components (10~2,000 mm^3), it can effortlessly scan objects of various sizes. The ability to adapt to objects of various sizes is achieved by its innovative four-eye stereoscopic vision design. This includes a set of large focal length binoculars and a set of short focus length binoculars. The former is used to capture the details of small and medium objects at close range; the latter has a larger FOV and is used to scan relatively large objects, to ensure stable tracking with minimal loss.

This scanner is equipped with a depth computing specialized chip independently developed by us, which ensures smooth scanning with a maximum frame rate of up to 20fps. Using unique single-frame 3D imaging technology, it has excellent anti-shake performance. Advanced DOE structured light projection technology enables 3D scanning even outdoors (≤ 30,000 lux). With professional-grade texture supplemental light, it can smoothly complete full-color scans even in low-light environments, and give objects exquisite and realistic textures.

The all-metal body provides excellent heat dissipation, with a fanless design ensuring noise-free operation. Equipped with touch buttons, interactive indicator lights, and audible buttons, it makes operation more convenient and effortless.

⚠ Since the 3D scanner is a high-precision device, please handle it with care and store it properly. Avoid collisions or drops to prevent a decrease in accuracy or damage.

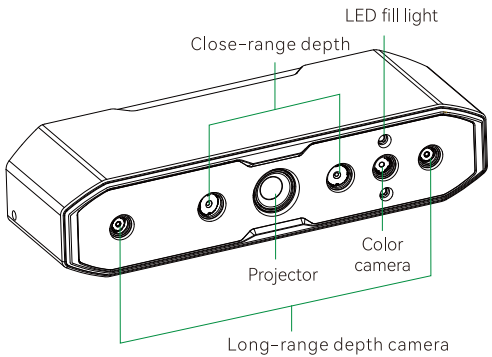
02. Product Specifications

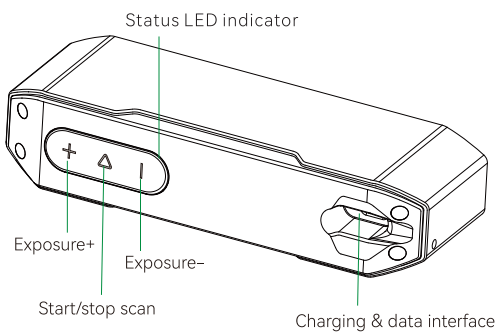
Accuracy	Up to 0.02mm @ 60mm[1]	IMU	YES	Operating humidity	0-90% RH
3D resolution	0.05-2mm	Color supplemental light	2 white LEDs	Input power	5V⎓3A
Scanning Frame rate	Up to 20fps	Marker recognition enhancement	8 infrared LEDs	Data interface	USB-C/USB3.0/USB2.0
Min. scan volume	10mm x 10mm x 10mm	Laser safety	Class I (eye safe))	Device dimensions	165mmx37mmx59mm
Single capture range	Max. 1350x840mm@1000mm	System support	Windows/macOS(*Wireless scanning accessories are required for iPhone iOS/Android)	Device weight	380g
Technology	Infrared structured light			Buttons	Touch
Working distance	110mm-1000mm	Wireless scanning	Supported in conjunction with future wireless scanning accessories	3D imaging camera resolution	1280x800
Color mapping	YES			Audible prompt	Yes
Alignment modes	Geometry/marker/texture	Operating temperature	-10℃ to 40℃	Calibration board	Yes
Output format	OBJ/STL/PLY				

[1] Accuracy is evaluated in laboratory conditions and actual results may be affected by operating environments such as temperature, vibration, and other factors.

03. Product Information

2.1 Equipment overview





2.2 Button instructions

Button	Scanner response	Audible response	LED indicator response
▷ Button	Short press once to start scanning; short press again to pause scanning; long press ≥3 seconds to end scanning.	Beep once	The middle LED indicator flashes once
+ button	Increase IR camera exposure time by one level	Beep once	The left side LED indicator flashes once
– button	Decrease IR camera exposure time by one level	Beep once	The right side LED indicator flashes once

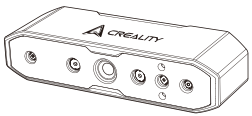
*Note: Audible response can be set to silent mode in the Creality Scan software.

2.3 LED indicator strip

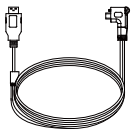
LED indicator strip color	Status or meaning	Reference color
Green	The device is operating normally or the scanning distance is moderate	
Red and flashing	The device is in an abnormal state	
Yellow and flashing	The device is in an upgrading state	
Orange-red	The scanning distance is too close	
Orange	The scanning distance is close	
Light blue	The scanning distance is far	
Dark blue	The scanning distance is too far	

*Note: When the distance LED indicator starts flashing during scanning, it indicates that scanning tracking is lost. The scanner needs to return to the previously scanned area to restore scanning stitching relationships.

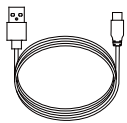
04. Packing List



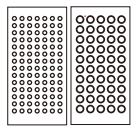
CR-Scan Otter 3D Scanner



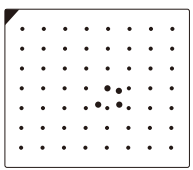
USB 3.0 data cable
(USB-C/USB-A, 2m)



USB 2.0 power cable
(USB-C/USB-A, 1.5m)



Reflective markers (Diameter: 6mm * 2,
Diameter: 3mm * 2)

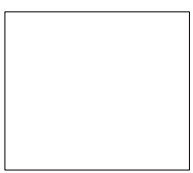


High-precision calibration board

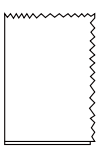
USB-C adapters * 2

Scanning test object (OWL)

Lanyard



Scanning pad (requires random
application of 3mm markers for use)

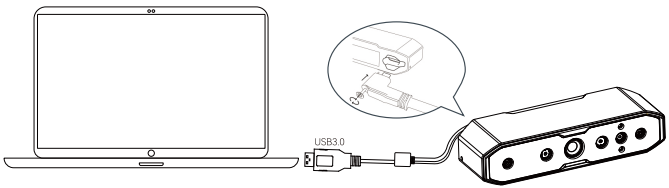


Cleaning cloth

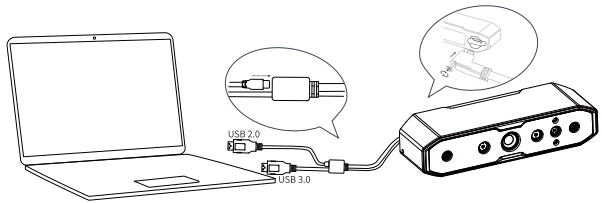
Quick start guide, certification
& warranty card

Portable case

05. Device Connection



Method 1: Connect to the computer's USB 3.0 port using the USB 3.0 data cable (USB 3.0 and above ports are generally blue or red)



Method 2: If the computer only has USB 2.0 ports or insufficient power supply from the USB 3.0 port, use the USB 2.0 power cable for auxiliary power. Connect the USB 2.0 cable to the middle port of the USB 3.0 (as shown in the figure), and the other side of the port can be simultaneously connected to another port on the computer or used with a 5V charger to provide auxiliary power to the scanner.

06. CealityScan Software System Operation

6.1 Software system requirements of Ceality Scan

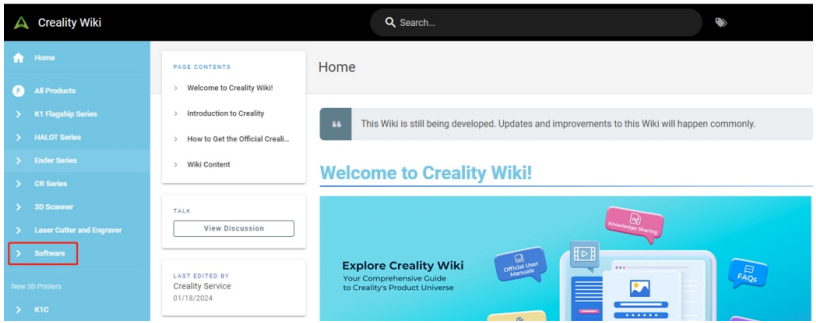
System requirements: Windows 10/11 (64 bit)
Configuration requirements
Recommended configuration: CPU i7-Gen7 and above, Nvidia or AMD graphics card, 16GB RAM or higher;
Minimum configuration: CPU i5-Gen8 and above, 8GB RAM or higher.

Recommended configuration
macOS: 11.7.7 and above (Big Sur/Monterey/Ventura)
CPU: Apple M1/M2/M3 series processors; RAM: 16GB or higher;
Minimum configuration
macOS: 10.15.7 and above (Catalina/Big Sur/Monterey/Ventura)
CPU: Intel processor (i5-Gen8 CPU and above); RAM: 8GB or higher.

6.2 Creality Scan software download and installation

Download link for Creality 3D Scanner Software: wiki.creality.com
Go to wiki.creality.com, click on [Software] –> [Creality Scan] to download the Creality scanning software and install it. Please ensure that the software version is 3.1.6 or higher to ensure the normal operation of the scanner.

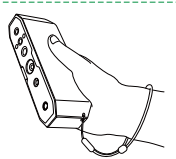
Note: After installing the Creality Scan software on MAC, please authorize the software to read and write files to optimize point clouds and generate models when using the software.



07. First Scan

1. Connect the scanner with reference to "**05 Device Connection**".

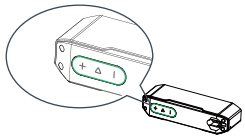
2. Note: During handheld scanning, to prevent the scanner from slipping out of hand and causing damage, you can attach one end of the provided lanyard to the scanner as shown in the figure, and loop the other end around your wrist.



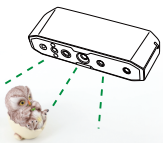
3. Open the installed Creality Scan software and perform the first scan experience with the included test object (OWL). Refer to the right table for scan parameters.

Object	☑ Normal	☐ Face	☐ Body
Size	☐ Large	☐ Middle	☑ Small
Feature	☑ Geometry	☐ Texture	
Accuracy	☐ Fast	☑ Hi-Quality	
Color Mapping	☑ Color	☐ No Color	
Turntable	☐ Yes	☑ No	

4. Ensure the scanning environment is clean and spacious. Adjust the scanner to an appropriate distance from the test object: when the scanner LED indicator is green or when the distance indicator on the left side of the software interface is optimal (green), it indicates the optimal scanning distance.



5. Press ▷ button on the scanner briefly, or click "Start Scan" on the software interface to initiate scanning. Move the scanner slowly and try to keep the test object in the center of the preview window above. Continue scanning until the model turns green.



6. When part of the scan is complete, you can click to pause, change the model orientation, and then click to resume scanning. After completing the scan, long-press on the scanner for more than 3 seconds, or click "Stop Scan" on the software interface to finish the scan.

3D模型

贴图效果

7. Data processing: Perform data processing in the Creality Scan software (one-click/step-by-step processing) to obtain a complete 3D model (recommended dot pitch setting: 0.1mm).

Note: For tutorials on scanning different objects and data processing, please scan the QR code on the right.

08. FAQs

- How to achieve better model details?
  ① Adjust the exposure time of the IR camera during scanning to ensure moderate exposure. Overexposure is shown as red, while underexposure is shown as blue.
  ② Try to maintain the optimal scanning distance. Generally, the closer the scanner is to the object without losing tracking, the better the details.
  ③ During point cloud optimization, use a smaller point distance: For example, when the object size is small, the point distance can be set to 0.1mm.
  ④ When meshing, ensure that the number of model faces is sufficiently large.
  For more scanning tips, please visit: https://wiki.creality.com/3d-scanner
- How to scan the bottom of an object?
  ① Creality Scan provides a multi-project merging feature, allowing you to obtain the complete model of an object through different orientation and merge together.
  ② Scan the visible part of the object first to obtain a partial model, pause the scan, then change the object's orientation, and continue tracking the previously scanned part to get the complete model.
- When do you need to use a scanning pad?
  When scanning smaller objects (such as wireless earbuds, medals, etc.), you can randomly place 3mm diameter marker points on the scanning pad and select the marker point mode for scanning.
- When do you need to use the USB 2.0 power cable?
  When the computer cannot connect to the scanner due to an insufficient power supply, you can use this charging cable to connect an external charger to power the scanner.
  When the scanner is connected to a computer's USB 3.0 port and has sufficient power supply without using a docking station, you generally do not need to connect an additional power cable.
- When do you need to use the marker point mode or texture mode?
  When the geometric features on the surface of the object are not prominent, you can apply the reflective marker points included in the package to the object and use the marker point mode for scanning. When the surface of the object has rich textures, you can directly use the texture mode for scanning.
- When is calibration necessary?
  Calibration is necessary when the device has not been used for a long time (such as 3 months), or when the device has been accidentally bumped.
  Note: The 3D scanner is a high-precision device, please handle it with care, and avoid collisions or drops to prevent damage or degradation to accuracy.
- Can calibration cards be swapped for each other?
  Each calibration card is unique and corresponds to each scanner. They cannot be swapped. When using a calibration board for the first time, it needs to be scanned once to bind to the scanner using the QR code on the back. Otherwise, it may affect calibration accuracy.
- What should be noted when storing calibration boards?
  After each use, please carefully store the calibration card to its original box for proper storage. Avoid contamination, scratching, or heavy pressure on the calibration card to prevent loss or damage.
- How to perform calibration?
  Connect the scanner to the computer, open the Creality Scan software, go to the [Device] interface, click on [Calibration], and perform calibration by following the animated instructions.

09. Troubleshooting

- The Win system computer cannot connect to the scanner;
  If using a desktop computer, it is recommended to connect to the USB 3.0 port on the back of the main unit (USB 3.0 and above ports are usually blue or red);
  Confirm that the system used is Windows 10/11 64-bit;
  The full installation paths for the scanner software Creality Scan must be in English.
- What to do if the preview is not visible in the application on the Win system;
  Use the provided charging cable to connect to a charger to ensure a normal power supply for the scanner;
  Open the Windows Device Manager and check if there is a "CR-Scan Otter..." related camera under "Cameras";
  Open Windows Settings-Privacy-Camera, confirm whether the system camera permission is turned on, and ensure that desktop applications have permission to access the camera.
- What to do if the preview is not visible in the application on the Mac system?
  Use the provided charging cable to connect to a charger to ensure a normal power supply for the scanner;
  Update the scanner to the latest firmware;
  Use a standalone adapter (the scanner comes with a USB-A to USB-C adapter), and avoid using multifunctional USB adapters whenever possible;
  Install Creality Scan directly in the computer's Applications directory. Avoid installation within subdirectories of the Applications directory.
- How to deal with USB 3.0 interface being recognized as USB 2.0 in the Windows system?
  You can try quickly reinserting the USB cable or first connect the USB 3.0 interface and then connect the scanner's USB-C interface.
  For further questions, please refer to the scanner wiki link:
  https://wiki.creality.com/en/3d-scanner/cr-scan-otter

Facebook Community
Discussion, sharing, and troubleshooting

Tutorials
Master the art of scanning!

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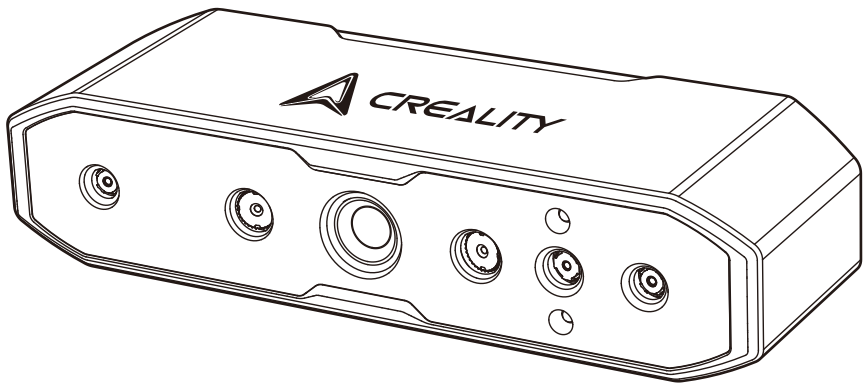
CREALITY



CR-SCAN OTTER

3D 扫描仪

SMALL TO LARGE, SCAN IT, MAKE IT

产品手册 V1.0

一、产品简介

CR-Scan Otter是一款能同时兼容小物体和中大型物体扫描的高精度手持式3D扫描仪，最高精度0.02mm。小到螺丝，大到整个人体、大型汽车零部件（10~2000 mm^3），都能轻松扫描。之所以具备适应各种尺寸物体的扫描能力，是因为采用了创新的四目立体视觉的设计。其中，包含一组大焦距双目和一组短焦距的双目。前者用于在近距离捕获中小型物体的细节；后者具有更 大的FOV，用于扫描相对大型的物体，跟踪稳定不易丢失。

此款扫描仪搭载了公司自主研发的深度计算专用芯片，扫描流畅，最高帧率可达20fps。采用独特的单帧3D成像技术，具有优良的防抖性能。先进的DOE结构光投射技术，在户外也能实现3D扫描(≤30000 lux）。借助专业级纹理补光灯，即使在暗光环境下，也能轻松流畅地完成全彩扫描，并赋予对象细腻逼真的贴图。

全金属外壳，散热良好，无风扇设计，无噪音。配备灵敏的触控式按键、交互指示灯和按键提示音设计，操作更加轻松自如。

⚠ 3D 扫描仪为高精度设备，请轻拿轻放，妥善保存。请勿碰撞或跌落，以免造成精度下降或损坏。

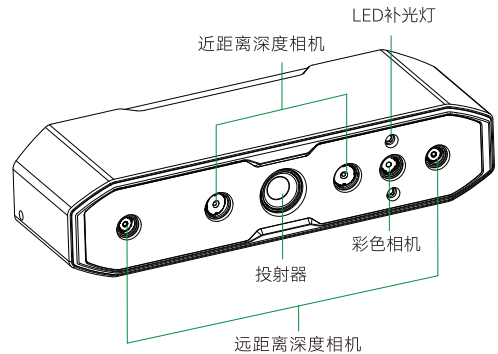
二、产品参数

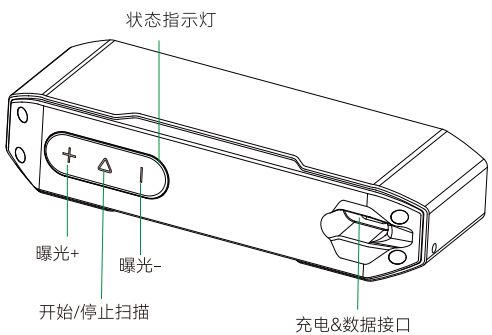
精度	精确至 0.02mm@ 60mm[1]	IMU	支持	工作湿度	0-90% RH
点距	0.05-2mm	RGB色彩补光灯	2颗白色LED	输入电源	5V⎓3A
扫描帧率	高达20fps	标志点补光灯	8颗红外LED	数据接口	USB-C/USB3.0/USB2.0
最小扫描体积	10mm x 10mm x 10mm	激光安全	Class I (人眼安全)	产品尺寸	165mmx37mmx59mm
单次捕捉范围	最大 1350x840mm@1000mm	系统支持	Win/MAC（*iOS/Android	产品重量	380g
原理	红外结构光		需要无线扫描配件）	按键	触摸式
工作距离	110mm-1000mm	无线扫描	支持（需配合配件使用）	3D成像相机分辨率	1280x800
色彩贴图	支持			提示音	支持
幅面	几何/标志点/纹理	工作温度	-10°C to 40°C	标定板	支持
输出格式	OBJ/STL/PLY				

[1] 精度是在实验室条件下评估的，实际结果可能会受到操作环境(例如温度、振动和其它因素)的影响。

三、产品信息

2.1设备简介





2.2 按键说明

按键	扫描仪反馈	提示音反馈	指示灯反馈
▷键	短触一次，开始扫描；再短触一次，暂停扫描；长触≥3S，结束扫描。	响一声	中间指示灯闪烁一次
+ 键	IR相机曝光时间增强一级	响一声	左半边指示灯闪烁一次
- 键	IR相机曝光时间减弱一级	响一声	右半边指示灯闪烁一次

注：提示音反馈可以在Creality Scan软件中设置为静音模式。

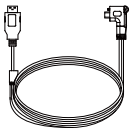
2.3 指示灯带说明

指示灯带颜色	状态或含义	参考颜色
绿色	设备正常运行或扫描距离适中	
红色并闪烁	设备处于异常状态	
黄色并闪烁	设备处于升级状态	
橙红色	扫描距离过近	
橙色	扫描距离较近	
浅蓝色	扫描距离较远	
深蓝色	扫描距离过远	

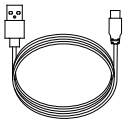
*注：当在扫描中，距离指示灯开始闪烁时，意味着扫描跟踪丢失，需要扫描仪重新回到已经扫描过的区域，恢复扫描拼接关系。

四、装箱清单

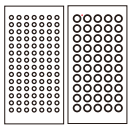
CR-Scan Otter 3D扫描仪



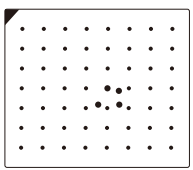
USB3.0数据线(USB-C/USB-A 2m)



USB2.0供电线(USB-C/USB-A 1.5m)



反光标志点（D6mm*2张，D3mm*2张）

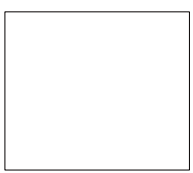


高精度标定板

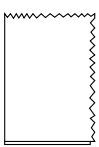
USB-C转接头*2

扫描测试件(猫头鹰)

挂绳



扫描垫（需随机粘贴3mm标志点进行使用）

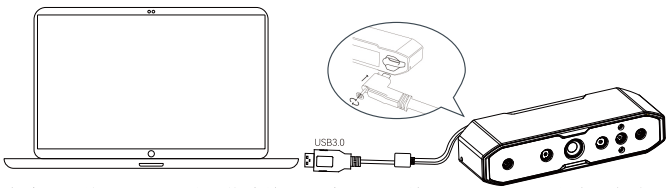


清洁布

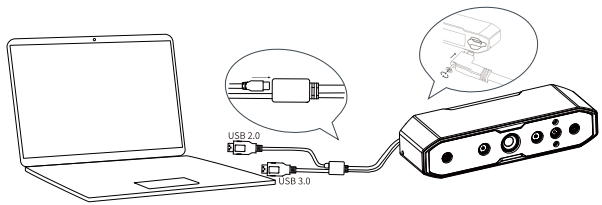
快速操作指南 合格证&保修卡

便携包

五、连接设备



方式一：使用USB3.0数据线连接到电脑USB3.0接口（USB 3.0及以上一般为蓝色/红色端口）。



方式二：当电脑只有USB2.0接口或USB3.0接口供电不足时，需使用USB2.0供电线 辅助供电。将USB 2.0的线连接至USB3.0中间的接口（如图所示），端口另一侧可同步连接电脑的另一个端口或使用5V充电器为扫描仪辅助供电。

六、Creality Scan软件系统操作

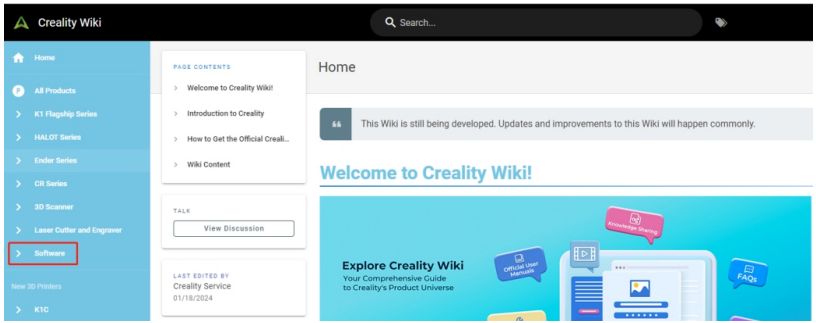
6.1 Ceality Scan软件系统要求

系统要求：Windows 10/11 (64 bit)
配置要求
推荐配置：CPU i7-Gen7 及以上，Nvidia显卡，内存16GB及以上；
最低配置：CPU i5-Gen8及以上，内存8G及以上。

推荐配置
macOS: 11.7.7及以上(Big Sur/Monterey/Ventura)
CPU: 苹果M1/M2 /M3系列处理器；内存：16G及以上；
最低配置
macOS: 10.15.7及以上 (Catalina/Big Sur/Monterey/Ventura)
CPU: Intel处理器（i5-Gen8 CPU及以上）；内存：8G及以上。

6.2 Creality Scan软件下载及安装

创想三维扫描仪电脑软件下载地址：wiki.creality.com，
进入创想wiki站点wiki.creality.com，点击【Software】
->【Creality Scan】下载创想扫描软件并进行安装。
请确保软件版本为3.1.6及以上，以确保扫描仪正常工作。

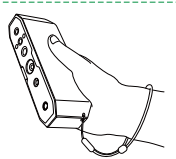


注意：在MAC上完成Creality Scan软件安装后，
请授权本软件读写文件的权限，以使用该软件时
优化点云并生成模型。

七、首次扫描

1. 参考“**五、连接设备**”连接好扫描仪。

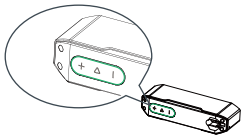
2. 注意，在手持扫描过程中，为防止扫描仪从手中滑落，导致扫描仪损坏，
可将赠送的挂绳如图所示一端固定在扫描仪上，另一端套在手腕上，如图所示。



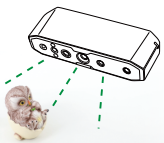
3. 打开安装好的CrealityScan软件，可扫描随包附带的测试件（猫头鹰）
进行首次扫描体验，扫描参数参考右表配置。

Object	☑ Normal	☐ Face	☐ Body
Size	☐ Large	☐ Middle	☑ Small
Feature	☑ Geometry	☐ Texture	
Accuracy	☐ Fast	☑ Hi-Quality	
Color Mapping	☑ Color	☐ No Color	
Turntable	☐ Yes	☑ No	

4. 保证扫描环境干净空旷，调整好扫描仪到扫描测试件到合适距离：
扫描仪指示灯为绿色时或软件界面左侧距离指示条处于最佳（绿色）时，
表示此时处于最佳扫描距离。



5. 在扫描仪上短按 ▷ 按键，或在软件界面点击“开始扫描”以启动扫描，
缓慢移动扫描仪并尽量保证测试件在上方预览窗中间，持续扫描直至
模型为绿色。



6.当一部分扫描完成时，可点击暂停，更换模型角度后点继续扫描。
扫描完成后可在扫描仪上长按 超过3S，或在软件界面点击“停止扫描”，
即可完成扫描。

3D模型

贴图效果

7.数据处理：在Creality Scan 软件进行数据处理（一键处理/分步处理）
即可得到完整的3D模型（点距建议设为0.1mm）。

注：如需查看不同物体扫描及数据处理教程，请扫描侧图二维码。

八、常见问题

- 如何得到更好的模型细节?

  ① 扫描过程中，调节IR相机曝光时间，使得曝光适中。过曝为红色，曝光不足为蓝色。

  ② 尽量保持最佳扫描距离。在跟踪不丢失的情况下，通常扫描仪离物体越近细节越好。

  ③ 在点云优化时，需要设置较小的点距：例，当物体尺寸较小时，点距可以设到0.1mm。

  ④ 构网时，模型的面片数要设的足够大。

  了解更多的扫描技巧，请访问：https://wiki.creality.com/3d-scanner

- 如何扫描物体的底部?

  ① Creality Scan提供了多工程拼接的功能，可以通过多次扫描、拼接的方式，得到物体的完整模型;

  ② 先扫描可见部分得到部分模型，暂停扫描，然后翻转物体，通过重新扫描之前扫描过的部分继续追踪扫描，以得到完整的模型。

- 什么情况下需要使用扫描垫?

  当扫描较小的物体（如无线耳机、勋章等）时，可以在扫描垫上随机贴上直径3mm标记点，选择标记点模式进行扫描。

- 什么情况下需要接USB2.0供电线?

  当电脑因供电不足连接不上扫描仪时，可以用此充电线外接充电器给扫描仪供电;

  当扫描仪连接至电脑USB3.0接口时，且供电充足，没有通过扩展坞，一般不需要额外接充电线的。

- 什么情况需要用标记点模式或纹理模式?

  当物体表面几何特征不丰富时，可以在物体粘贴随包附带的反光标记点，用标记点模式进行扫描。当物体表面纹理丰富时，可以直接 用纹理模式进行扫描。

- 什么情况下需要标定?

  当长时间不用（比如3个月），或设备误碰撞时需要标定。

  注：3D扫描仪为高精度设备，请妥善保存，轻拿轻放，请勿碰撞或跌落，以免造成精度下降或损坏。

- 标定板可以互相换着使用吗?

  每块标定板唯一并对应每台扫描仪，不能随意互换使用，第一次使用时，需要先扫描一次标定板背面的二维码进行绑定，否则会影响标定精度。

- 标定板储存有什么注意事项?

  每次使用完标定板后，请小心放回箱包内妥善保管好，切勿污染，划伤，重物挤压标定板，避免标定板遗失或损坏。

- 如何进行标定?

  连接扫描仪至电脑，打开Creality Scan软件进入【设备】界面，点击【标定】并按照动画提示进行标定即可。

九、常见问题

- Win系统电脑连接不到扫描仪；
  如使用台式机，建议连接到主机背面的USB 3.0接口上（USB3.0及以上接口通常为蓝色/红色）；
  确认使用windows 10/11 64bit的系统；
  扫描仪软件Creality Scan安装路径必须为全英文的路径下。
- 在win系统上的应用中看不到预览视频流怎么办？
  用赠送的充电线外接一个充电器，确保扫描仪供电正常；
  打开windows 设备管理器，在“Cameras”中查看是否有“CR-Scan Otter...”相关相机；
  打开windows设置 - 隐私 - 相机，确认系统相机权限是否已打开，确认桌面应用是否有权限可以访问相机。
- 在Mac系统的应用上看不到预览视频怎么办？
  用赠送的充电线外接一个充电器，确保扫描仪供电正常；
  扫描仪更新到最新固件版本；
  使用独立的转接头（扫描仪随包附带USB-A转USB-C转接头），请尽量不要使用多功能多设备的USB转接器；
  将CrealityScan直接安装在电脑应用程序目录下，请不要安装在应用程序目录下的子目录内。
- 在win系统中，使用 USB3.0 接口被识别为USB2.0该怎么处理？
  可尝试重新快速地插入USB线，或者先连接USB3.0接口，再接入扫描仪的USB-C接口。
  其他更多问题请参考扫描仪wiki链接
  https://wiki.creality.com/en/3d-scanner/cr-scan-otter

手把手教程

深圳市创想三维科技股份有限公司

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WARRANTY

Name: _____ Telephone: _____

Address: _____ E-mail: _____

Serial Number: _____ Order Number: _____

Channel: Platform ☐ Offline ☐ Repair ☐ Change ☐ Return ☐

Date of purchase Day Mon. Year

Malfunction And Damage Depiction Or Return And Change Reasons\Suggestions: _____

_____

Repair Records: _____

_____

Before returning the product and filling in a warranty, please contact after-sale person for going through after-sale formality. And attach this warranty card along with the returned machine.
Note: Client need filling in basic info. and return reasons. Repair records shall retain for technicians.

产品保修卡

客户名称：_____ 联系电话：_____

收件地址：_____ 电子邮箱：_____

机器制造编码：_____ 订单编号：_____

购买渠道：电商平台 ☐ 线下 ☐ 返修 ☐ 换货 ☐ 退货 ☐

购买日期： 年 月 日

故障描述或退、换货原因和建议：_____

_____

维修情况记录：_____

_____

产品寄回前请先联系售后专员，为正常进行售后处理，请务必填写此卡，并随机器寄回。

温馨提示：基本信息及返厂原因为客户必填项，维修情况记录部分为维修人员填写项

www.creality.com