

EasyScan M05
3D Laser Measurement System
User Manual

Introduction

This introduction describes the content, organization, target audience, icon meanings, and reference documents of this manual.

Content of the manual

The manual primarily focuses on the installation and usage of the M05 3D laser measurement system (referred to as the M05 system hereinafter) hardware devices.

Organization of the manual

This document consists of the following sections:



Chapter	Title	Content Description
Chapter 1	Product Overview	Briefly introduce the M05 system and its main technical parameters.
Chapter 2	Product Hardware Component	Provide a detailed description of the overall structure, interface definitions, and usage constraints of the M05 system.
Chapter 3	Device Installation and Disassembly	Explain the installation and disassembly methods of each component of the M05 system.
Chapter 4	Device Operation	Introduction to the operating methods of the M05 system.
Chapter 5	Appendix	Device usage precaution and troubleshooting

Target audience

This manual is primarily intended for users familiar with 3D laser measurement and personnel responsible for outdoor data collection. The readers are expected to have knowledge in the following areas:

- Traditional surveying techniques
- 3D laser measurement technology

Icon meanings

Icon	Meaning
	Prompt users to pay special attention to the following points during the installation or use of the M05 system.
	Providing additional information to users.

Reference documents

The reference documents related to the use of the M05 system include:

- <M05 3D Laser Measurement System User Manual>(This document)



Warning: Before using the M05 system device, please read the user manual carefully to avoid electric shock or equipment damage due to misuse.

Catalog

1 PRODUCT OVERVIEW	1
1.1 PRODUCT INTRODUCTION.....	1
1.2 MAIN TECHNICAL PARAMETERS	2
2 PRODUCT HARDWARE COMPONENT	4
2.1 MAIN BODY	4
2.2 BATTERY.....	5
2.2.1 Device power on	6
2.2.2 Device power off.....	6
3 DEVICE INSTALLATION AND DISASSEMBLY	7
3.1 PREPARATION BEFORE INSTALLATION	7
3.2 M05 SYSTEM INSTALLATION AND DISASSEMBLY	8
3.2.1 Installation of handle battery to the main body	8
3.2.2 Disassembly of handle battery from the main body	9
4. DEVICE OPERATION	10
4.1 DEVICE START	10
4.2 CAMERA OPERATION	11
4.3 MAIN BODY CONNECTION	11
4.3 MAIN BODY SHUTDOWN	11
4.4 BATTERY CHARGE	12
5. APPENDIX	13
5.1 COMMON FAULT DIAGNOSIS.....	13
5.2 DEVICE USAGE PRECAUTIONS.....	13

1 Product Overview

1.1 Product Introduction

EasyScan M05 is a portable 3D laser measurement system independently developed by Wuhan Eleph-Print Tech Co., Ltd. It is designed with the concepts of lightweight and user-friendliness, integrating technologies such as multi-line laser LiDAR and image acquisition. It integrates high-precision laser scanners, angle measurement devices, and other sensors. Supported by self-developed time synchronization technology and integrated multi-sensor integration technology with independent intellectual property rights, it can efficiently and easily complete the scanning and acquisition of 3D data.

The main applications of the M05 laser measurement system include, but are not limited to, building facade measurement, accident scene investigation, volume calculation of stockpiles, interior decoration, flat layout drawing, and digital parks.

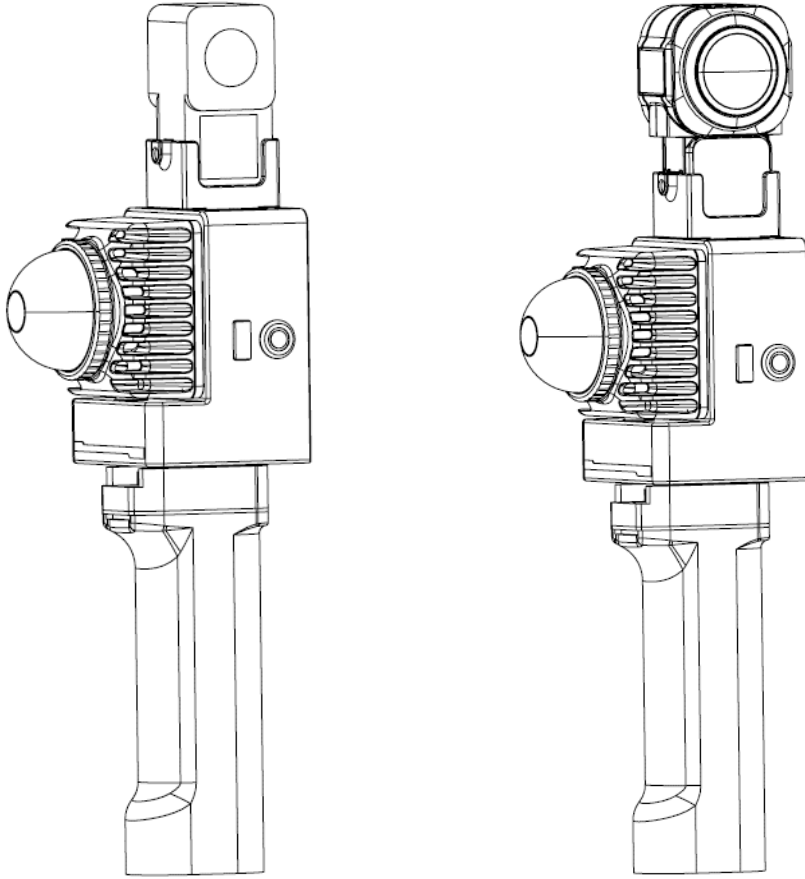


Fig 1-1 M05 system

1.2 Main Technical Parameters

The main technical parameters of the M05 laser measurement system are shown in the table below:

Table 1-1 M05 system main technical parameters table

System Parameter	Handheld Weight	860g
	Operating Temperature	-10°C - 50°C
	Storage Temperature	-20°C - 60°C
	Power Consumption	20W (typical value)
	Power Supply	12V - 17.6V

	Operating Time	1.5h
	Storage Capacity	64GB U-disk
	Platform	Handheld
	Charging Type	Type-C
Laser Scanning Unit	Max. Range	70m
	Laser Class	Class 1
	Laser FoV	Horizontal 360° Vertical -7° - 52°
	Laser Wavelength	905nm
	Scan Speed	200,000pts/s
	Relative Accuracy	2cm
	Absolute Accuracy	5cm
Camera Unit	Camera FoV	360° Panoramic Camera
	Camera Resolution	18MP

2 Product Hardware Component

M05 system includes two versions, main difference is the camera.

The Basic version consists of the main body, battery, U-disk, and Insta ONE RS dual-lens camera.

The PRO version consists of the main body, battery, U-disk, and Insta ONE RS 1-Inch camera.

2.1 Main Body

The main body and interfaces of M05 system are shown in Fig 2-1.

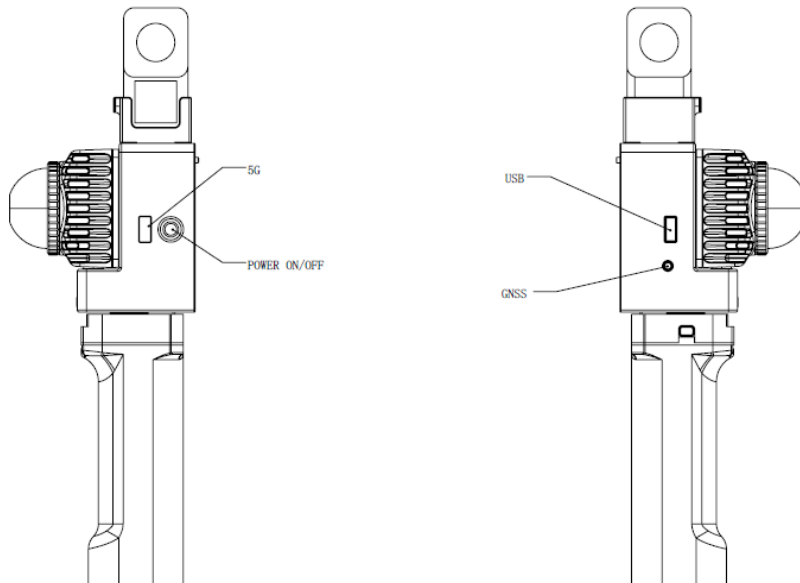


Fig 2-1 Main body and interfaces of M05 system

2.2 Battery

M05 system is powered by a handle battery, as shown in Fig 2-2.

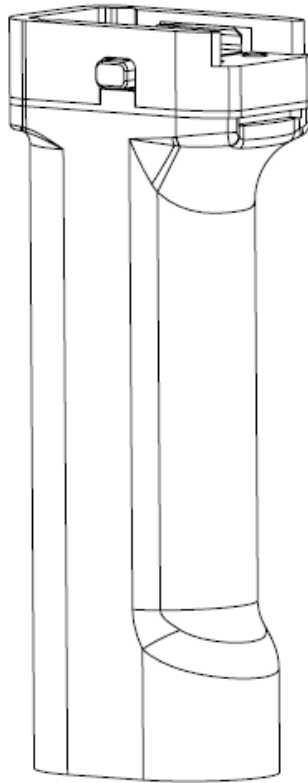


Fig 2-2 Lithium battery of M05 system



Warning:

1. Prohibited from submerging the battery in liquid (such as water, seawater, etc.), store the battery in a cool and dry environment when not in use;
2. Prohibited from placing or using the battery near high heat sources (such as fire, heater, etc.);
3. Prohibited from hitting, applying heavy pressure, throwing, or stepping on the battery;
4. Do not continue using the battery if it appears swollen or deformed;
5. The battery is equipped with a specialized battery charger, do not replace it with other models of chargers.

2.2.1 Device power on

In the battery-off state, first short press the handle battery button once, and the battery power indicator light will turn on with a bright green light. Then, press and hold the power button on the main body for more than 3 seconds to power on the device. When the battery is turned on, the power indicator light will be green, and the green light will blink to display the current battery level.

2.2.2 Device power off

In the battery-on state, press and hold the device power button for more than 3 seconds. If the device indicator light goes off, the device has been successfully powered off.

3 Device Installation and Disassembly

3.1 Preparation before Installation

Before installing the M05 system, please check whether all parts are complete according to the product packing list.

Product list of the basic version

Type	Item Number	Description	Unit	Qty
Device	1	M05 system main body	PCS	1
	2	Handle battery	PCS	1
	3	Insta 360 ONE RS dual-lens camera	PCS	1
Others	1	Dongle	PCS	1
	2	<M05 System User Manual>	PCS	1
	3	<M05 System Product Packing List>	PCS	1
	4	<Certificate>	PCS	1
	5	<Warranty Card>	PCS	1

Product list of the PRO version

Type	Item Number	Description	Unit	Qty
Device	1	M05 system main body	PCS	1
	2	Handle battery	PCS	1
	3	Insta 360 ONE RS 1-Inch camera	PCS	1
Others	1	Dongle	PCS	1
	2	<M05 System User Manual>	PCS	1
	3	<M05 System Product Packing List>	PCS	1
	4	<Certificate>	PCS	1
	5	<Warranty Card>	PCS	1



Note:

Above lists are for reference only. Please refer to the packing list delivered with the device for actual contents.

3.2 M05 System Installation and Disassembly



Warning:

1. **During the installation of M05 system devices, please handle with care to protect the device;**
2. **When installing and disassembly the equipment, please ensure it is in the off state to avoid damaging the device with live operation;**
3. **After disassemble the device, please return the various parts of the device according to their placement in the packaging box and check for completeness.**

3.2.1 Installation of handle battery to the main body

As indicated by the arrow direction in the diagram below, connect the handle battery to the main to the main body and slide it inward gently until it reaches the bottom.

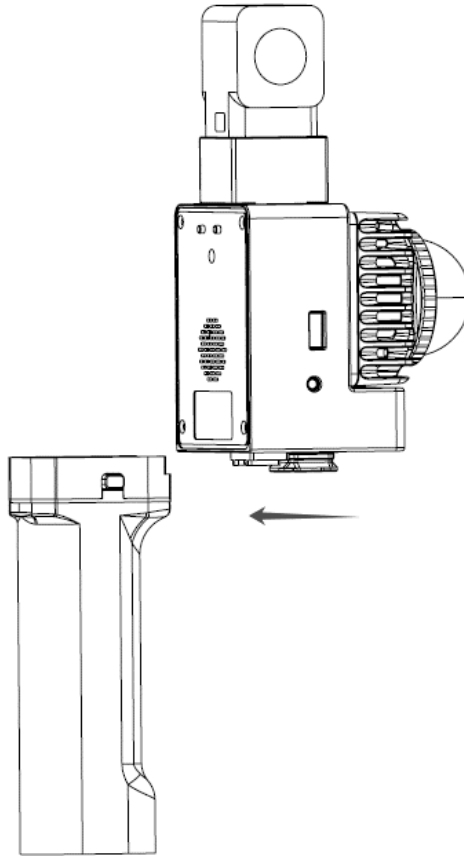


Fig 3-2.1 Battery installation



Warning:

- 1. The handle battery used in the M05 system has a specific installation direction, please pay attention to the direction of the handle battery during installation.**
- 2. Please handle the handle battery gently during installation to avoid damage to the device due to excessive force.**

3.2.2 Disassembly of handle battery from the main body

Ensure the battery and main body of M05 system are powered off. Push the

latch release and separate the handle battery from the main body in the direction indicated by the arrows.

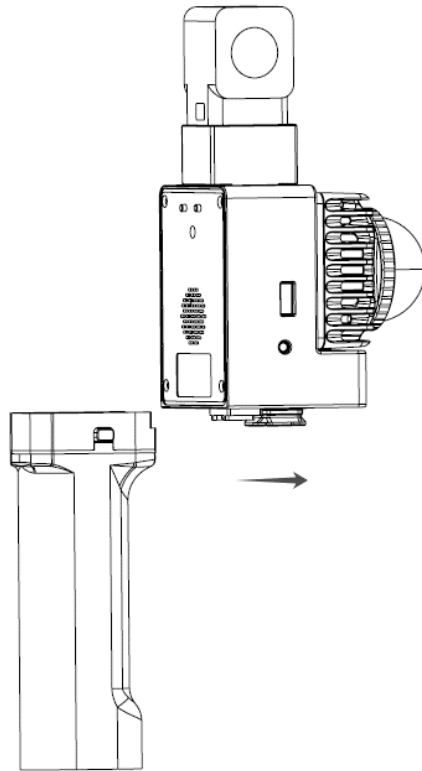


Fig 3-2.2 Battery disassembly

4. Device Operation

4.1 Device Start

1. After completing the device installation according to the steps described in section 3.2.1, you can start using the M05 system device.
2. Press the power button of the M05 handle battery.

3. Within 3 seconds, press and hold the M05 main body power button for more than 3 seconds. The device indicator light will turn on, indicating that the device is starting up. You can release the button at this point.
4. Once the indicator light is on, you can use your phone or computer to search for a WiFi hot-spot. When you find a WiFi access point named "M05," it means that the system has successfully started up.



Note:

Please wait patiently during the device system initialization period, which usually takes less than 1 minute.

4.2 Camera Operation

The camera model used in the M05 system is Insta360 ONE RS series. For its operation, please refer to the user manual of Insta360 ONE RS or follow the guidance of our technical personnel.

4.3 Main Body Connection

The M05 system provides a wireless connection method.

1. Use your phone or computer to search for WiFi hot-spots and find the one named "M05."
2. Join the "M05" hot-spot using the password "12345678" and set the wireless network IP to obtain automatically.



Tips:

The IP address of M05 system is 192.168.12.1

4.3 Main Body Shutdown


1. After the completion of data transmission, when the system stops collecting data, you can shut down the device by clicking the "Shut down" button

on the software client, as shown in Fig 4-4.



Fig 4-4 Device shutdown

2. Once the status indicator light on the M05 main body is off, the shutdown process of the device main body is considered complete.


 **Warning:**

- 1、 Please do not directly cut off the power supply while the main body is not fully shut down to avoid potential damage to the device.**
- 2、 When packing and transporting the device after shutdown, please remove the handle battery from the device and place it in the dedicated battery case or the battery slot of the device packaging box.**

4.4 Battery Charge

Charger interface: Type-C

Charging input voltage/current: 5V/2A, 9V/2A, 12V/2A, 5V/1.6A

 **Note:**

- 1. If the battery is not used for more than 10 days, please discharge it to approximately 50% before storage.**
- 2. If the battery is idle for a long period, it needs to be recharged and discharged approximately every 3 months to maintain its activity.**

5. Appendix

5.1 Common Fault Diagnosis

NA currently.

5.2 Device Usage Precautions

To ensure the lifespan of the device and the accuracy of data collection, please take note of the following precautions when using the device:

- Before and after each data collection session, wipe the device clean.
- During long-distance transportation, detach the device and **place it in the packaging box**.
- The device should not be used for data collection in harsh environment such as **rain, fog, haze, snow, high temperatures**, etc.
- **Do not dismantle the device** without manufacturer's consent.
- **Handle the device with care** when installing and disassembling it.
- If the device will not be used for a long period, place it in the packaging box and include a desiccant inside.

FCC Caution.

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 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.

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.