Otter Lite User Manual

1. Prouduct Introduction

01 PRODUCT INTRODUCTION

Creality Otter Lite is a high-precision, handheld, all-in-one 3D scanner compatible with scanning small, medium and large objects, with a maximum accuracy of 0.05mm. From small screws to large human bodies and large automotive parts ($20mm^3$~$2000mm^3$) , it can effortlessly scan objects of various size. The ability to adapt 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 objects at close range; the latter has a larger FOV and is used to scan medium and 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 30fps. 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 fill light, it can smoothly complete full-color scans even in low light environments, and give objects exquisite and realistic textures.

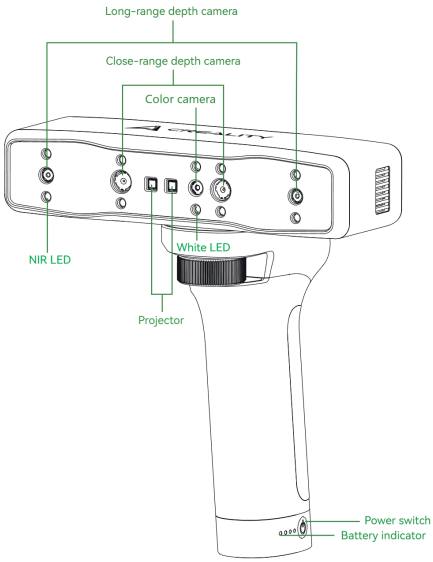
In addition, Otter Lite has a built-in wireless Wi-Fi module, and when used with the battery handle Lite Bridge, scanning can be freed from the constraints of cables . When scanning wirelessly, a mobile phone can be used as the scanner screen, making the scanning process easier and more convenient.

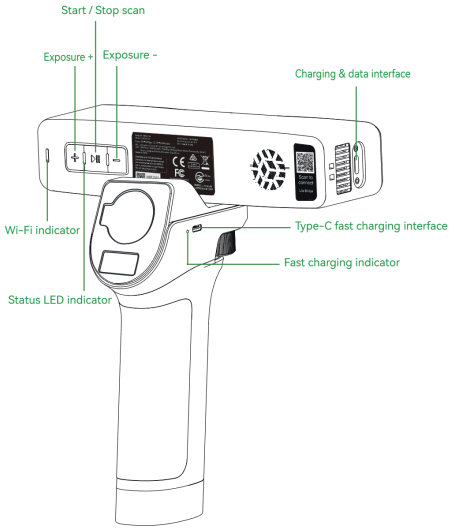
⚠ Since the 3D scanner is a high-precision device, please handle it with care and store it properly. Avoid collisions or drops to prevent a decrease in accuracy or damage.

2. Prouduct Information

02 PRODUCT INFORMATION

2.1 3D Scanner Overview





2.2 3D Scanner Button Description

Button	Scanner Feedback
▶||	Press once to start scanning; press again to pause scanning; long press for ≥ 2 seconds to end scanning.
+	IR camera exposure time increased by 10%
−	IR camera exposure time reduced by 10%

2.3 Lite Bridge Button Description

Button	Scanner Feedback
⏻	Press once to turn on the power; press for more than 2 seconds to turn off the power.
▬	The Type-C charging port can be used to charge the Lite Bridge and supports up to 20W fast charging.

Battery Indicator	Indicator Light Feedback
	All four lights are on, indicating that the current power level is between 75% and 100%.
	3 lights on means the current power level is between 50% and 74%
	Two lights on means the current power level is between 25% and 49%.
	One light on means the current power level is 5% -24%
	When the first light flashes, it means the current power is less than 5%. It is recommended to charge the scanner as soon as possible .
Fast Charging Indicator Light	**Indicator Light Feedback**
	The blue light will be on only when the Lite Bridge enters the fast charging state. It will be off if it does not enter the fast charging state.

2.4 Indicator Strip

Button Indicator Light	Status or Meaning	Reference Color
Green	The device is operating normally, the scanning distance is appropriate, or the device firmware upgrade is successful.	+ ▶|| −
Red and flashing	The device is in an abnormal state	+ ▶|| −
Yellow and flashing	The device is in upgrade state	+ ▶|| −
Orange Red	Scanning distance is too close	+ ▶|| −
Orange color	Scanning distance is short	+ ▶|| −
Light Blue	Longer scanning distance	+ ▶|| −
Dark Blue	Scanning distance is too far	+ ▶|| −

*Note: 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 restore the scanning stitching relationship.

Wi-Fi Indicator	Status or Meaning	Reference Color
Blue	When the device is starting up normally, the blue light will stay on; when the device is finished starting up, the blue light will flash .	
Green	When the Wifi connection is successful and communication with the software is achieved, the green light will be on .	
Red	When Wi-Fi is abnormal or the upgrade is abnormal, the red light will be on .	
Yellow	When the OTA upgrade is in progress, the yellow light is on .	

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

3. Proudct Specifications

03 PRODUCT SPECIFICATIONS

3.1 3D Scanner Product Parameters

Product name	Creality Otter Lite
Model	CRS10COL
Scanning mode	NIR(infrared binocular structured light)
Accuracy	0.05mm@100mm[1]
Resolution	0.1-2mm
Scanning frame rate	Up to 30fps
Min.scan volume	20mm x 20mm x 20mm
Single capture range	Close range mode 100mm*62mm@120mm 160mm*130mm@250mm Long range mode 352mm*254mm@300mm 788mm*509mm@600mm 1460mm*1017mm@1200mm
Working distance	120mm-1200mm
Color mapping	Yes
Alignment mode	Marker/geometry/texture
Output format	OBJ/STL/PLY
IMU	Yes
Marker recognition enhancement	8 Infrared LEDs
Color supplemental light	2 White LEDs
Laser safety	Class I (eye safe)
Weight	301g
Size	173mm*39mm*56mm
Calibration board	High precision calibration board
Wireless scanning	Yes
Protocols	Wi-Fi 6, downward compatibility
Wi-Fi bands	5GHz/5180-5240MHz/5190-5230MHz/5210MHz/5260-5320MHz 5270-5310MHz/5290MHz/5500-5700MHz/5510-5670MHz/5530-5610MHz
Maximum Transmit Power	16.65dBm
Data transfer rate	Up to 30fps
System support	Windows/macOS
Data interface	Type-C/USB3.0/USB2.0
Input power	USB3.0 5V 3A WiFi 12V 2A
Operating temperature	-10°C to 40°C
Operating humidity	10-90%RH

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

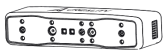
3.2 Lite Bridge Parameters

Product name	Lite Bridge
Model	CRP15LB
Battery type	Lithium battery
Battery energy (rated)	24.82Wh
Battery capacity (rated)	3400mAh (2 cells)
Fast charge power	20W MAX[1]
Fast charge protocol	PD3.0/QC3.0/UFCS/SCP/AFC
Charger port	Type-C
Smart phone holder	Magnetic
Power switch	Mechanical
size	168mm*93mm*46mm
weight	286g
Operating temperature	-10°C to 40°C
Operating humidity	10-90%RH

[1] The actual charging power is affected by the controller battery level, the environment and controller battery temperature, as well as the external charging cable and charging head.

4. Packing List

04 PACKING LIST

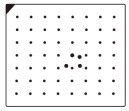


Creality Otter Lite 3Dscanner *1

Lite Bridge * 1

USB3.0 data cable (USB-C / USB-A 2m) * 1

USB2.0 power cable & Lite Bridge charging cable (USB-C/USB-A 1.5m) *1



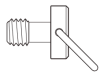
High-precision calibration board *1

Turntable * 1

Scanning test object (OWL) *1

USB-C adaptor *2

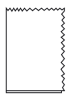
Reflective markers (Diameter: 6mm*10, Diameter: 3mm*10)



Screw *1

Magnetic phone holder * 1

Quick guide & Certification & Warranty card * 1



Cleaning cloth * 1

Lanyard *1

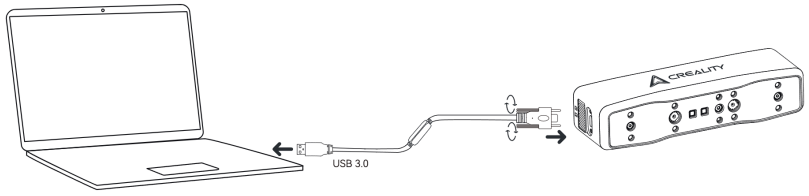
Portable case *1

5. Device connection

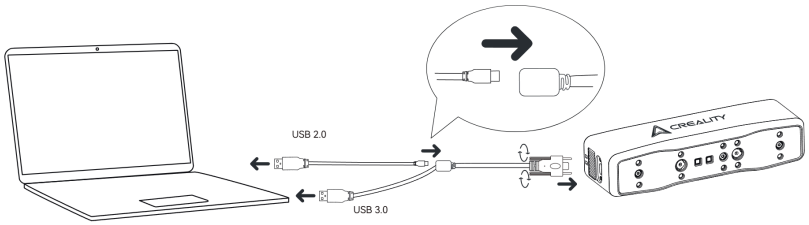
05 DEVICE CONNECTION

5.1 Wired connection

Method 1: Connect to the computer's USB 3.0 port using the USB 3.0 data cable.



Method 2: If the computer only has USB2.0 port or insufficient power supply from the USB3.0 port, use the USB2.0 power cable for auxiliary power.
Connect the USB2.0 cable to the middle port to the USB3.0(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 .



Wireless scanning:
https://wiki.creality.com/en/3d-scanner/otter-series/otter-lite/wireless-scan
Note: The firmware upgrade by OTA and local files is not suppotrted by the CrealityScan on smartphone

6. Software System Operation

06 SOFTWARE SYSTEM OPERATION

6.1 Ceality Scan Software System Requirements

System requirements		
	System requiremens: Windows 10/11 (64bit) Configuration requirements Recommended configuration: CPU i7-Gen7 and above, Nvidia or AMD graphic 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/M4 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 Download and install Creality Scan software

Scanner software download address: https://www.crealitycloud.com/downloads/software/creality-scan

Go to the official Creality Scan software download page and 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.

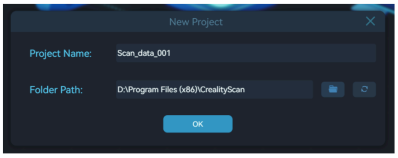
7. First Scan Guide

07 FIRST SCAN

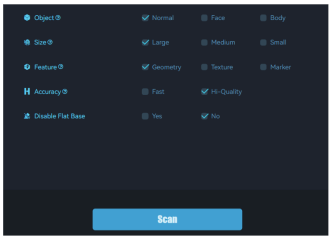
7.1 Create a new scan project

1. Connect the device and open the installed Creality Scan software.
2. In Creality Scan, Click "New Project", 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:

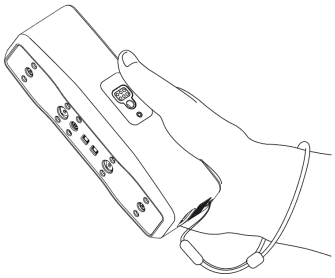


4. Enter the "Project Name", select the "Folder Path", and select the scanning mode and related configuration items according to the characteristics of the scan object. Finally, click the "Scan" button to enter the scan preview interface, as shown below:

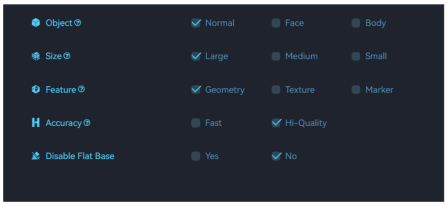


7.2 Scanning steps (taking the test piece as an example)

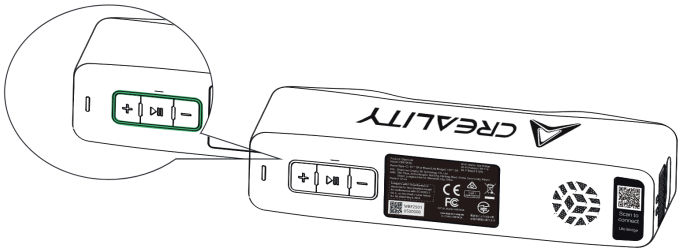
1. Note: During handheld scanning , to prevent the scanner from slipping out of your hand and causing damage to the scanner , you can fix one end of the free lanyard to the scanner and put the other end around your wrist, as shown in the figure.



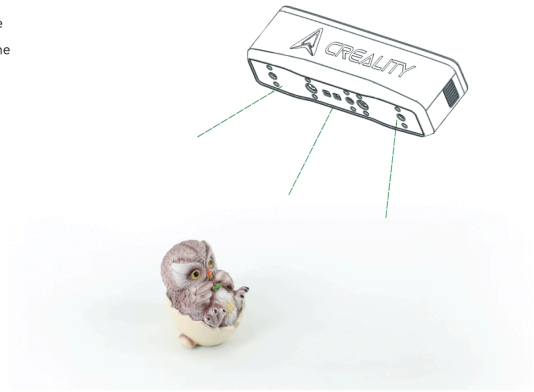
2. Launch the installed Creality Scan software can scan the test piece (owl) included in the package for the first scanning experience. The scanning parameters are configured as shown in the figure below:



3. Ensure that the scanning environment is clean and open, and adjust the scanner and the scanned test piece to an appropriate distance. That is, when the scanner indicator light is green, or the distance indicator bar on the software interface is at the optimal (green) position, it indicates that the scanning distance is optimal.



4. Short press ▶|| on the scanner , or click "Start Scan" on the software interface to start scanning. Move the scanner slowly and try to keep the test piece in the center of the software preview window. Continue scanning until the model color turns green .



5. When a part of the scan is completed, you can click ▶|| to pause, change the model angle and click Continue Scan. The scan will be completed if it takes more than 2 seconds or you click "Complete Scan" on the software.

6. Data processing: Perform data processing (one-click processing/step-by-step processing) in the Creality Scan software to obtain a complete 3D model (the point pitch is recommended to be set to 0.1mm). The effect is as follows:

3D model

Color mapping

Note: To view tutorials on scanning and processing different objects, please scan the QR code below.

8. FAQ & Troubleshooting

https://wiki.creality.com//3d-scanner/otter-series/otter-lite/faq-troubleshooting

FCC compliance statement
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.
changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
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.

ISED compliance statement
This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:
(1) This device may not cause interference.
(2) This device must accept any interference, including interference that may cause undesired operation of the device.
L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :
(1) L'appareil ne doit pas produire de brouillage;
(2) L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

FCC SAR statement
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End user must follow the specific operating instructions for satisfying RF exposure compliance. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
The portable device is designed to meet the requirements for exposure to radio waves established by the Federal Communications Commission (USA). These requirements set a SAR limit of 4W/kg averaged per ten gram of tissue. The highest SAR value reported under this standard during product certification for use when properly worn on the limbs.

CE SAR
This equipment complies with Directive 2014/53/EU radiation exposure limits set forth for an uncontrolled environment. End user must follow the specific operating instructions for satisfying RF exposure compliance. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
The portable device is designed to meet the requirements for exposure to radio waves established by European Union market(France). These requirements set a SAR limit of 4W/kg averaged over ten gram of tissue. The highest SAR value 1.83W/kg reported under this standard during product certification for use when properly worn on the limbs.

ISED SAR statement
This equipment complies with ISED radiation exposure limits set forth for an uncontrolled environment. End user must follow the specific operating instructions for satisfying RF exposure compliance. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
The portable device is designed to meet the requirements for exposure to radio waves established by the ISED. These requirements set a SAR limit of 4W/kg averaged per ten gram of tissue. The highest SAR value reported under this standard during product certification for use when properly worn on the limbs.
Cet équipement est conforme aux limites d'exposition aux rayonnements ISED établies pour un environnement non contrôlé. L'utilisateur final doit suivre les instructions spécifiques pour satisfaire les normes. Cet émetteur ne doit pas être co-implanté ou fonctionner en conjonction avec toute autre antenne ou transmetteur.
Le dispositif portatif est conçu pour répondre aux exigences d'exposition aux ondes radio établie par le développement énergétique DURABLE. Ces exigences fixent une limite de DAS de 4 W/kg en moyenne pour dix grammes de tissu. Lors de la certification du produit, la valeur SAR la plus élevée rapportée conformément à cette norme lorsqu'elle est correctement portée sur les membres.
The user manual for LE-LAN devices shall contain instructions related to the restrictions mentioned in the above sections, namely that:
a. the device for operation in the band 5150–5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems;
b. les dispositifs fonctionnant dans la bande 5150–5250 MHz sont réservés uniquement pour uneutilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux;
Hereby,[Shenzhen Creality 3D Technology CO., LTD] declares that the radio equipment type [Creality Otter Lite] is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet adress: www.creality.com
The functions of Wireless Access Systems including Radio Local Area Networks(WAS/RLANs) within the band 5150–5350 MHz for this device are restricted to indoor use only within European Union countries(BE/BG/CZ/DK/DE/EE/IE/EL/ES/FR/HR/IT/CY/LV/LT/LU/HU/MT/NL/AT/PL/PT/RO/SI/SK/FI/SE/TR/N O/CH/IS/LI/UK(NI)
Replacement of a battery with an incorrect type that can defeat a safeguard (for example, in the case of some lithium battery types); disposal of a battery into fire or a hot oven, or mechanically crushing or cutting of a battery, that can result in an explosion; leaving a battery in an extremely high temperature surrounding environment that can result in an explosion or the leakage of flammable liquid or gas;and a battery subjected to extremely low air pressure that may result in an explosion or the leakage of lasmmable liquid or gas.

Information for CE-RED
Supports Wi-Fi functionality, enabled by default upon startup.
Port 22 is open by default for SSH service.
Port 53 is open by default for DNS service.
Ports 80 and 3517 are open by default for LuCi service.
Port 8090 is open by default for command transmission service.
Ports 8556/8557/8888/8900 are open by default for image data transmission service.
Scanner equipped with multiple cameras. When using the cameras, your images will be collected and used.

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