

RAYTOOLS

Visual Beam Alignment

User Manual



Document History

Edit date	Version	Topic, revision, action taken
2025/10/13	V1.0	First edition

Thank you for choosing our product!

This manual describes the installation and commissioning of visual beam alignment software in details so that you can use this product quickly. You can consult us directly for more details.

Due to the continuous updating of product functions, the product you receive may differ from the introduction in this manual in some aspects.

We reserve all rights in this document including the issued patents and other registered commercial ownership related to this document. It is strictly prohibited to use this document in an improper way especially to copy and disseminate it to third parties.

If you find any errors in this document, please inform us as soon as possible. The data contained in this manual is only used to describe the product and shall not be regarded as a statement of security interest.

For the benefit of our customers, we will constantly try to ensure that the products we develop comply with the latest technology.

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Disclaimer

- We reserve the right to change the design in order to improve the quality or expand the application or comply to manufacturing workmanship.
- We will not bear any responsibility for losses and accidents caused by wrong operation or improper handling of our products.
- Dismantling of product will lose all warranty claims excluding the normal replacement of worn parts and components required for maintenance or commissioning operations.
- Unauthorized modification of products or use of non-original spare parts will directly lead to the invalidation of warranty and liability exemption.
- It is recommended to only use the spare parts provided by us or submit them to us or the designated professional team for installation.

Use Regulations

- Ensure that the product is used in a dry environment.
- Ensure that the product is used in the environment required by EMC standards.
- The product is only allowed to run within the parameters specified in the technical data.

Personnel Responsibilities

- Be familiar with the basic provisions of work safety & accident prevention and have received equipment operation guidance.
- Read and understand basic safety instructions and operations.
- You must have studied the relevant regulations and safety instructions and understand the possible hazards.
- Comply with relevant regulations and implement corresponding protective measures.

Safety Instructions

Prevent Electric Shock

-  Parts of the laser head such as nozzle, sensor, sensor interface and attached fasteners may not be fully protected by the ground wire due to function fault. These parts may have low voltage. When installing electrical equipment, please pay attention to taking anti electric shock measures for relevant personnel.
-  Note that the equipment shall be grounded as specified.

Guard against Danger

- Never put your hands or other body under the laser head.
- Repair and maintenance work can only be carried out after the power is turned off.
- Do not exceed the specified maximum pressure.
- It must be ensured that the laser head is in normal condition at all times.
- All fasteners such as bolts and nuts must be tightened.



Laser Caution

- Avoid direct laser radiation or scattering to the skin.
- Do not stare at the laser beam even when wearing optical equipment.
- Use special laser protective eyeglasses that meet the requirements of safety standards IEC 60825-1.

Prevent Waterway Corrosion

- In order to avoid corrosion, use the specified coolant and comply with relevant requirements and specified maintenance intervals.

Noise Prevention

- The corresponding measures shall be specified or explained and observed in order to prevent personnel from being harmed by noise when the cutting air pressure is high.

Storage and Transportation

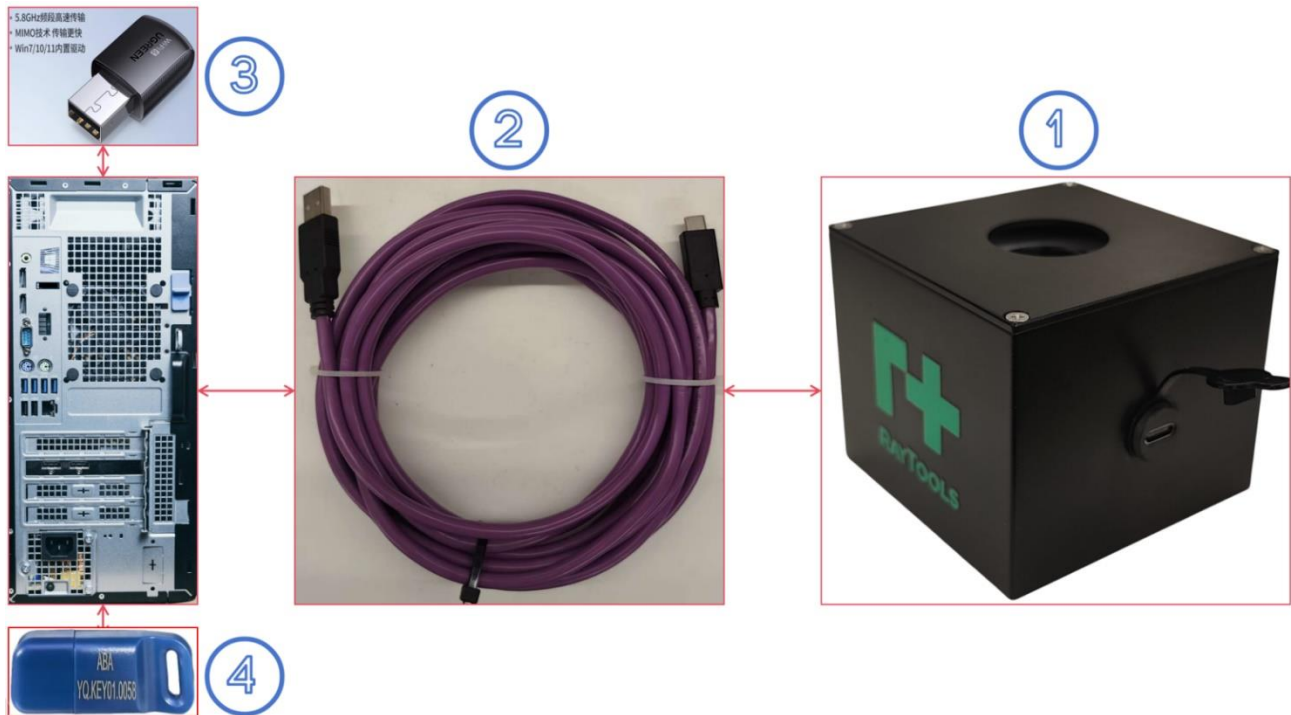
- Observe the storage temperature range allowed by the technical data.
- Take reasonable measures to prevent fire, vibration or impact.
- Do not store in or near the magnetic field.

Contents

1 Camera Installation	1
1.1 Bill of Material.....	1
1.2 Installation Guide	1
2 Software Installation	2
3 Software Usage	3
3.1 Software Function	4
4 Connection between Mobile Phone and PC	5
5 Remark	7

1 Camera Installation

1.1 Bill of Material



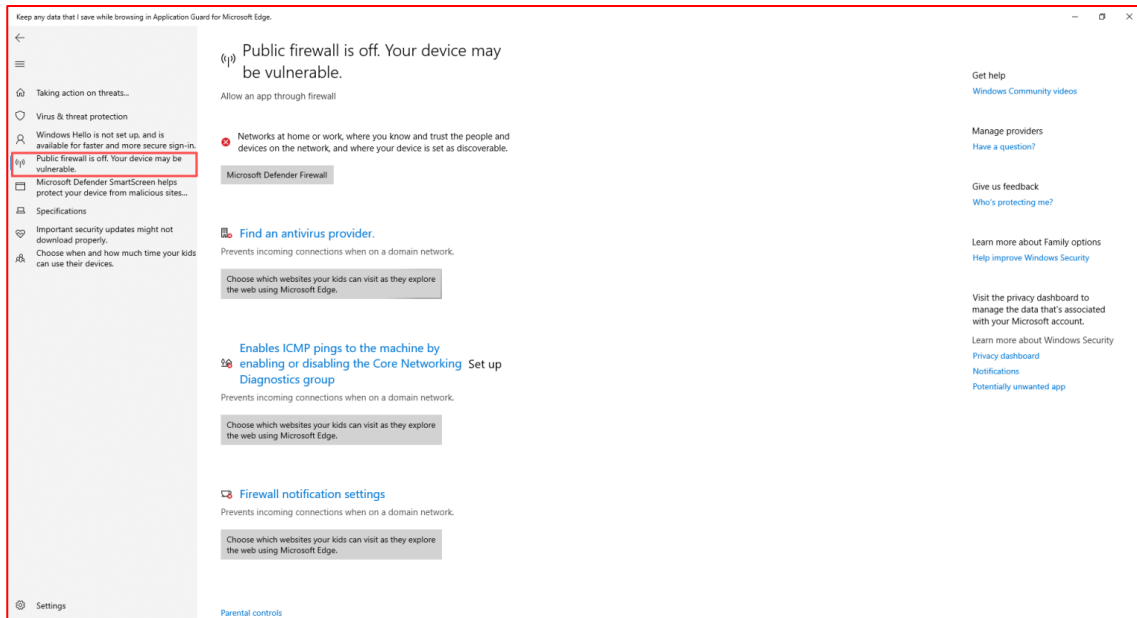
No.	Item	Product ID	Qty
1	Visual Beam Alignment Module (Manual)	YM.QTZ05.0013	1
2	USB to Type C Data Cable (5m)	XQ.WIRO9.0240	1
3	USB WIFI6 Network Card	X0.SUB06.0026	1
4	Dongle	YQ.KEY01.0058	1

1.2 Installation Guide

- Place beam alignment module (1) under the cutting head nozzle, approximately 10 mm from the nozzle tip.
- Connect module (1) to USB port of PC by USB to type C data cable (2), and the blue USB 3.0 port is preferred.
- Connect network card (3) and dongle (4) to PC.

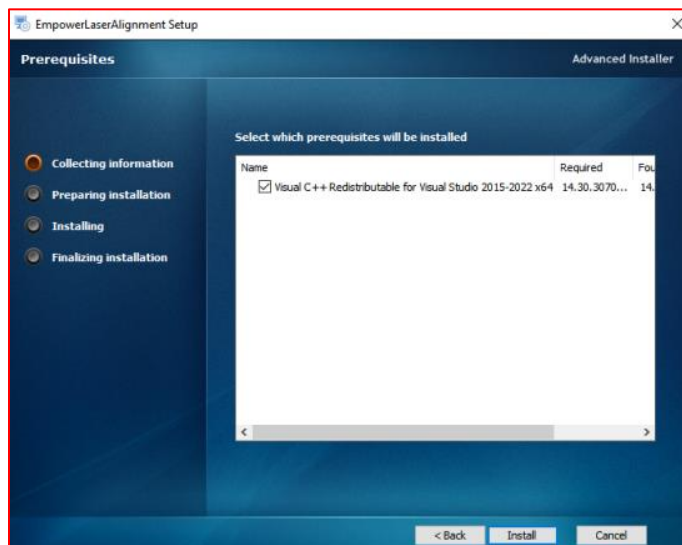
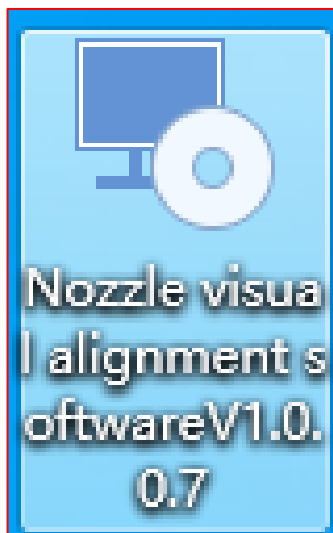
2 Software Installation

1. Turn off firewall



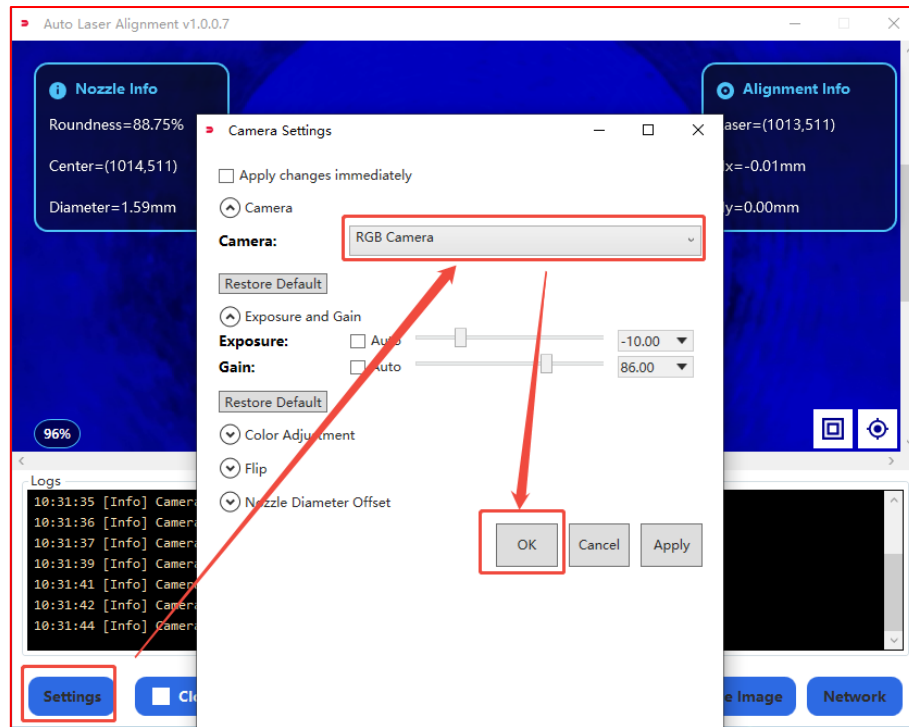
2. Right click on “Run as Administrator” and keep clicking “Next”.

At the last step, check the item of “Visual C++Redistributable for Visual Studio 2015-2022x64”, and click on “Install” to finish the installation.

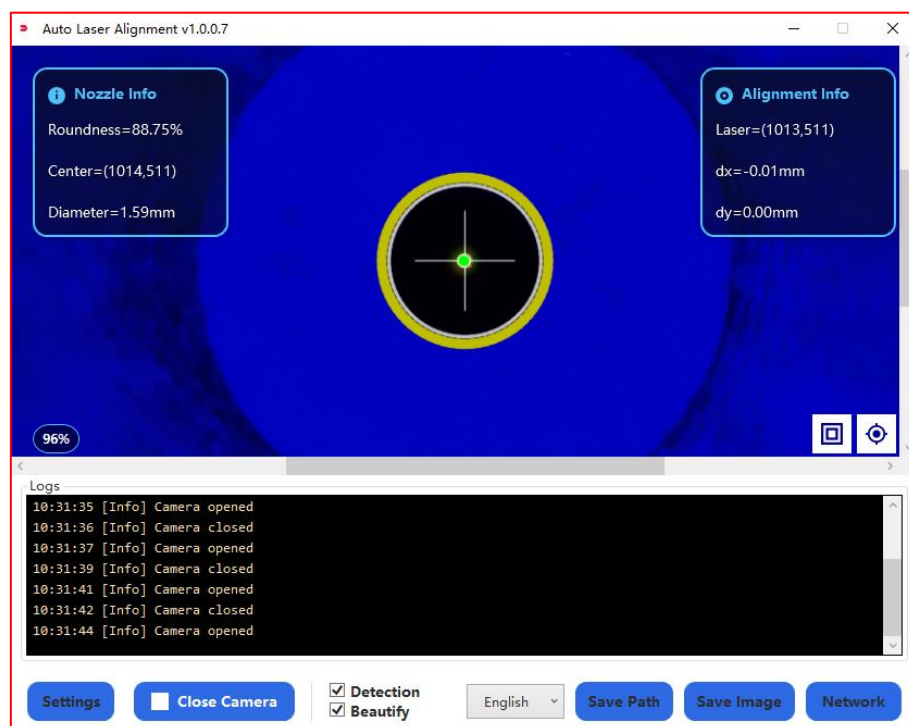


3 Software Usage

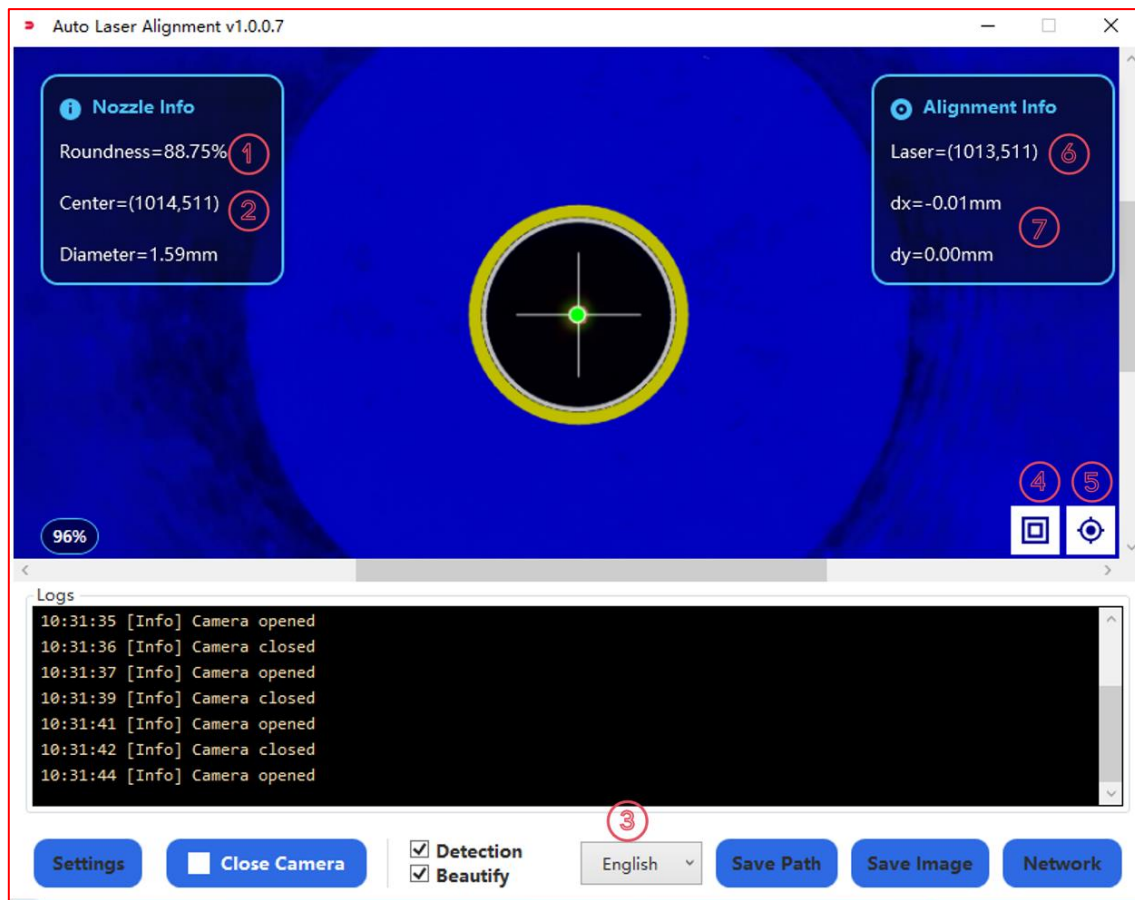
1. Open the software, click on “Settings”, select the camera model and click on “OK”, as shown below.



2. Click anywhere on the software interface to open the camera.



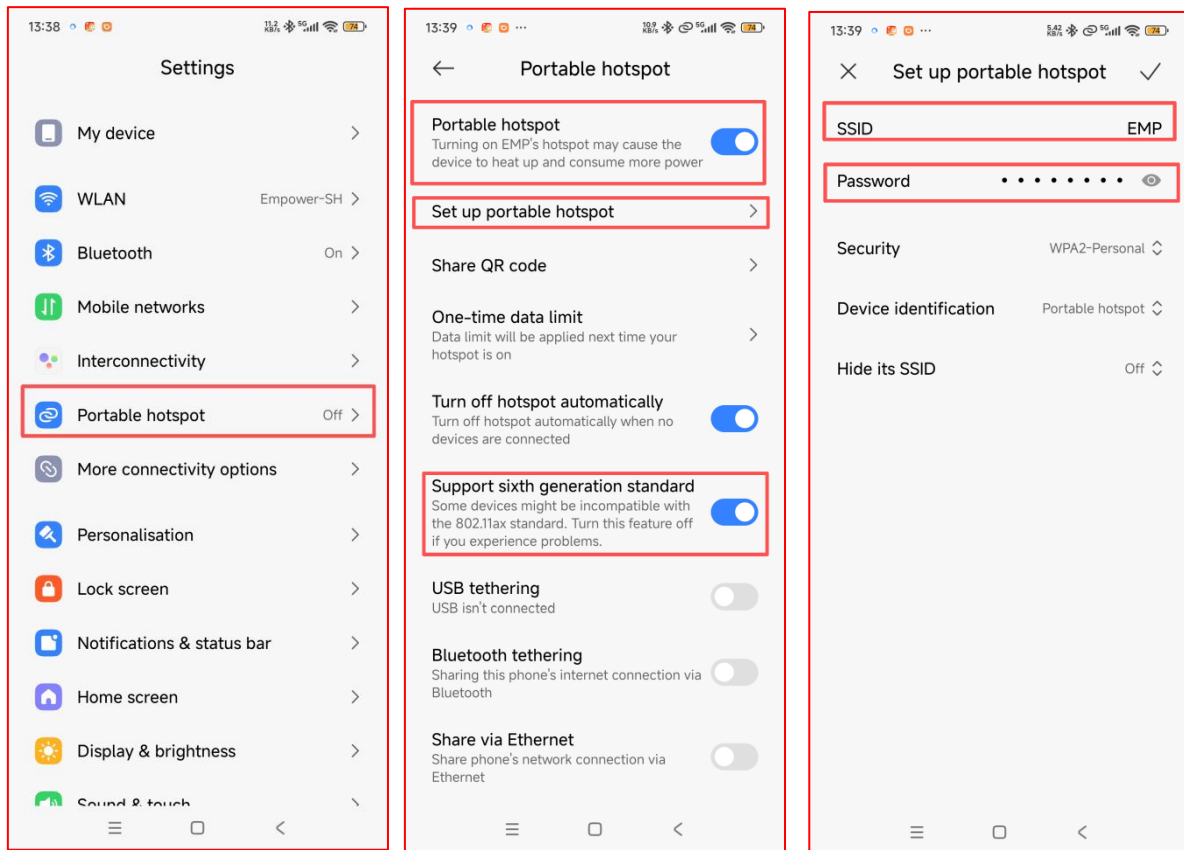
3.1 Software Function



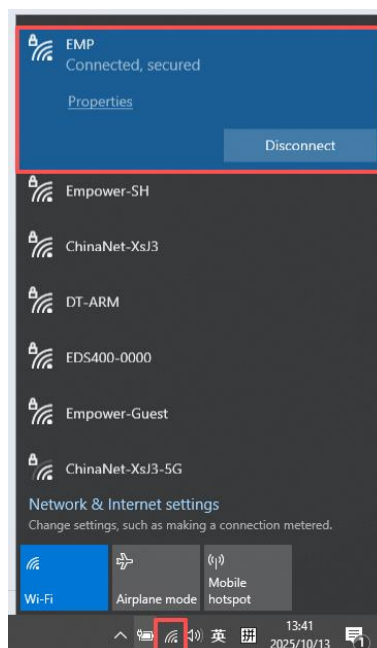
No.	Function Description
1	Display nozzle hole roundness ratio
2	Display pixel coordinates of nozzle center point
3	Set software language
4	Display all views
5	Enlarge the detected nozzle hole size to a proper scale
6	Display pixel coordinates of laser center point
7	Display deviation value between laser center coordinates (6) and nozzle center coordinates (2)

4 Connection between Mobile Phone and PC

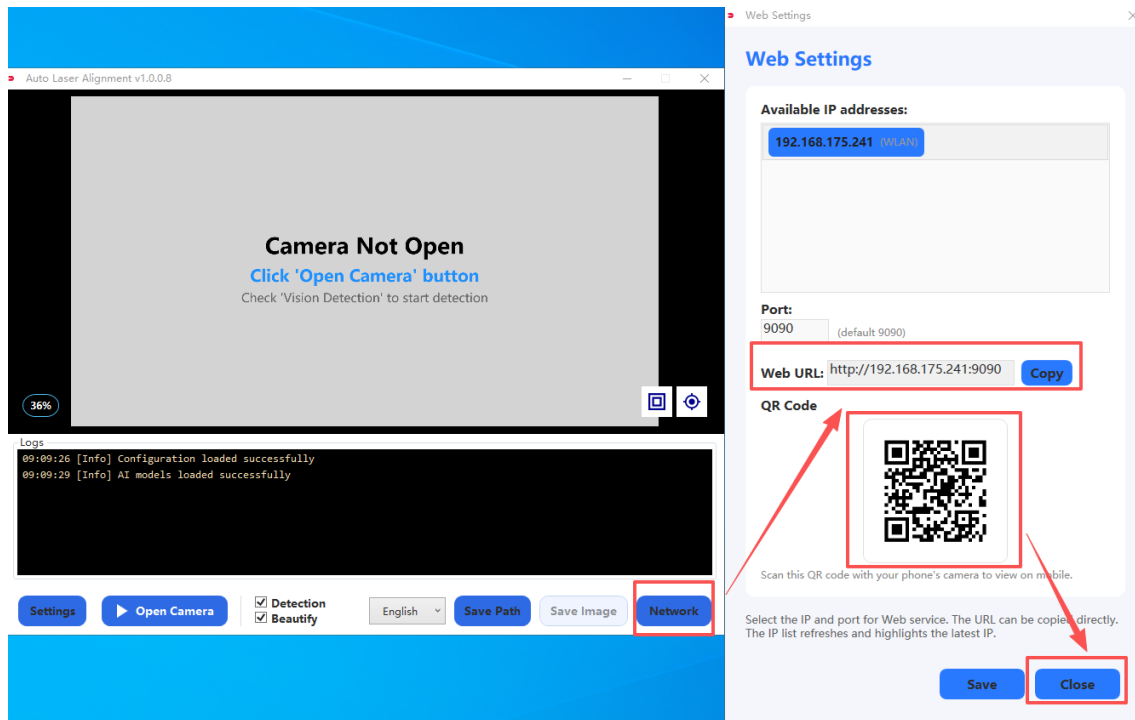
1. Turn on the hotspot of the mobile phone, and set network name and password.



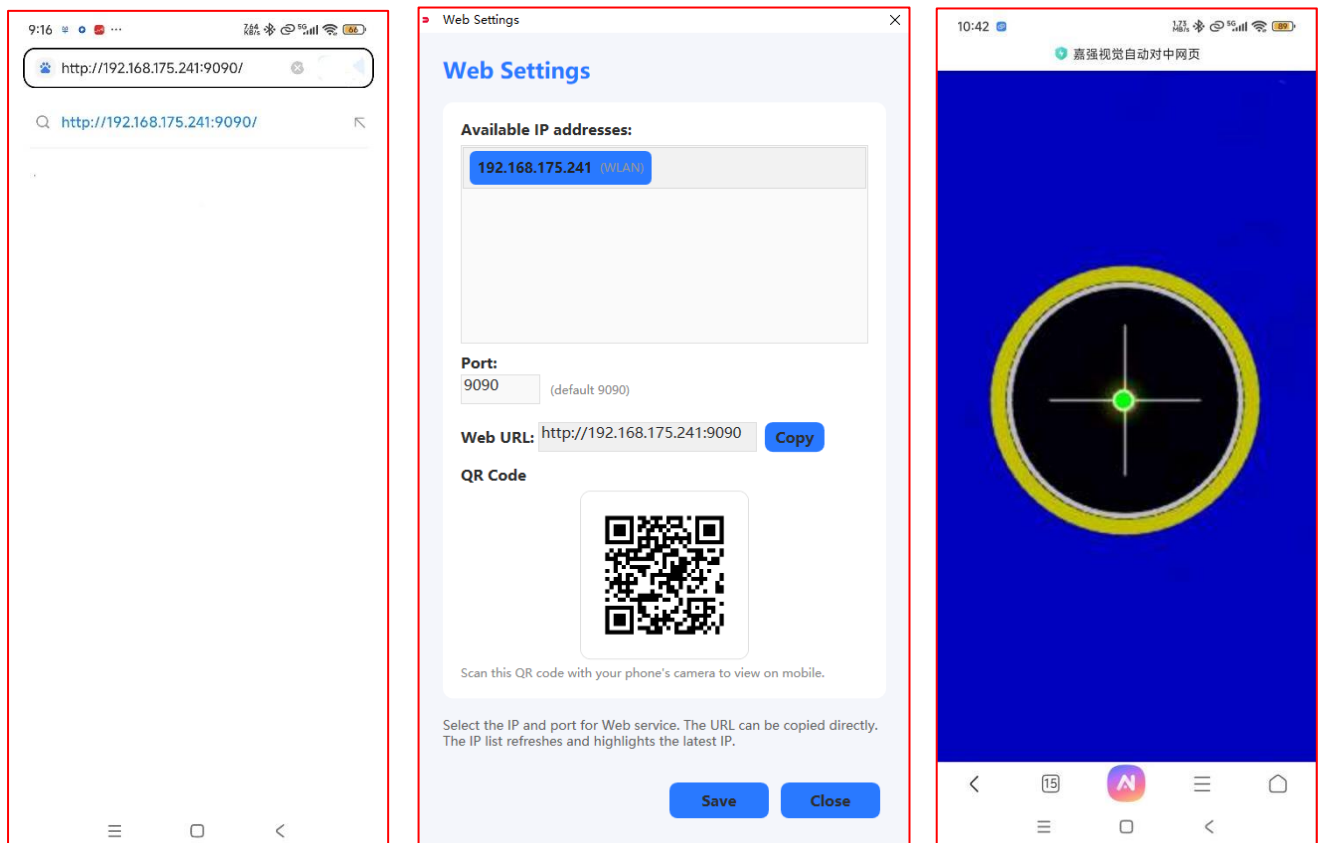
2. Connect the PC to the mobile phone's WIFI hotspot.



- Click on “Network” on the alignment software to view the network address.



- Input the network address on the phone browser/scan the QR code and open the webpage to view the image.



5 Remark

- Make sure to close the laser shutter before operation. Do not emit laser toward the camera.
- Before alignment, slowly adjust the Z-axis to about 10mm above the camera surface, then fine-tune to make the nozzle tip clear.
- Before alignment, adjust the focus of the laser head to minimize the red light spot.