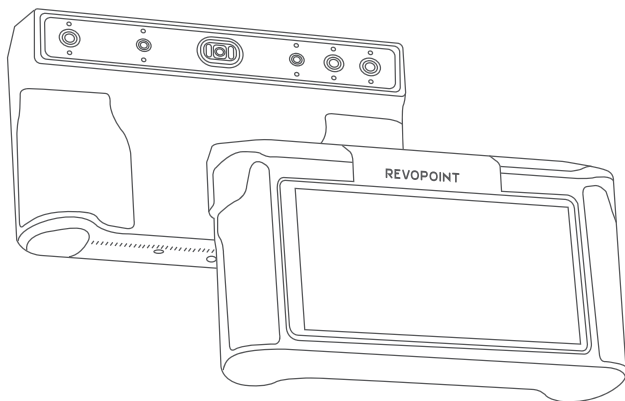# MIRACO Plus 3D SCANNER

Quick Start Guide   V1.0

REVOPOINT

Thank you for choosing a Revopoint 3D scanner! Please carefully read this Quick Start Guide before your first scan.

Go to the bottom of the Support - Download section on Revopoint's website at www.revopoint3d.com to get the latest Quick Start Guide. For tutorial videos, you can also follow our YouTube account, Revopoint 3D.

This content is subject to change. Please refer to the latest version.

⚠ Please keep the scanner away from water and any other liquids, and avoid bashing the scanner. This product's operating environment temperature range is 0℃ to 40℃ (32°F to 104°F). Please use the product only within this range.
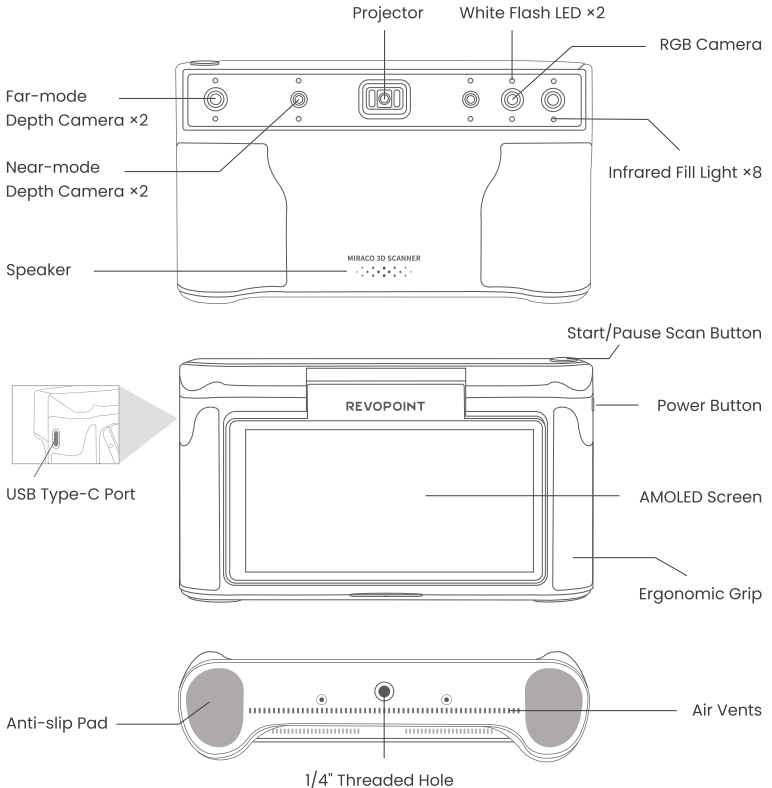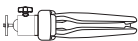
Contents
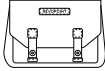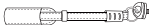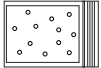
1. About MIRACO Plus

MIRACO Plus is a versatile, all-in-one 3D scanner designed for professionals. Featuring a robust quad-depth camera system, it offers remarkable accuracy ranging from ultra-fine detail capture to broader area scans. Its high-resolution RGB camera also ensures stunningly realistic color scans, making it a powerful tool for a wide range of 3D scanning applications. The ultra-high-resolution photogrammetric metrology kit is an essential tool for eliminating cumulative errors in global point cloud stitching within a closed loop.

Projector

White Flash LED ×2

RGB Camera

Far-mode
Depth Camera ×2

Near-mode
Depth Camera ×2

Infrared Fill Light ×8

Speaker

MIRACO 3D SCANNER

Start/Pause Scan Button

REVOPOINT

Power Button

USB Type-C Port

AMOLED Screen

Ergonomic Grip

Anti-slip Pad

Air Vents

1/4" Threaded Hole

2. What's in the Box

1 MIRACO Plus 3D Scanner	2 Tripod	3 USB Type-C to C Cable (1.8 m)
4 65W Dual USB Type-C Port Power Adapter	5 Turntable Topper	6 Mini Turntable
7 Turntable Power Cable	8 Near-mode Calibration Board	9 Sample Bust
10 Scanner Bag	11 Wrist Strap	12 Magic Mat, Cleaning Cloth
13 Markers	14 USB Type-A to Type-C Adapter	15 Large Calibration-board Kit
16 Photogrammetric Metrology Kit	17 USB Type-C to HDMI Adapter	18 Quick Start Guide Certificate & Warranty Card

Note: *For reference only.

1. Refer to the Quick Start Guide in the toolbox for detailed instructions of the Photogrammetric Metrology Kit.

2. The Power Adapter may vary depending on the country or region.

3. First Use

3.1 Unboxing and Setup

Step 1: For the first use, please charge the MIRACO Plus to more than 60%.
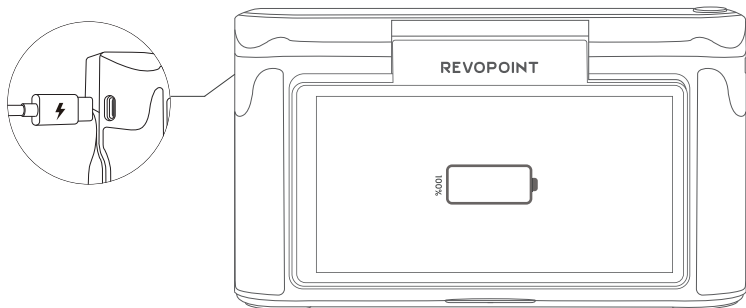
Note: If you do not use MIRACO Plus for a long time, please charge it regularly to avoid permanent damage to the battery.

Step 2: Long-press the **Power Button** (5s) to turn on.

Power Button
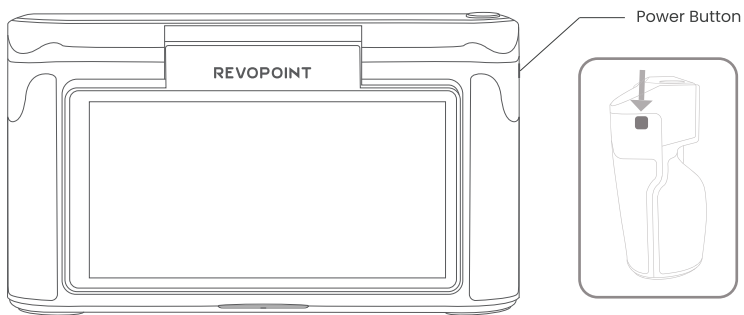
Step 3: Select a **language.**
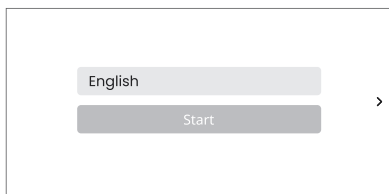
Step 4: Connect to a Wi-Fi **network** for project transfers and software update notifications.
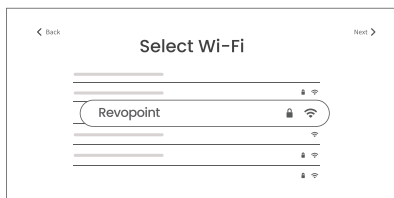
Step 5: Adjust and confirm the **Date and Time**.

Step 6: Tap **Next** to enter the **Scan Interface**. The elements in this interface are displayed below.
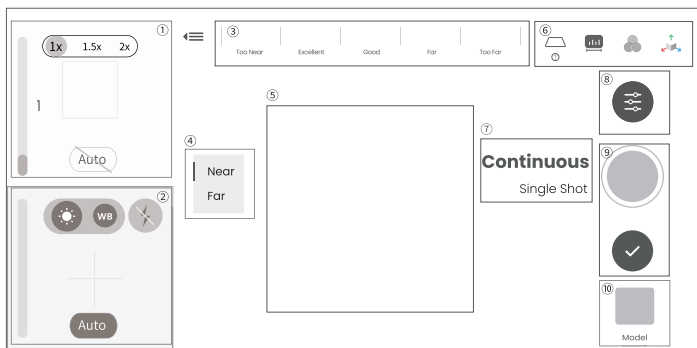
Note: The software is continuously updated. Please refer to the actual interface.

① Depth Display Window   ⑥ Base Removal / Scanning Distance / Color Display / 3D Coordinates

② RGB Display Window   ⑦ Continuous & Single-shot Switch

③ Distance Display   ⑧ Scan Settings

④ Far & Near Mode Switching   ⑨ Scan Control Buttons

⑤ 3D Display Window   ⑩ Model Hub

3.2 Helpful Screen Gestures

1. Swipe down from the top of the screen to display the Quick Settings menu.

Notifications

No Notifications

WLAN

Tutorial Videos

Screen Rotation

Screenshot

Screen Recording

Settings
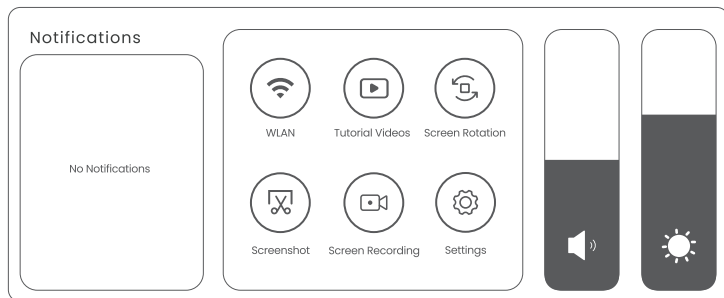
2. Screen Gestures for the Home or Post-processing page are as below:

One-finger Swipe:
Rotates the model on the screen.

Two-finger Drag:
Moves the model.

Pinch to Zoom:
Together to zoom out; apart to zoom in.

One-finger Drag:
Model selection.

3.3 Scan

Step 1: Instructions.

Read the instructions for [Scan Settings] and [Exposure Adjustment] on MIRACO Plus when it is first activated.

Step 2: Set up a scanning environment.

For the first scan, it is recommended to scan the **Sample Bust** included in the package. Find a tabletop free of any clutter, put the Sample Bust on the turntable, and ensure no unwanted objects are within the scanning area.

Near-mode Distance: about 18 cm

MIRACO 3D SCANNER
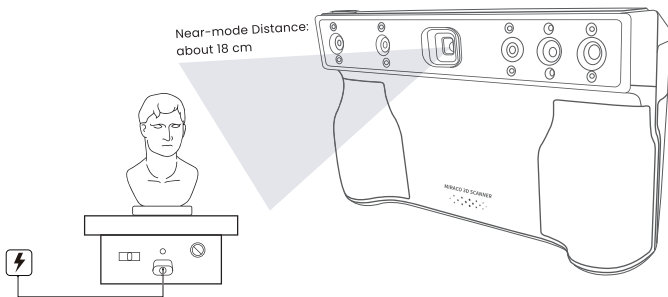
Step 3: Select a scanning mode.

Selecting [Continuous] and [Near] modes to scan the Sample Bust is recommended.

Near
Far

Far

Near
Far

Near
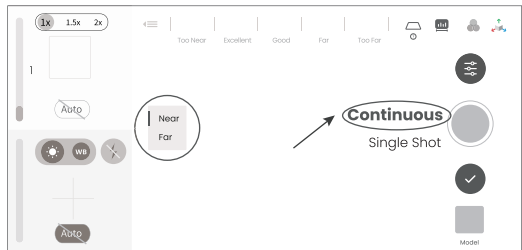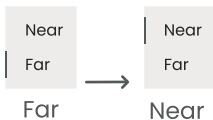
Step 4: Scan settings before scanning.

1) Scan Settings

The recommended scan settings for Sample Bust are [High Accuracy], [Feature], [General], and [Color] toggled off.
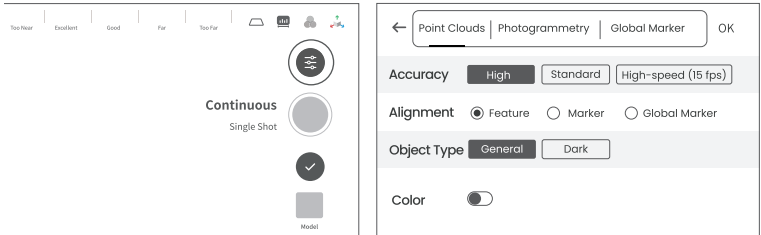
Note: The software is continuously updated. Please refer to the actual interface.

2) It's also recommended to turn [Base Removal Off].
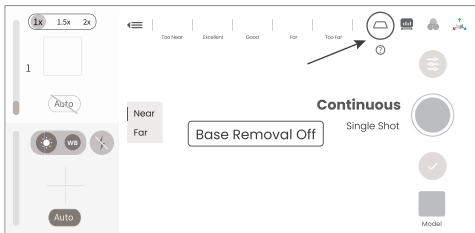
3) **Depth Cameras' exposure** Adjustment

It is recommended to disable [Auto] exposure for the Depth Cameras and manually adjust the exposure bar until there are minimal red or blue areas in the preview.
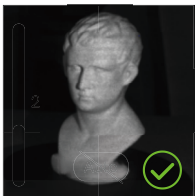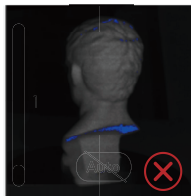
Correct Exposure   Underexposed   Overexposed

4) Scan **Distance** Adjustment

Move MIRACO Plus to adjust the **distance between the scanner and the target object**, ensuring the scanning distance indicator bar displays **green**.
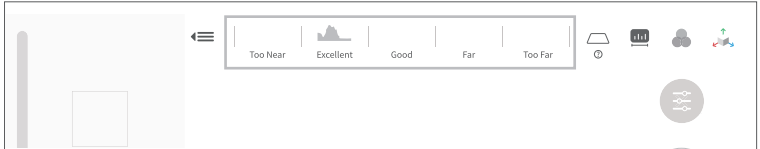
Step 5: Start scanning.

Tap the ⬤ button to **Start**, and tap it again ⏸ to pause your scan as needed.

Step 6: Complete scanning.

Tap the [Complete] button ✓ to finish the scan when all data is captured.

3.4 Model Edit

Step 1: After completing the scan, tap the [Model] icon to edit it.
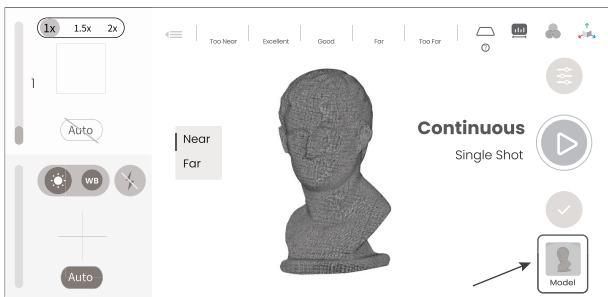
Step 2: **One-tap Edit** and **Manual Edit**

1) **One-tap Edit**

Tap the [One-tap Edit] button to automatically perform point cloud Fusion, Mesh, and Texture (when Color mode is enabled).
It's recommended to select **One-tap Edit** for 3D scanning beginners.

2) **Manual Edit**

Tap the [Fusion], [Mesh], [Texture] in sequence to adjust the corresponding parameters and process the scan.

Refer to the Support section on Revopoint's Website at www.revopoint3d.com for MIRACO Plus's detailed information.

4. Software Update

Step 1: Swipe down from the top of the screen, tap [Settings] > [WLAN], and connect to a network.
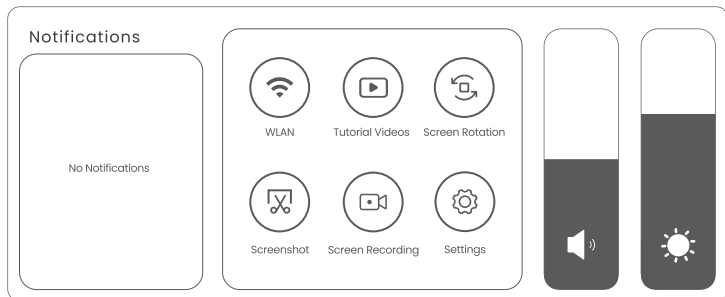
Step 2: Tap [Software Update] to check if a new version is available. If yes, tap [Download and Install] to update it.
Step 3: The update will install automatically. After the update, the scanner will restart.

Procedure:
[Settings] > [WLAN] > Connect to a network > [Software Update] > [Download and Install] > scanner restarts

5. Skills

5.1 Using Single Shot Mode

Step 1: Tap [Single Shot] to switch to it.
Step 2: Adjust exposure and other scan parameters.
Step 3: Tap the capture button to record a single frame.
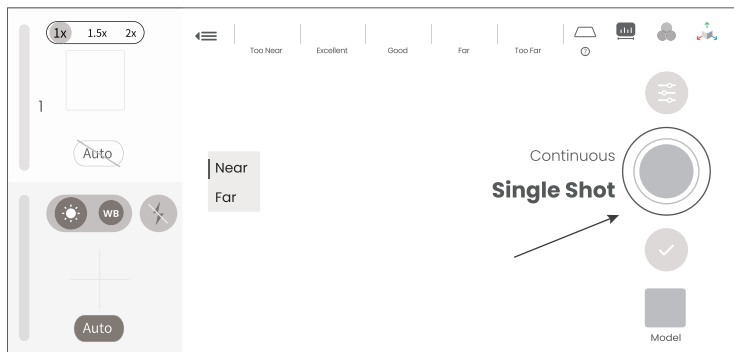
Scan the QR code for a Single-shot Video.

5.2 Using Marker Mode

Scanning objects with simple geometric features, like a football or wine bottle, requires using Magic Mat, markers, or reference objects and scanning in Marker Alignment.

Adjust Scan Settings on MIRACO Plus as below:
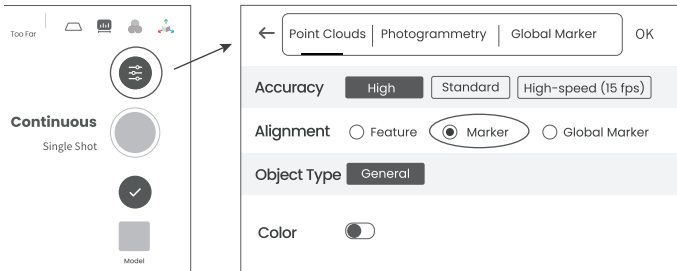
Note: The software is continuously updated. Please refer to the actual interface.

Place the Markers (or Magic Mat under the object) on or around the objects' surface irregularly and ensure there are at least 5 Markers per frame for the entire scan, or the scanner will lose track.
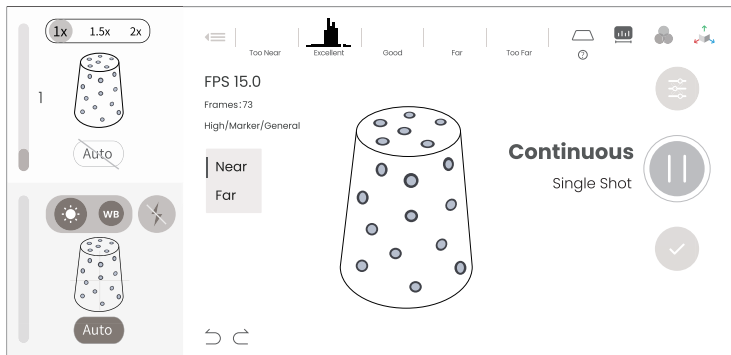
5.3 Photogrammetric Metrology Kit

5.3.1 Introduction

The Photogrammetric Metrology Kit is used to create accurate 3D models and measurements from photographs. The kit is used with the MIRACO Plus scanner to capture images from different angles around the object's surface after placing coded targets and markers on or around the object. Then, using global optimization algorithms, the coded targets and markers' global coordinates can be rapidly and accurately reconstructed. This photogrammetry process helps to facilitate accurate volumetric measurement for industrial manufacturing and quality control for large-sized objects. The Photogrammetric Metrology Kit is lightweight, portable, and provides reliable accuracy. It can easily handle large-size objects, performing high-precision 3D measurements anytime, anywhere. You can easily export photogrammetric metrology results to Revo Scan 5 (PC) for further operations.

0.8 - 1.3m

5.3.2 What's in the Box

1

Toolbox × 1

2

Scale Bar (Magnetic) × 4

3

Coded Targets (Magnetic) × 208

4

Coded Targets (Sticky) × 208

5

Markers (Highly Reflective Dots) × 500
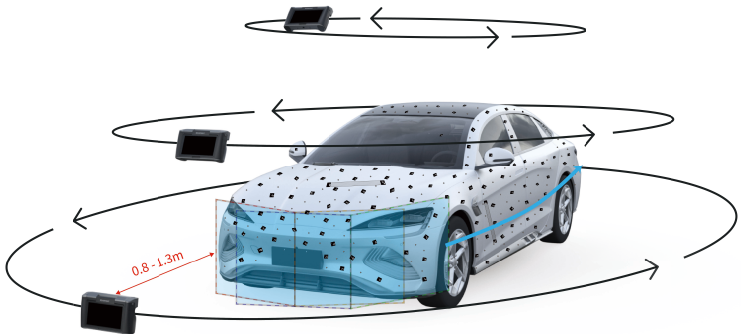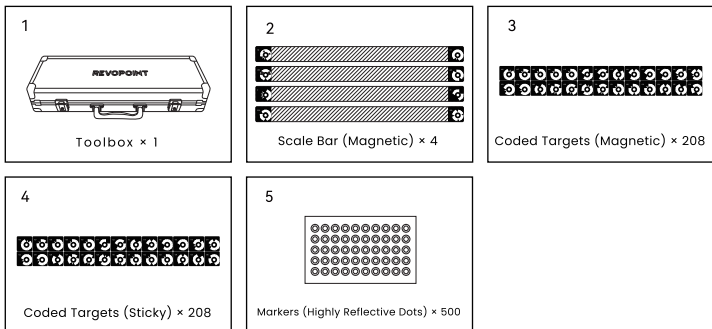
5.3.3 Operating Instruction

Step 1: Import the Scale Bars' Info
Before using the photogrammetry function, import the scale bars' information first. You can skip this step if it's not your first time using it.
Tap the ⬍ button and select "photogrammetry". Then tap the "IMPORT SCALE BAR INFO" button and scan the QR code located underneath the scale bars in the box to import the scale bars' information.

Once imported, the serial numbers of the scale bars will be shown. Tap the "START" button.

Step 2: Create a New Task
Create and rename a new task and tap "OK" to enter the shooting interface.

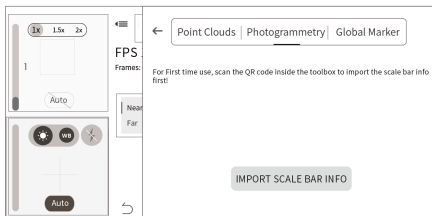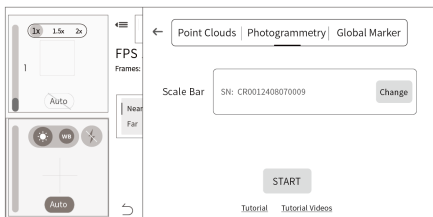**Step 3: Start Shooting**
Position the scanner at the recommended distance between 0.8-1.3 m until the coded targets are clearly visible. Tap the ⚫ button to start shooting. Please keep the scanner stable.

Step 4: Calculate the Markers' Coordinates
When you finish shooting, tap the ✅ button to calculate the markers' coordinates. After calculation, the mean error from reconstructing the captured scale bar's coded targets is displayed. If the calculation fails, please follow the on-screen prompts to add photos or retake photos.

Step 5: Scan Point Cloud (Optional)
① Tap the "Continuous" button to capture the point cloud.
② Move the scanner slowly and steadily. Tap the ✅ button after all the point clouds are captured.
③ Tap the "Model" button to enter the post-processing interface to edit the model or transfer it to Revo Scan 5 (PC) for more details editing.

Note: Refer to the Quick Start Guide in the toolbox for detailed instructions of the Photogrammetric Metrology Kit.

5.4 File Transfers Via USB Cable

Method 1:

Step 1: Connect your MIRACO Plus to a computer using the USB Type-C to C Cable.
Step 2: See the popup on MIRACO Plus's screen. Tap [Data Transfer] and [OK].
Step 3: Open Revo Scan 5 on your PC (V5.4.1 or after) and a popup will be displayed.
Step 4: Tick the target files and export them on your PC.

Project: An album including the scanning configuration, raw data, processed data, and user operation history in memory or hard disk. Each project can include one or more 3D models.

Method 2: (ONLY works on Windows PCs)

Step 1: Connect your MIRACO Plus to a computer using the USB Type-C to C Cable.
Step 2: See the popup on MIRACO Plus's screen. Tap [Data Transfer] and [OK].
Step 3: Click [This PC]>[MIRACO]>[Internal shared storage].
Step 4: Copy MIRACO Plus's data to your PC from folders named [Projects], [ScreenRecordings], and [Screenshots].
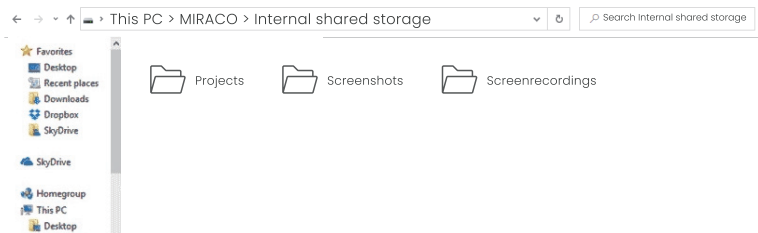
5.5 Connecting to an External Screen

MIRACO Plus supports the DisplayPort (DP) interface by using the USB Type-C port.

Method 1: A monitor or TV can be connected to MIRACO Plus's DisplayPort (DP) via its USB Type-C port.

A monitor or TV

Self-provided
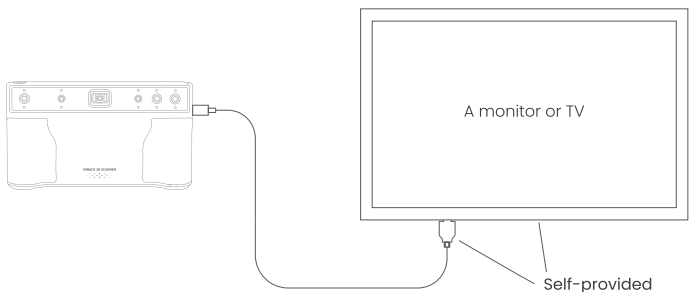
Method 2: Use the DP to HDMI Adapter to connect MIRACO Plus to an HDMI cable on a TV or monitor.

A monitor or TV

Adapter

HDMI Cable

Self-provided

5.6 Scanner Calibration

Step 1: Download the latest version of Revo Scan from the Support - Download section on Revopoint's website: www.revopoint3d.com.
Step 2: Long press the MIRACO Plus's Power Button (5s) to turn it on.
Step 3: When the Scan Interface appears, connect MIRACO Plus to a USB 3.0 port on a PC using the USB Type-C to C Cable that came with your MIRACO Plus (if using a USB Type-A to Type-C adaptor, ensure the adaptor supports USB 3.0).
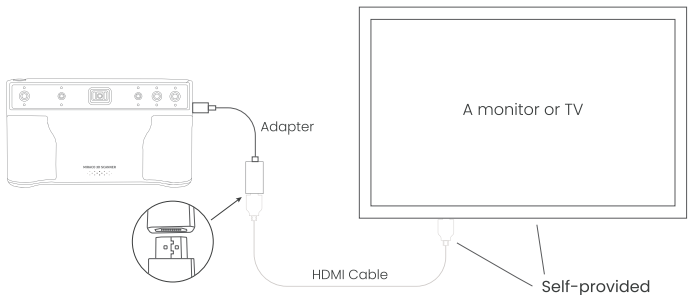**Step 4:** Select [Use MIRACO in PC Mode] and tap [OK], see Figure 1.
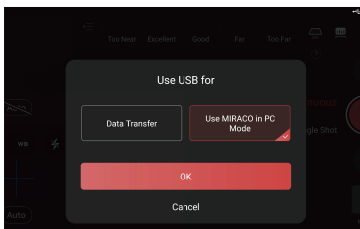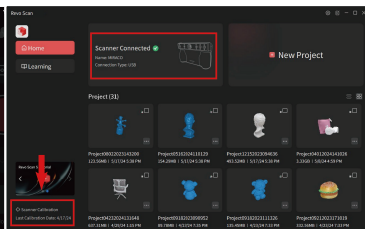
Figure 1   Figure 2

Step 5: When Revo Scan shows Scanner Connected, click [Scanner Calibration] on the bottom left corner of Revo Scan's Home page to enter the calibration process (see Figure 2). MIRACO Plus's White Flash LEDs will be solidly lit until the calibration is finished.
Step 6: Complete the Near-mode and Far-mode cameras' accuracy check and calibration in sequence according to the on-screen instructions.

How to place the Far-mode Calibration Board:

MIRACO Plus 3D Scanner

Large Calibration-board Sheet
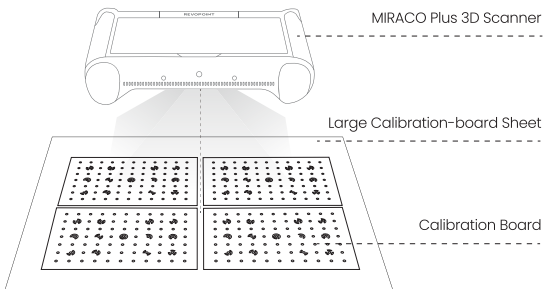
Calibration Board

Scan the QR Code to get the Calibration Tutorial.

16

IC Warning

This device complies with Industry Canada's 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.

This Class B digital apparatus complies with Canadian ICES-003.

IC RF Statement:

When using the product, maintain a distance of 20cm from the body to ensure compliance with RF exposure requirements.

FCC Warning

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.

Any Changes or modifications not expressly approved by the party responsible for compliance 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 to 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.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

This equipment should be installed and operated with a minimum distance of 20cm between the radiator & your body.

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