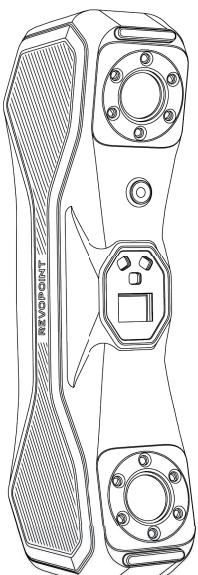
MetroX Pro 3D Scanner

Quick Start Guide

V1.1



REVOPOINT

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

Begin by downloading the Revo Metro software for your PC from the Support - Download section on Revopoint's website at global.revopoint3d.com for your MetroX Pro 3D Scanner.

Go to the bottom of the Download page to get the latest Quick Start Guide.

Visit Revopedia for more details on our products and usage.

Follow our YouTube account, Revopoint 3D, for tutorial videos.

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

Please keep the scanner away from water and other liquids, and avoid dropping or hitting it.

This product's operating environment temperature range is 0°C to 40°C (32°F to 104°F). Please use the product only within this range.

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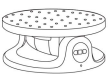

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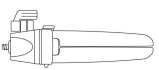

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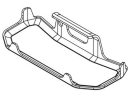

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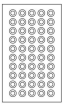

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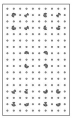

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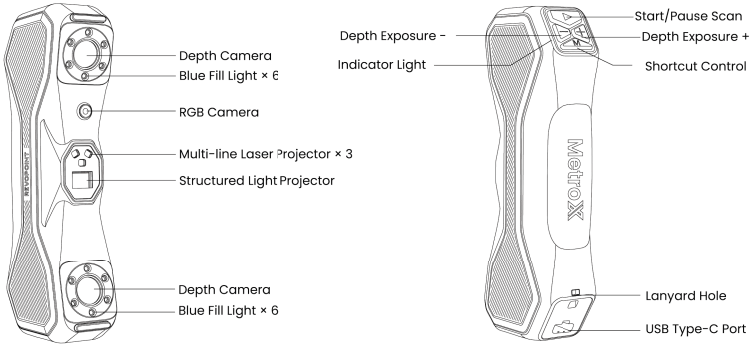
*For reference only.

Note: The Power Adapter may vary depending on the country or region.
Some accessories are behind the top padding.

Product Profile



Indicator Light States

Green - Single flash	Power on
Red - Flashing	Powering up
Green - Solid	Powered
Green - Flashing	Operating normally

Button Functions

	Start/Pause Scan
	Increase depth camera exposure
	Decrease depth camera exposure
	Zoom in/Zoom out Central Preview Window or Custom Settings

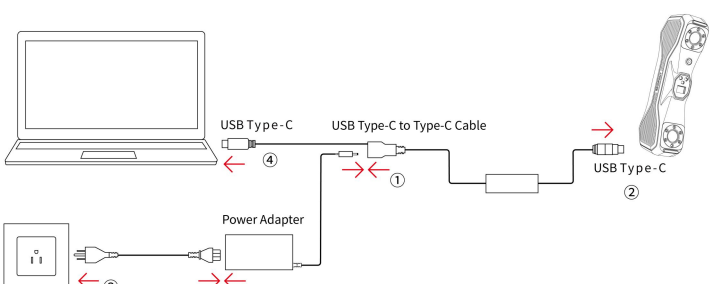
System Requirements

Before your first scan, please download the Revo Metro software on Revopoint's website at global.revopoint3d.com. The system requirements are as follows:

Minimum PC Requirements	
Windows System Version: Windows 10/11 (64-bit) RAM: ≥ 32 GB CPU: Intel i7 13th Gen or AMD Ryzen 7 5800 GPU: NVIDIA GeForce RTX 3060 (8 GB)	**macOS** System Version: macOS 11.0 or better RAM: ≥ 18 GB CPU: M3 Pro/M4
Recommended PC Requirements	
Windows System Version: Windows 10/11 (64-bit) RAM: ≥ 64 GB CPU: Intel i9 12th Gen or better GPU: NVIDIA RTX 4060 (8 GB) or better	**macOS** System Version: macOS 11.0 or better RAM: ≥ 24 GB CPU: M4 Pro or better

Note: If you're unsure about the CPU configuration, please ensure that the CPU has cores ≥ 8, threads ≥ 16, and a base frequency ≥ 2.4GHz. Please ensure the USB port on your PC is USB 3.0 or above.
Only in Laser Line Scanning modes, a dedicated graphics card is required for acceleration. AMD and MAC GPUs do not currently support acceleration.

Connecting MetroX Pro to a PC



It is recommended to connect the scanner to the power supply and the PC's USB 3.0 Type-C port in the order shown from ① to ④.

Note: The two ends of the USB cable must not be used interchangeably. Follow the labels on the connectors to ensure correct connection between the scanner and the computer. If the connection fails or the frame rate drops below 10 fps, disconnect from the PC while keeping power on. Then, repeat step 4 to reboot the device.

MetroX Pro also supports wireless casting to a phone via Revo Mirror:

1. Download the Revo Mirror software for both your PC and phone from the Support - Download section on Revopoint's website.
2. After connecting the scanner to your PC, ensure both your PC and phone are on the same stable Wi-Fi network. Open Revo Metro on the computer, wait for the scanner to connect and reach the scanning page, then click the Display - Mirroring button.
3. Tap the detected device to be mirrored in the mobile Revo Mirror app.
4. Follow the prompt on the PC to enter the PIN code to complete the initial pairing. Then, click "Enter Screen Mirror Mode" to control the scanning process.

Scanning Modes Introduction

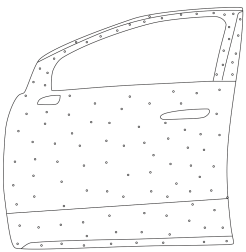
① **Cross Lines (Requires markers for tracking):** Designed for capturing shiny metals and black objects. It's more efficient than Parallel Lines mode.
② **Parallel Lines (Requires markers for tracking):** Designed for capturing fine and complex details at a lower speed.
③ **Full Field:** Designed for efficiently capturing feature-rich objects in a short time.
④ **Auto Turntable:** The turntable, scanner, and Revo Metro work together to automatically scan an object in single-shot mode, streamlining the process and generating a detailed, color-accurate 3D model if required.

Scanning Tips

① Operate the scanner at room temperature around 20℃ (68°F). Warm up the device for 10 minutes before calibration and use of the laser line mode to achieve optimal accuracy.

② Scan indoors and ensure only the object being scanned is shown in the Depth Cameras' preview window.

③ When choosing Marker Scan, stick markers irregularly on the object, ensure at least 5 markers can be detected in a single frame during the scan. **For best accuracy, attach the markers to flat surfaces rather than curved ones. Also, please avoid using soft pads or cloths with markers.**



④ **Instructions for Using Scanning Spray**

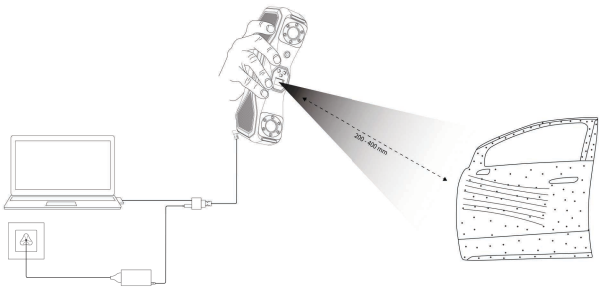
- For transparent or highly reflective objects (e.g., glass, stainless steel, electroplated surfaces), both line laser and structured light scanning require scanning spray.
- For dark reflective or metallic reflective surfaces (e.g., black paint, machined aluminum alloy), line laser scanning can be performed without spray, but Full-field scanning and

Auto Turntable scanning require scanning spray.

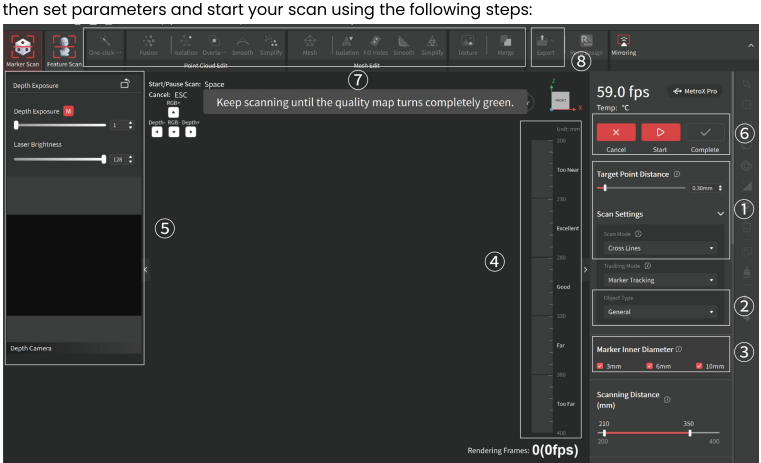
Note: Scanning spray can be purchased from Revopoint's online stores.

Your First Scan

Handheld Scanning Scenario: Cross Lines/Parallel Lines/Full Field



After the scanner is connected, click the **New Project** button on Revo Metro's Home page to enter Marker Scan page (or click the icon in the upper left corner to switch to Feature Scan), then set parameters and start your scan using the following steps:



※ Please refer to the actual interface in Revo Metro.

① Choose scanning mode based on your needs. For laser line scanning, set the target point distance before scanning.

Note: Increasing point distance speeds up scanning, decreasing it enhances detail but slows the process.

② Choose Object Type according to your requirements.

③ Select the inner diameter of the markers currently in use to enhance scanning accuracy.

Note: Only Revopoint standard marker sizes are supported.

④ Move the scanner closer or further away from the object until the scanning distance indicator bar shows **Excellent** or **Good**.

⑤ Click the Auto button to automatically set the Depth Cameras' exposure, or turn off the Auto exposure and adjust it by dragging the slider until there are as few blue and red areas on the object in the Depth Camera preview window as possible and the whole object shows gray.

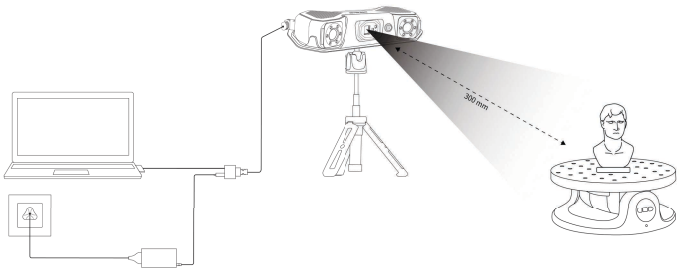
⑥ Click the ▷ button to begin your scan. During the scan, aim the scanner at the object, move the scanner slowly and steadily around the object, and keep the distance between the scanner and the object at 250 - 350 mm. In the 3D scanning interface in Revo Metro, refer to the distance indicator bar to ensure an excellent distance. You can click the ❙❙ button to stop and check your model anytime during your scan. If the model is incomplete, click the ▷ button to continue your scan. Click the ✓ button to finish the scan when the model is complete.

Note: When scanning with laser line modes, the model's color will gradually change. Blue indicates higher quality, so it's best to scan the same areas from different angles and finish when the model is mostly blue.

⑦ Click **One-click Edit** to process the model automatically, or manually edit the model using the Fusion and Mesh settings, and other tools if you need a more detailed model. When manually processing for point cloud fusion, it is suggested that the system's recommended point distance be used. Setting a very small point distance will lead to a long calculation time. For details, please refer to the User Manual on Revo Metro's Learning page.

⑧ After post-processing, export the model in formats such as PLY, OBJ, or STL.

Desktop Scanning Scenario: Auto Turntable



① Attach the scanner cradle to the tripod, put the scanner on it, adjust the tripod to a suitable height, and place it on a stable surface. It is strongly recommended that you fix the object on the turntable and not move the scanner, turntable, and the object during the scan.

② After connecting the scanner, click the **New Project** button on the Home page to enter Marker Scan page (or click the icon in the upper left corner to switch to Feature Scan).

③ Use the power cable to power the turntable.

※ Please refer to the actual interface of Revo Metro.

④ Choose Auto Turntable mode in **Scan Settings**. Click the Settings button to connect the turntable and set the rotation direction, interval, and total rotations. Beginners can use the default settings.

⑤ Choose Object Type according to your requirements. Only the Auto Turntable mode supports color scanning. If required, toggle Color Scanning and ensure the object is evenly lit during scanning.

⑥ When using Marker Scan, select the inner diameter of the markers currently in use to enhance scanning accuracy.

Note: Only Revopoint standard marker sizes are supported.

⑦ Move the scanner closer or further away from the object until the scanning distance indicator bar shows **Excellent** or **Good**.

⑧ Click the Auto button to automatically set the Depth Cameras' exposure, or turn off the Auto exposure and adjust it by dragging the slider until there are as few blue and red areas on the object in the Depth Camera preview window as possible and the whole object shows gray.

⑨ You also must adjust the RGB Camera's exposure when doing a color scan. Click the Auto button to automatically set the exposure, or turn off the Auto exposure and adjust it by dragging the slider until the object's color in the RGB preview window is clear and sharp.

⑩ Click the [▷] button, and the software will control the turntable to automatically finish the scan with single-shot mode according to your settings. If the model is incomplete, click the [▷] button to continue your scan after resetting the scan path. Click the [✓] button to finish the scan when the model is complete.

⑪ Click **One-click Edit** to process the model automatically, or manually edit the model using the Fusion, Mesh, Texture (only for color models) settings, and other tools if you need a more detailed model. When manually processing for point cloud fusion, it is recommended to use the system's suggested point distance. Setting a very small point distance will lead to a long calculation time. For details, please refer to the User Manual on Revo Metro's Learning page.

⑫ After post-processing, export the model in formats such as PLY, OBJ, or STL.

Scanner Calibration

Recalibrate the scanner via Revo Metro's home page using the Calibration program to maintain accuracy. The scanner was professionally calibrated at the factory. **Before scanning, check accuracy through the calibration program and recalibrate as instructed if needed.** Ensure the computer is plugged in during calibration. You can calibrate the scanner as follows:

① Download the latest version of Revo Metro from the Support - Download section on Revopoint's website at global.revopoint3d.com and open it.

② Power the scanner and connect it to a USB 3.0 port on a PC using the USB Type-C to Type-C Cable and power adapter that came with your scanner.

③ When the software interface shows Scanner Connected, click [Scanner Calibration] on the bottom left corner of Revo Metro's Home page to enter the calibration process.

④ Complete the accuracy check and calibration in sequence according to the on-screen instructions.

Laser Specifications

MetroX Pro complies with IEC 60825-1:2014.
It is classified as a CLASS 2M LASER PRODUCT (450 nm, maximum output power < 1mW)
This product has a Class 2M laser projector. Avoid looking directly at the laser up close, and do not use magnifying tools like telescopes or cameras to view the beam, as it can damage your retina. Keep reflective surfaces such as mirrors and glass away from the laser beam's path.

Specifications

Name	MetroX Pro
Scanning Type	Handheld and Desktop
Technology	Multi-line Laser Scan and Full-field Structured Light Scan
Scannable Object Size	Small to Medium
Single-frame Precision, up to	0.01 mm
Single-frame Accuracy, up to	0.02 mm
Volumetric Accuracy	0.02 mm + 0.04 mm × L (m), L is the length of the object.
Fused Point Distance, up to	0.05 mm
Working Distance	200 ~ 400 mm
Single Capture Area at Nearest Distance	160 × 70 mm at 200 mm
Single Capture Area at Furthest Distance	320 × 215 mm at 400 mm
Angular Field of View (H x V)	43 × 33°
Minimum Scan Volume	10 × 10 × 10 mm
Maximum Scan Volume	1 × 1 × 1 m
Scanning Speed, up to	Multi-line Laser Scan: 2,000,000 Points/s Full-field Structured Light Scan: 7,000,000 Points/s
RGB Camera Resolution	2 Megapixels
Color Scanning	Only in Auto Turntable Mode
Tracking Methods	Marker, Global Marker, Feature
Outdoor Scanning	No
3D Light Source	30 Blue Cross Laser Lines 15 Blue Parallel Laser Lines 62 Line Blue Full-field Structured Light

Fill Lights	12 Blue LEDs
CPU	4 core ARM, 2.0 GHz
Built in Chip Computing	Depth Computing
Buttons	4
Output File Formats	PLY, OBJ, STL, ASC, 3MF, GLTF, FBX
Ready to Print 3D Models	✔
Connector Type	USB Type-C
Power Requirements	DC 12V, 3A
Scanner Weight	508 g
Dimensions (L x W x H)	209 × 88 × 44 mm
User Recalibration	Yes
Supported Accessories	Dual-axis Turntable, Marker Block Kit

*The above information is for reference only. Please check the latest specifications on the Revopoint website.

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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