



# WLR-718-Mini

Mini version of industrial collision avoidance LIDAR  
Product Brochure



## Attention

Please read the following safety precautions carefully to avoid damage to this product or other products connected to this product.

- **Power cords:** Only power cords approved by the country in which they are located are allowed to be used.
- **Checking product ratings:** To avoid excessive current shocks, check the ratings and marking instructions marked on the product and consult the manual for detailed information on ratings before connecting the product.
- **Power-up reminder:** the time interval between power-ups needs to be more than 10 seconds during use.
- **overvoltage protection:** ensure that no excessive voltage is connected to the product.
- **Grounding:** Ground the power cable ground wire of this product. (a) To avoid electric shock, ensure that the ground terminal of the power cable of this product is reliably connected to the protective earth terminal before connecting any input or output of this product.
- **Anti-static protection:** static electricity may cause damage to the instrument and should be carried out in an anti-static area or well grounded if possible.
- **Optical cover protection:** It is strictly forbidden to use hard objects to scratch the optical cover, otherwise it may cause irreversible damage to the radar; to avoid dust affecting the ranging performance, please keep the optical surface of the product clean.
- **Use environment:** To ensure the normal operation of the radar, it is strictly prohibited to use or store the instrument in a flammable and explosive, corrosive environment.
- **Safety for human eyes:** There is a continuous infrared laser emission when the equipment is operating, so please do not look directly at the light-emitting surface for a long time to ensure safety.
- **Product Failure:** If you suspect that this product is malfunctioning, please contact the relevant personnel of Manji Technology for testing.

Any maintenance, adjustment or parts replacement must be performed by Wanji; unauthorized disassembly of the instrument and open cover operation is strictly prohibited.

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# 1. WLR-718-Mini Product Description

WLR-718-Mini is a measurement type mini LIDAR developed by Wuhan Wanji Optoelectronics Technology Co. Within the detection range of this LIDAR, different detection areas are set, and when the LIDAR detects an object entering the area, the detection result is outputted through the switching quantity. The LIDAR adopts the TOF principle of laser, combined with high-frequency laser pulse generation technology, precise optical scanning system and exquisite structural design, so that it can quickly and accurately achieve scanning and ranging in the range of 270°/10 meters (@10% reflectivity), and its high stability and strong anti-interference ability against ambient light. Forklifts and other types of industrial vehicles/robots for navigation and obstacle avoidance, as well as for logistics/security applications.



## 1.1 Equipment Features

- Mini models to save assembly space.
- High quality of point cloud, adapting to complex environment ranging and obstacle avoidance.
- Ultra-small spot, the scatter angle can be reduced to 10 milliradians, more accurate distance measurement.
- Ultra-low horizontal angle, horizontal angle control at  $\leq 0.5$  degrees, without fear of low installation position.
- Flexible IO protection with custom adjustment of protection zones.
- Modular design + automated production to guarantee mass production supply capacity.
- IP66 protection level for stable operation outdoors.
- $-25^{\circ}\text{C} \sim 50^{\circ}\text{C}$  wide temperature range to meet the use of harsh environments.
- The use of Class 1 lasers to ensure the safety of the human eye.
- Support for multiple installation methods.

## 1.2 Applications

The 718-Mini's high performance features make it ideal for mobile robot chassis, unmanned forklifts and other types of industrial vehicles/robots for navigation and obstacle avoidance, as well as for logistics/security applications.

- Mobile robot chassis.
- Industrial vehicles/robots.
- AMR intelligent logistics robot.
- Unmanned handling laser forklifts.
- AGV handling trolleys.
- unmanned loading.
- SR guiding, cleaning, extermination, inspection and delivery robots.

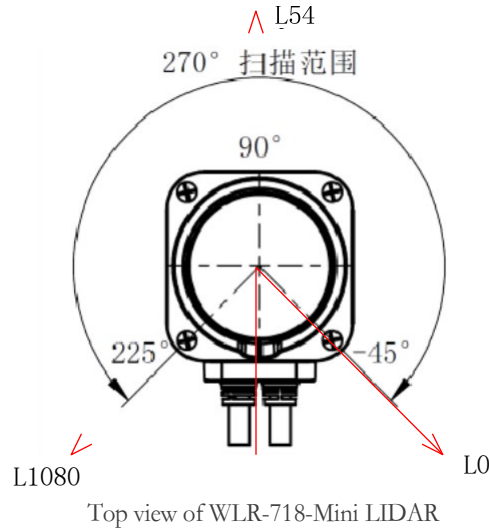
## 1.3 Technical Specification Sheet

Basic parameters	Product Model	WLR-718-Mini
	Scanning Principle	TOF
	Number of lines	Single line
	Size	Length 50 mm, width 55 mm, height 72.5 mm
	Laser wavelength	905nm, (Level 1 human eye safety)
	Net weight	0.3kg
	Power consumption	4W
	Operating Voltage	9-28V DC
	Operating temperature	-25°C ~ 50°C
	Storage temperature	-30°C ~ 70°C

Performance Parameters	Scanning frequency	15Hz/25Hz
	Detection distance	10m(@10%)/25m(@90%)
	Scope of work	0.5-25m
	Distance measurement accuracy	± 30mm (typical)
	Out Points	16200/27000 points/sec
	Horizontal field of view	270°
	Horizontal angle resolution	0.25°
	Response time	<67ms
	Switching input	4-way, PNP and NPN compatible
	Switching output	3-way PNP or 3-way NPN

Related Certifications/ Access Agreements	Protection level	IP66
	Communication Interface	Network port, IO signal cable

## 1.4 Radar scan range and shot sequence



The WLR-718-Mini provides point cloud data over a 270° range, with the 90° position directly in front of the sensor and the single-turn scanning measurement sequence in a counterclockwise direction. the WLR-718-Mini has a 90° blind spot, located in the 225° to 315° range.

Since the WLR-718-Mini radar can be set to send data in both "forward/backward" mode, the corresponding single-turn scanning measurement sequence and data sending sequence are shown in the following figure, where L0 indicates the initial angle ( $\theta = 0^\circ$ ) scanning measurement distance, L540 indicates the 540th angular resolution

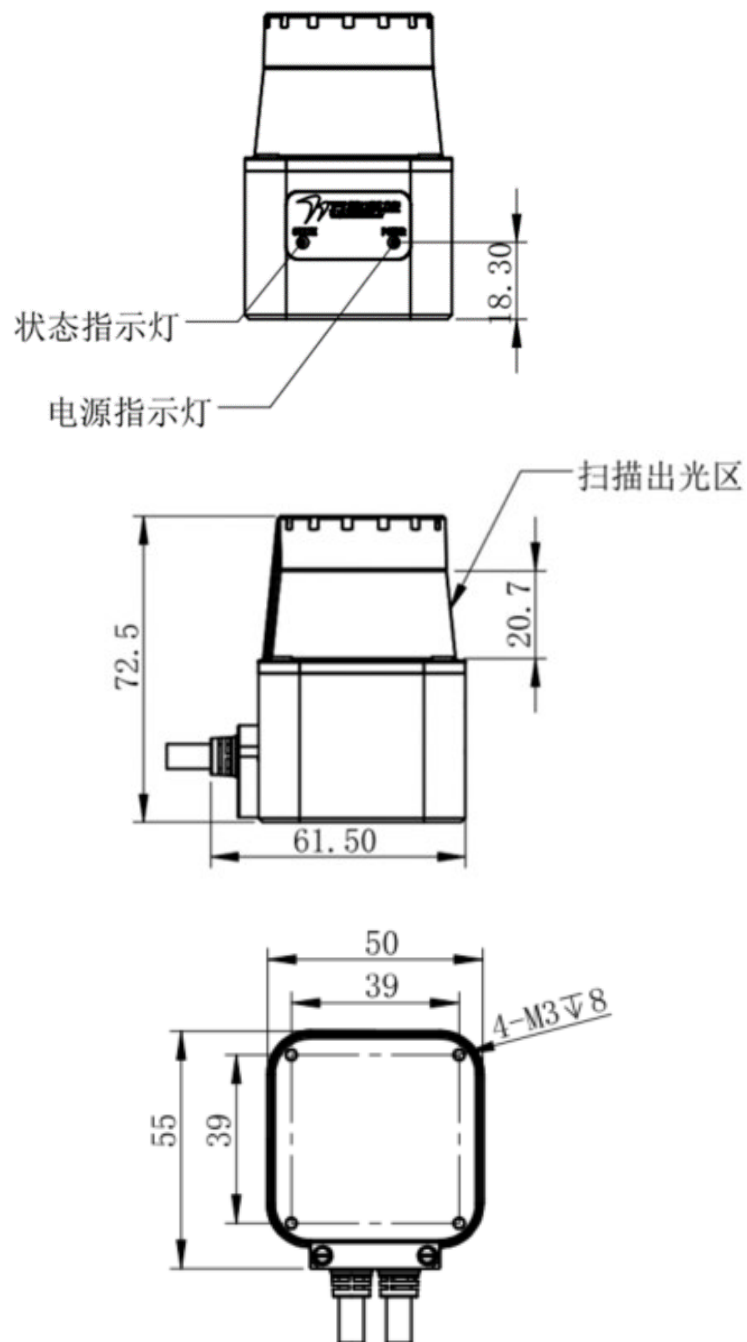
( $\theta_{540} = 540/4 = 135^\circ$ ) and L1080 indicates the scanning measurement distance for the end angle ( $\theta_{1080} = 270^\circ$ ), and only the information of the above 3 angles is used here to illustrate the sequential relationship, and other scanning measurement distances between L0 and the other scanned measurement distances between L0 and L1080 are not listed here. The scanning order of the radar is fixed as follows: scanning in counterclockwise direction in order of resolution.

When the parameter is configured as "positive loading", the data is sent in the following order: L0 ..... L540 ..... L1080.

When the parameter is configured as "flip-flop", the data is sent in the following order: L1080 ..... L540 ..... L0.

### 1.5 Installation Dimension Drawing

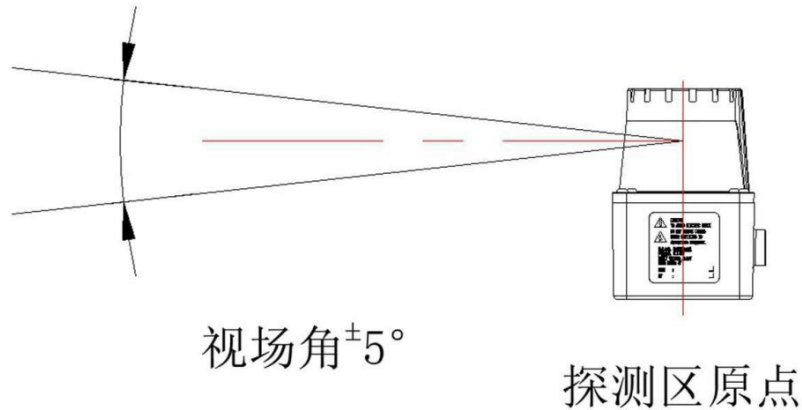
Each WLR-718-Mini will have a slight deviation in the vertical angle of laser emission. Using the horizontal plane as a reference, the height of the laser emitting surface: 47mm from the bottom of the bottom case; the initial vertical angle deviation of the WLR-718-Mini's laser is  $\pm 1^\circ$ .





## 1.6 Multi-radar installation

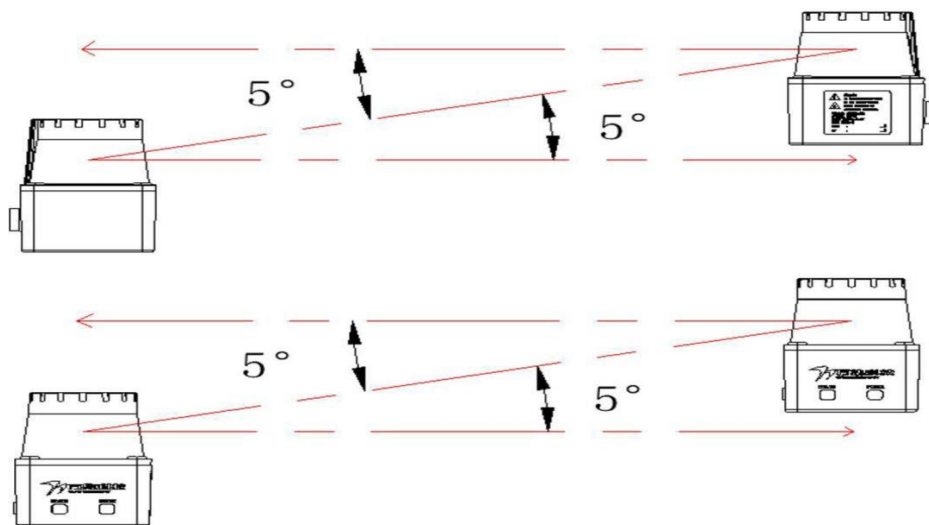
The WLR-718-Mini LIDAR uses light pulses for object detection and its receiving field of view is  $\pm 5$  degrees from the horizontal receiving position, so if an optical interference source is within its receiving field of view, it may lead to false detection. Therefore, before installing the sensor, the user needs to check the surrounding environment.



If optical interference cannot be avoided, the field of view of the installed LIDAR should be guaranteed to be  $\pm 5$  degrees or more to prevent interference. When two or more symmetrical LIDARs are used, there is also a risk of false detection due to pulsed laser signals from the symmetrical LIDARs. The following diagram shows how to avoid mutual interference when using multiple LIDARs.

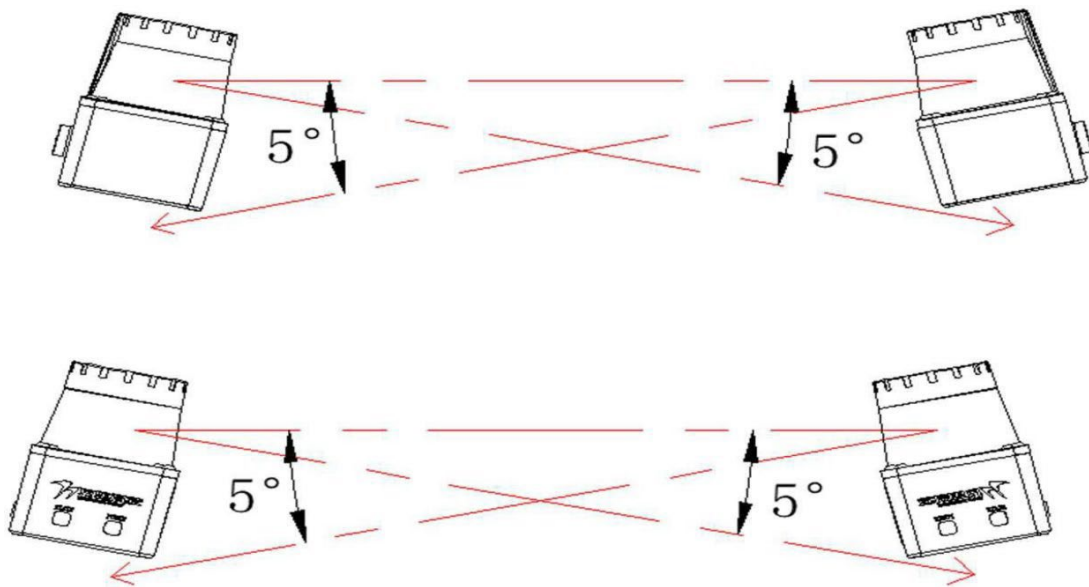
### 1) Change of mounting height

Set the installation position to high or low, the original points of LIDAR mutual detection should be separated from the detection plane by  $\pm 5$  degrees or more.



## 2) Change of mounting angle

The mounting angle of the laser can be set so that the original points of the LIDAR mutual detection should be separated by  $\pm 5$  degrees or more from the detection plane.



Staggered installation schematic

3) Adding a baffle in the middle  
of the LIDAR

By setting a baffle in the middle of the LIDAR unit, the laser cannot reach the opposite sensor to avoid mutual interference.

## 1.7 Use matters

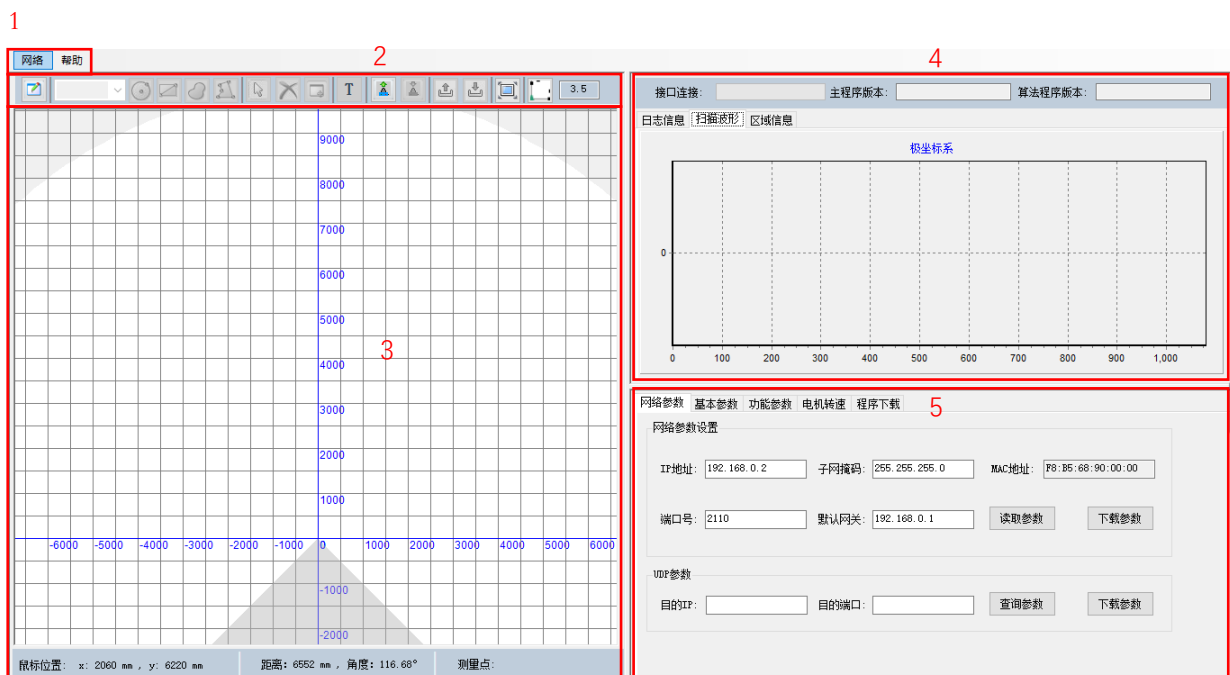
Before using the radar uplink/driver, please complete the appropriate operations as follows

- 1) Before using the radar, ensure that the radar box is well sealed and that the radar label is clearly visible.
- 2) After unpacking the box, please confirm the integrity of the product by judging from the following two points.  
A: Observe the radar filters for wear and tear, each radar is shipped with a protective film to ensure that the radar filters are not damaged in transit, so make sure the radar protective film is intact before use and tear off the protective film. **(Note: If you do not tear off the protective film direct use will have an impact on the radar point cloud!)**  
B: Observe whether the radar shell, cable and other components are damaged, the standard cable length of WLR-718-Mini is 1.5m, confirm that the cable is intact without scratches, the radar terminal block is fixed firmly without loosening, and the radar shell is free of wear and scratches before use.
- 4) After the above steps are confirmed, you can start to power on the test, it is recommended to use 9-28V DC switching power supply/regulated power supply to supply power, you can hear the radar motor rotate after about 1S power on.
- 5) Once this is done, you can connect to the radar application via the network.
- 6) Note: dust with a soft brush can be (such as paint brush), oil with water-based cleaning agents (such as detergent to water), soft cloth gently wipe, organic solvent-based cleaning agents such as alcohol, acetone, etc. is strictly prohibited to protect the scanning light area mirror.

## 2. WLR-718-Mini Upper computer overall function introduction

The WLR-718-Mini upper computer usage mainly includes network connection, scanning data waveform view and LIDAR parameter setting, IO protection setting, program update and download, etc. After installing the WLR-718-Mini software and starting the program, the program interface is as shown in the figure below, which mainly contains the following 5 parts.

- 1) Connection area: for connecting devices via the network.
- 2) Area operation area: for querying, configuration mode setting, graphic drawing, event table template addition, etc..
- 3) Data display area: real-time display of scanned point cloud data information in a Cartesian coordinate system.
- 4) Data display area: real-time display of scanned point cloud data information, area information parameters, etc. in the polar coordinate system.
- 5) Parameter setting area: used to set each application parameter of the device, event table parameter setting and addition, program update, etc..



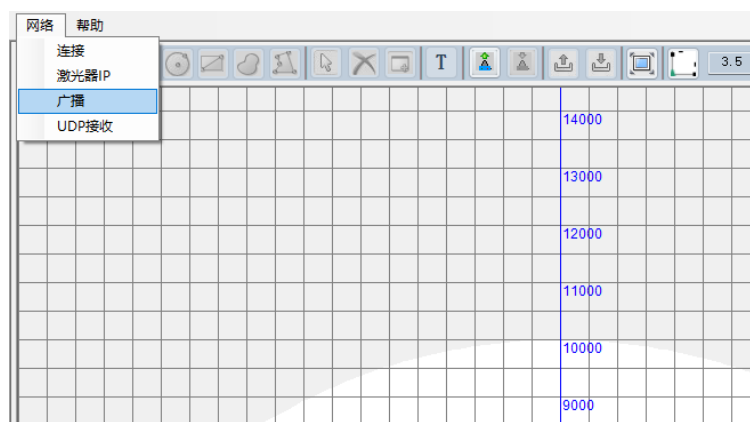
## 2.1 Network Connection

Use the WLR-718-Mini crystal header to connect to the network port slot of PC/IP/controller, after successful connection, you have to set the radar IP broadcast and set the PC

Network parameters.

- Radar IP Broadcast

1) Select Network → Broadcast to bring up the Broadcast Query IP interface.



2) Click the "Start Broadcast" button to view the IP and port number of the 718-Mini LIDAR.



3) Set the network parameters of the PC to the same network segment as the radar based on the IP address and port number obtained from the broadcast.

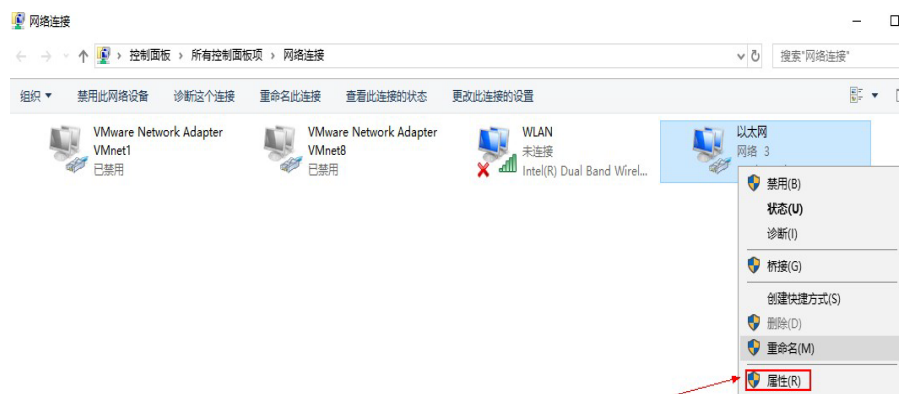
- PC network parameter setting



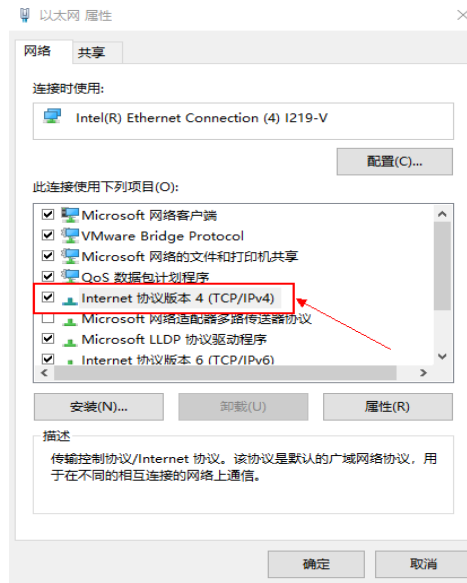
4) Click on "Change adapter options".



5) Right-click on the local link being used and select the "Properties" menu item in the pop-up menu.



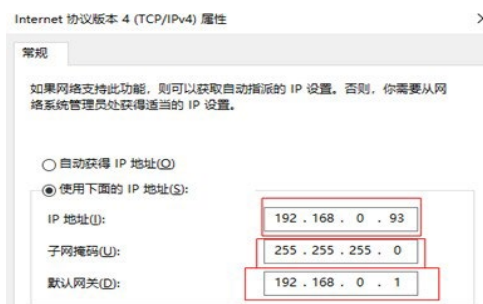
- 6) Double-click on the "Internet Protocol 4 (TCP/IPv4)" item.



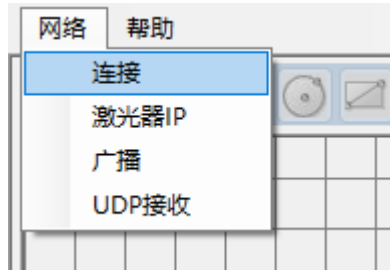
- 7) Select the item "Use the following IP address".



- 8) Set the network parameters of the PC under the same network segment as the network parameters of the radar according to the IP address broadcasted in step 2). For example, the IP address of the radar broadcasted in step 2) is 192.168.0.2. To set the PC and the radar in the same network segment, the IP address of the PC can be set to any of the 254 IP addresses between 192.168.0.1 and 192.168.0.255 (excluding 192.168.0.2), for example 192.168.0.93. The subnet mask is set to 255.255.255.0, and the default gateway is set to 192.168.0.1.



- 9) Click OK to finish setting the PC network parameters, and close the setting interface to make the PC connect with the radar normally.
- 10) Select Network → Connect to connect, as shown in the following figure.



- 11) If a waveform appears in the waveform display area and TCP is displayed normally, the connection is successful.

## 2.2 View of waveforms

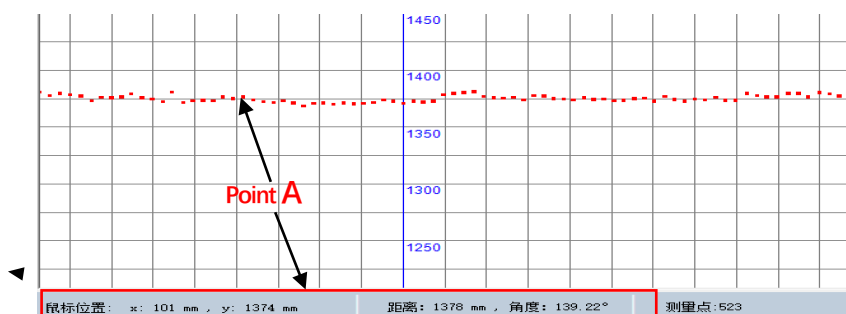
### Waveform Chart View

Users can view the waveform of WLR-718-Mini on the host computer. The LIDAR output waveform is mainly divided into two types: right-angle coordinate system and polar coordinate system, and the host computer can be used to perform operations related to waveform viewing, dragging and setting, as described below.

#### 1) Right-angle coordinate system waveform view

The point cloud waveform of LIDAR in Cartesian coordinate system is shown on the left side of the application interface, as shown in the figure below. The right mouse button can be used to drag and drop the radar point cloud image.

When the left mouse button points to the point cloud, the basic information of this point is marked at the bottom of the application software interface, for example, the information of point A: distance 1378mm: this measurement point is 1378mm from the origin of the coordinate system; angle 139.22°: this measurement point is located at the LIDAR angle 139.22°; measurement point 523: this measurement point is located at the 523rd point of the total radar point cloud.

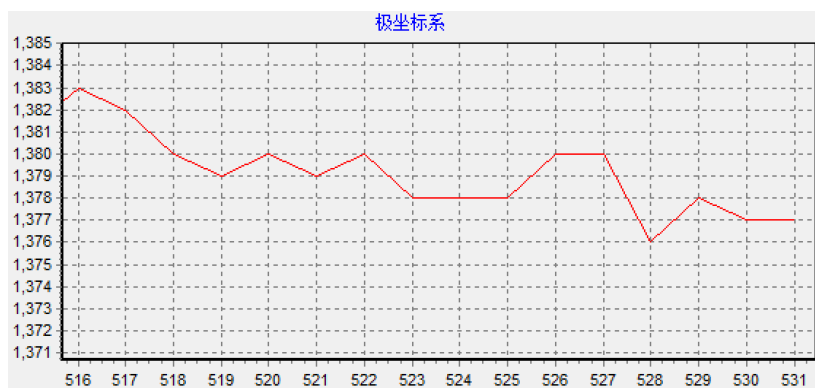




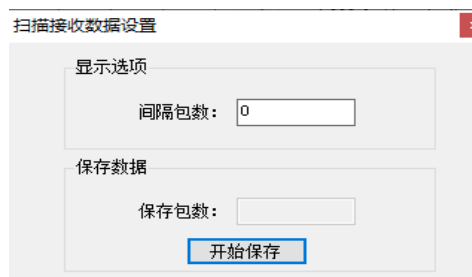
## 2) Polar coordinate system waveform view

The "Scanned Waveform" in the upper right part of the application interface is the point cloud waveform of LIDAR in polar coordinate system, as shown in the figure below. Vertical coordinate in the polar coordinate system: the distance of the measured object from the radar center position; horizontal coordinate: the horizontal coordinate indicates the number of the measured point cloud; the total measured points are  $270^\circ/0.25^\circ=1080$  (Note:  $270^\circ$  indicates the scanning range;  $0.25^\circ$  indicates the angular resolution).

(a) After the mouse is framed from left to right, the framed part will be enlarged; after the mouse is framed from right to left, the polar coordinate system will be restored to its default size.



Double click anywhere in the polar coordinate system will pop up the "Scan Received Data Settings" pop-up window, modify the interval packet number to change the refresh frequency of the point cloud map (the default value of the interval packet number is 5, close the pop-up window directly after modification, no need to click Start to save). Change the interval packet number to 0 to get all the scanned data, you can see the point cloud map more smoothly, but there are requirements for computer performance.



## 2.3 Network Parameters

### 2.3.1 Network parameter setting

Users can set and query the network parameters of the WLR-718-Mini LIDAR through the "Network Parameter Setting" function, as shown in the figure below.



The "网络参数设置" (Network Parameter Setting) window contains the following fields and buttons:

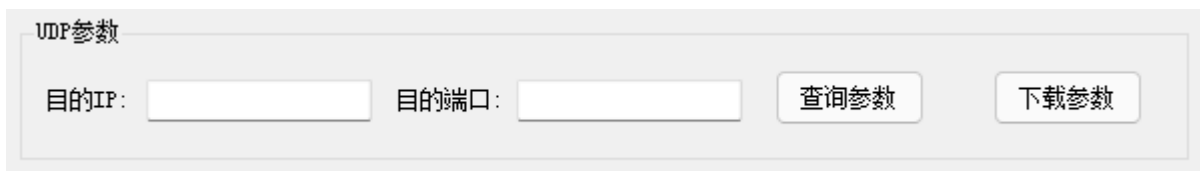
- IP地址: 192.168.0.2
- 子网掩码: 255.255.255.0
- MAC地址: F8:B5:68:90:00:00
- 端口号: 2110
- 默认网关: 192.168.0.1
- 读取参数 (Read Parameters)
- 下载参数 (Download Parameters)

Firstly, connect the host PC to the radar, then the user fills in the required IP address, port number, subnet mask, default gateway and other parameters, and then click the "Download Parameters" button to change the network parameters of the WLR-718-Mini Lidar. After changing the network parameters of LIDAR, you need to change the network parameters of PC and the IP address and port number of WLR-718-Mini upper computer network connection accordingly, and then reconnect the upper computer.

### 2.3.2 UDP Parameters

Users can also connect to the WLR-718-Mini via UDP.

- 1) Ensure the normal connection between the host computer and the radar TCP, click "Query Parameters", change the "Target IP" of the radar to the IP of the computer, and click "Download Parameters", as shown in the figure below.



The "UDP参数" (UDP Parameters) window contains the following fields and buttons:

- 目的IP: (empty text box)
- 目的端口: (empty text box)
- 查询参数 (Query Parameters)
- 下载参数 (Download Parameters)

- 2) Change "Data Protocol" to "UDP" in the basic parameters and click Download, as shown in the figure below.



The "基本参数" (Basic Parameters) tab is selected. The "应用参数" (Application Parameters) section shows the following settings:

- 扫描模式: (empty dropdown)
- 安装方式: (empty dropdown)
- 强度使能: (empty dropdown)
- 数据协议: UDP (selected, highlighted with a red box)
- 心跳状态: (empty dropdown)
- 扫描起始点: (empty text box)
- 读取参数 (Read Parameters)
- 下载参数 (Download Parameters)

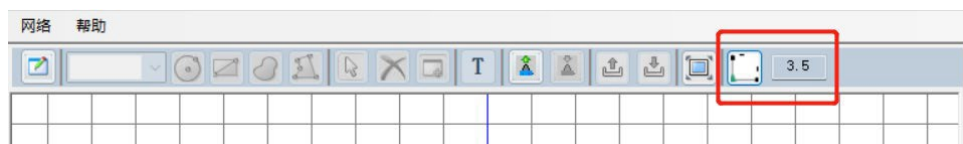
3) Disconnect the TCP connection and click "UDP Receive", the following figure shows the UDP receive mode.



## 2.4 Basic parameters

### 2.4.1 Display Parameters

You can set the plotting method of the Cartesian coordinate system, and set the size of the plotting points when the "plotting method" is set to "Point", and the width of the lines when the "plotting method" is set to The width of the lines can be set



when the "Drawing Method" is set to "Line Chart". The following figure shows.

### 2.4.2 Application Parameters

Users can modify the radar parameters through the "Application Parameters" setting function in "Basic Parameters" and click "Download Parameters" to make changes.

**Scan mode:** 15Hz/0.25° and 25Hz/0.25° can be selected. The higher the scan frequency, the faster the device perceives the external environment, and when the working mode is switched, the waveform needs to wait for a period of time before the display is refreshed.

**Installation mode:** select according to the installation position of the equipment, if the equipment is installed facing upward, select the positive installation, facing downward, select the reverse installation; **strength enable:** select whether to open the strength value.

**Data protocol:** configurable in TCP and UDP modes.

**Heartbeat Status:** When it is turned on, the current connection status is detected between the device and the host computer through the heartbeat command of the Wanji protocol, and if there is no heartbeat interaction, the device will reset the network;

**Scan start point:** the rotation angle of the point cloud map (default value 135).



应用参数

扫描模式:	15hz/0.25°	数据协议:	TCP
安装方式:	正装	心跳状态:	关闭
强度使能:	使能	扫描起始点:	135

读取参数 下载参数

### 2.4.3 Filter settings

When there are two objects in front and behind, and the LIDAR pulse hits the edge of the front object, some of the laser pulses may hit the back object, resulting in laser "trailing" problem. 718-Mini LIDAR's trailing filter function can be turned on or off through the "filter setting", as shown in the figure below.



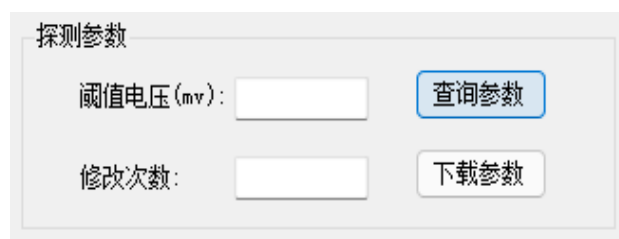
滤波设置

拖尾滤波:	开启
-------	----

读取参数 下载参数

### 2.4.4 Detection parameters

Users can set the detection sensitivity through the detection parameters, mainly to filter the noise formed by water mist and dust, the default value of the threshold voltage is 300, the effective range of 300 to 700, the larger the threshold voltage, the relatively strong ability to filter the noise, but the ability to measure the distance will be reduced; the number of modifications can record the number of modifications.



探测参数

阈值电压(mv):		查询参数
修改次数:		下载参数

## 2.5 Functional parameters

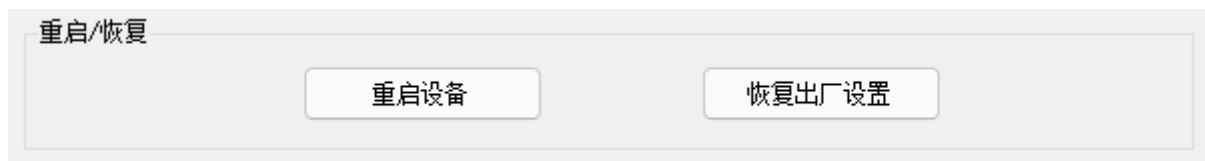
### 2.5.1 Working mode



- Regular mode: without IO function.
- Noise reduction mode: without IO function, with enhanced filtering (performance consumption).
- Zone alarm: with IO function.

### 2.5.2 Reboot/Restore

The user can restart the radar without power supply by using the "Restart/Restore" button in the "Restart/Recovery" function of the basic parameters, and can reset the radar in case of wrong parameter setting by using the "Restore Factory

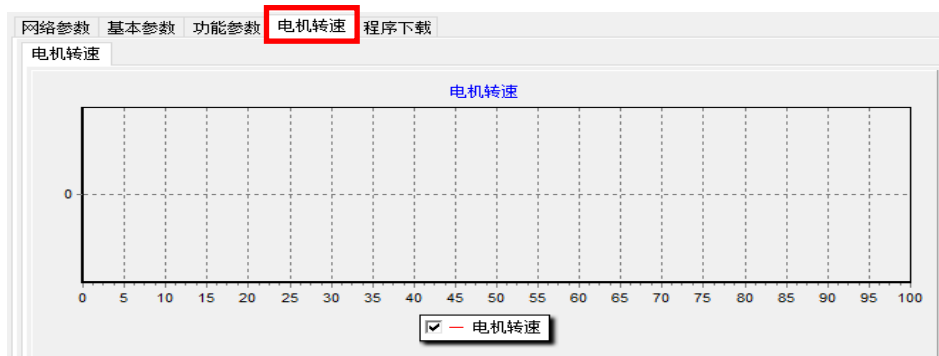


Settings" button. The "Restore factory settings" button can be used to reset the radar when the parameters are set incorrectly.

As shown in the figure below.

## 2.6 Motor speed

After the successful connection between the host computer and the radar, check "Motor Speed", the motor speed of the radar will be displayed in the graph in real time.



### 3. WLR-718-Mini IO part of the upper computer overall introduction

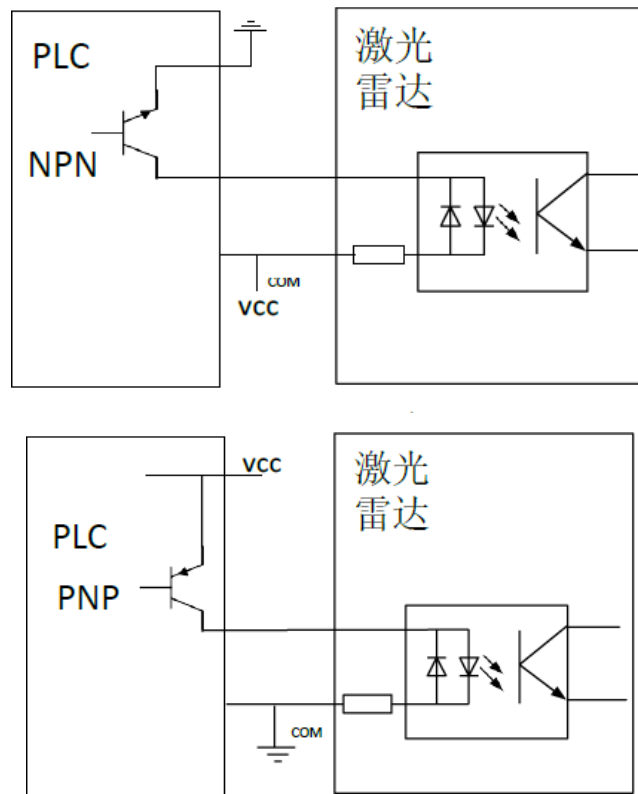
#### 3.1 IO Interface Definition

12 core wire (Power supply + IO port)	In order from left to right.	
	1. Input 1 (IN1)	Yellow-white
	2. Input 2 (IN2)	Yellow
	3. Input 3 (IN3)	Brownish white
	4. Input 4 (IN4)	Brown
	5. Enter COM	Red and white
	6. Output 1 (OUT1)	Purple
	7. Output 2 (OUT2)	Blue
	8. Output 3 (OUT3)	Orange
	9. Output COM	Black and white
	10. Power+	Red
	11. Power supply-	Black Shield: Shield ground
Network Cables	RJ45 Crystal Headers	

#### 3.2 Input/output level

##### 1. Input level.

4 inputs, compatible with NPN and PNP inputs, BANK switching by combination, IO inputs as shown in the figure.

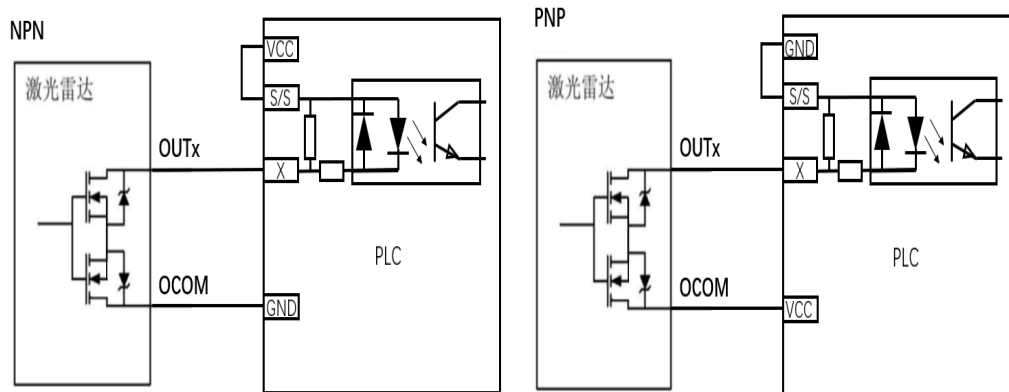


By changing the circuit connection, the area group supports two types of external input ports, NPN type and PNP type, which are connected as follows.

- 1) When the NPN type output is connected, the user output is 0 high and 1 low when the COM terminal is connected high.
- 2) When a PNP type output is connected, the user output will be 1 high and 0 low when the COM terminal is connected low.

## 2. Output level.

3 outputs compatible with NPN or PNP outputs, IO outputs as shown in the figure.



Users can set the IO output level according to their needs, such as setting the output level of the monitoring area according to the following figure.

- 1) NPN output: OUT1~OUT3 output low active;  
then the NPN output level and area state are

Region	Switching output		
	OUT1	OUT2	OUT3
Fields 1, 2 and 3 have objects	Low	Low	Low
Field 2 and 3 have objects	High	Low	Low
Field 3 with objects	High	High	Low
None of the objects	High	High	High

Description: Field1 innermost layer, Field2 middle layer, Field3 outermost layer

- 2) PNP output: the outputs of OUT1~OUT3 are active high;  
then the PNP type output level and area status.

Region	Switching output		
	OUT1	OUT2	OUT3
Fields 1, 2 and 3 have objects	High	High	High
Field 2 and 3 have objects	Low	High	High
Field 3 with objects	Low	Low	High
None of the objects	Low	Low	Low

Description: Field1 innermost layer, Field2 middle layer, Field3 outermost layer



3.3 IO active level switching

The user can adjust the input and output effective levels of the IO in the function parameters according to the actual usage needs. The settings are shown in the following figure.

IO高低电平切换

IN1有效电平: 低电平识别为1

IN2有效电平: 高电平识别为1

IN3有效电平: 高电平识别为1

IN4有效电平: 低电平识别为1

OUT1有效电平: 低电平

OUT2有效电平: 高电平

OUT3有效电平: 高电平

读取参数

下载参数

3.4 Area operation area function introduction



① Current mode: It can be switched to query mode and configuration mode, and the configuration mode displays the "Event Table Information" column, as shown in the following figure.

日志信息 扫描波形 区域信息

区域信息

激活事件表

激活事件表:

查询激活

下载参数

事件切换方式

事件切换方式:

查询参数

下载参数

监控事件

当前监控事件:

查询参数

下载参数

输出IO状态配置

开关状态:

发送频率: 扫描频率的 倍

下载参数

输出IO状态

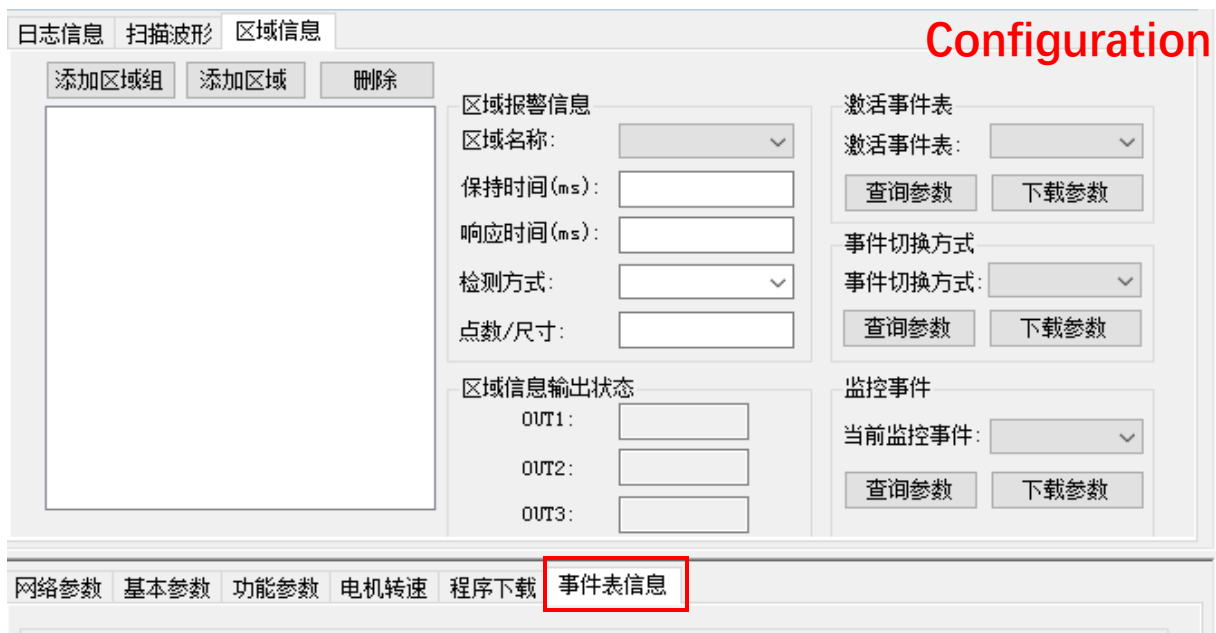
OUT1:

OUT2:

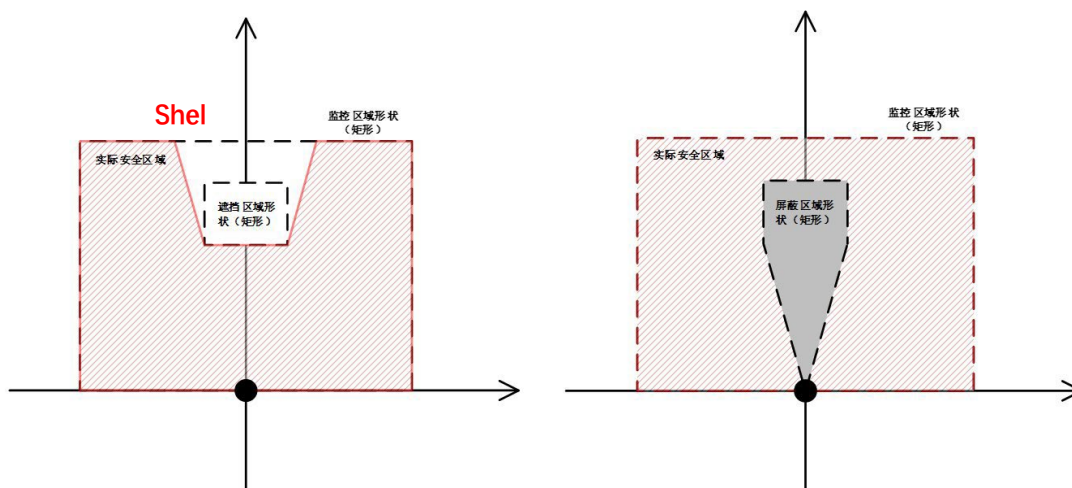
OUT3:

网络参数 基本参数 功能参数 电机转速 程序下载

Query




② Graphical properties: can be set to monitor, mask and shield.



③ ~ ⑥ : The shape of the area group can be drawn as circle, rectangle, sector and polygon.

(7): Mouse click to switch the function.

New graphics can be added when the  icon is displayed.

The ability to move and delete graphics when displayed as  icons.



⑧ Delete the graph: When ⑦ is  icon, you can delete the graph

⑨ Add graphics: Graphics can be added by entering graphics parameters.



⑩: Add Template: When clicked, the default initial graph and corresponding event table will be automatically added to the "Event Table Information" column.

No display: Read parameters: read all data parameters of the current radar.

⑫: Download parameters: download all data parameters of the current radar.

⑬: import template: import the downloaded parameters.

⑭: Export templates: export this radar parameters for backup or for use in other radars.

⑮: adaptive, reverts to proper size when clicked.

⑯: Toggle the point/line graph display.

⑰: Set the point map size and line map width.

### 3.5 Event table information column function introduction

The event table information column is displayed only when the current mode is configuration mode, and is located as shown in the following figure.

The WLR-718-Mini LIDAR can add up to 128 event tables, with up to 16 events per event table, each event

Up to 6 zones can be monitored. The user can select the currently active monitoring zone by 4 inputs or protocols, and determine whether there is an object entering the corresponding zone by 3 outputs.

In the following figure, for example, assuming that the 4 input switches are used to switch the monitoring area, when IN1 detects a valid level, it will monitor area (1), area (2) and area (3) in event1; assuming that there is an obstacle in area (1), OUT1 will output a valid level signal.

- ① Event table names/event names can be renamed.
- ② Input delay time: the delay time for switching the monitoring area after the level of IN1~IN4 is changed.
- ③ IN1~IN4 check box: when unchecked, the actual wiring is useless.

事件名称	输入条件	监控个数	监控1	监控2	监控3
event1	IN1: 1 IN2: 0 IN3: 0	3	区域名: 区域(1) <input checked="" type="checkbox"/> OUT1 <input type="checkbox"/> OUT2 <input type="checkbox"/> OUT3	区域名: 区域(2) <input type="checkbox"/> OUT1 <input checked="" type="checkbox"/> OUT2 <input type="checkbox"/> OUT3	区域名: 区域(3) <input type="checkbox"/> OUT1 <input type="checkbox"/> OUT2 <input checked="" type="checkbox"/> OUT3

## 3.6 Regional Information

### 3.6.1 Zone information in configuration mode

- 1) Ability to add/remove regions and groups of regions on demand, and rename them after double-clicking with the mouse.
- 2) Zone Alarm Information: Users can adjust the triggering policy of IO signal through "Zone Alarm Information". Zone name: Specify the corresponding zone to be modified. Area; Hold time: default is 335ms, adjustable range 1~10050ms, indicating the time to keep the trigger state after the invasion disappears; Response time: default is 335ms, adjustable range 67~30016ms, indicating the invasion is triggered after the invasion is held for this time; Detection mode: you can choose to use "point" and "size" mode; Size threshold: when "detection mode" is "size", you can set this parameter, default is 50mm, size threshold is "size". "Size threshold: When the "detection mode" is "size", this parameter can be set, the default is 50mm. Adjustable range of 10 ~ 500mm, indicating the size of the intrusion detection area threshold, the recognition of intruders greater than this parameter, considered intrusion; continuous points: when the "detection mode" is "points", you can set this parameter, the default is 2 points. Adjustable range of 1~270 points, indicating the threshold

- 3) value of the number of consecutive points in the intrusion detection area, and the intrusion is considered to have been detected after the recognition of intruders larger than this parameter.
- 4) Active event table: the currently active event table can be queried and switched.
- 5) Event switching method: choose whether the switching is based on external IO or protocol command, and only one switching method is supported at the same time.
- 6) Area information output status: Displays the real-time intrusion detection output status of the current monitoring area.
- 7) Monitoring events: the current monitored events can be queried and switched.

### 3.6.2 Area information in query mode

The area information bar/output IO status functions the same as in the configuration mode above; output IO status is configured.

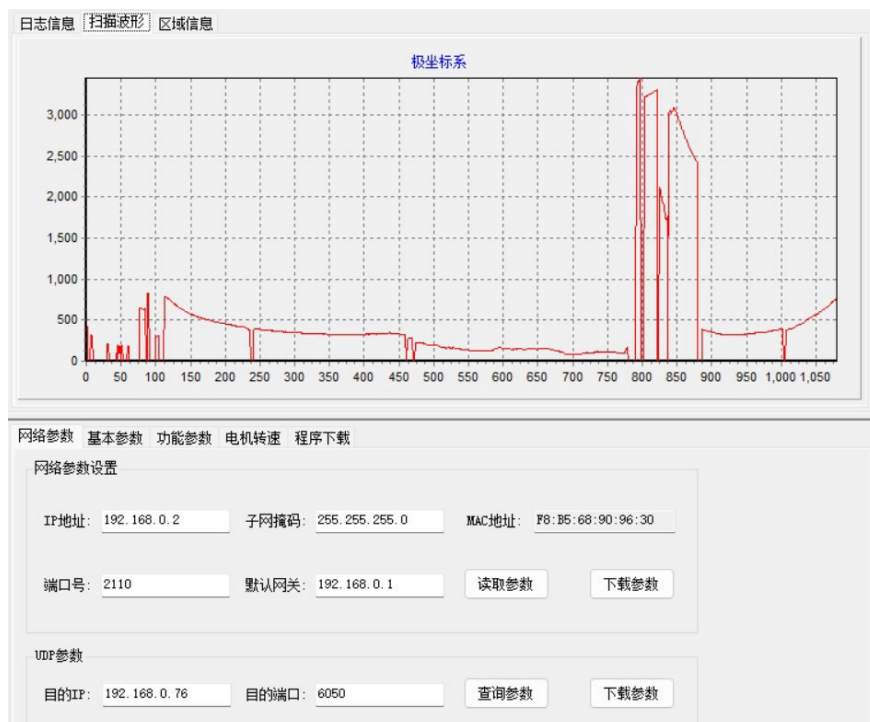
switching status: output IO status query switch; sending frequency: multiplier of the current scanning frequency.

## 4. WLR-718-Mini upper computer program download update

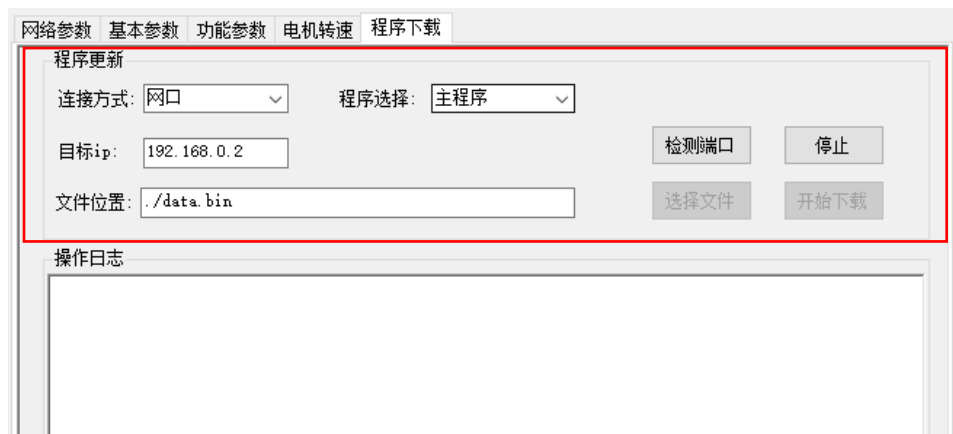
The last digit of the radar and PC cannot be repeated, and the radar and PC should be connected directly, not through a switch or other device, and then reconnect the host computer and the radar. Among them, the program update includes main program update and algorithm program update, users can choose the program to be updated according to their needs.

### 4.1 Main program update

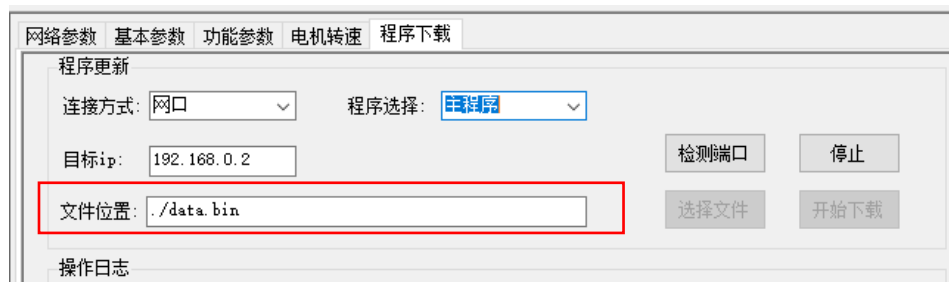
- 1) Connecting the host computer to the radar so that the host computer can display the point cloud data of the radar normally, as shown in the following figure.



- 2) The host computer is disconnected from the radar, confirm that the program is selected as: the main program, the target ip is changed to the radar IP, click on the "detect port" button, the interface is shown below after clicking.



- 3) Once the device is detected, click the "Select File" button and select the \*.bin file in the folder, as shown below.

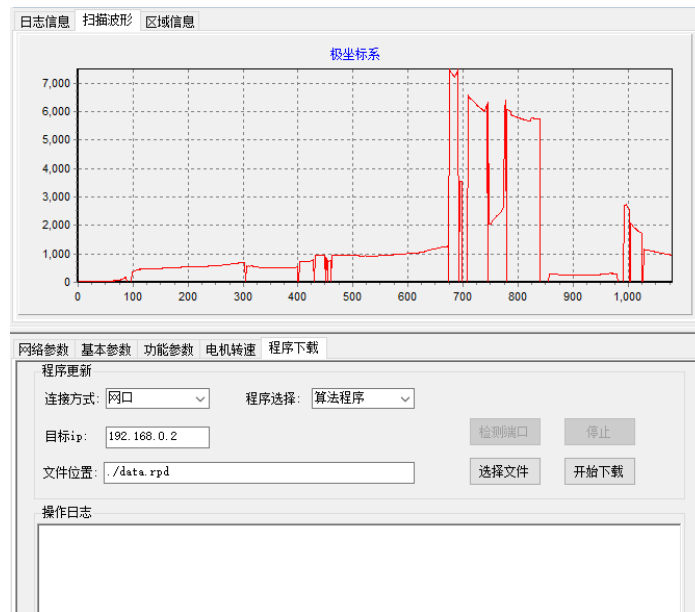


- 4) Click the "Start Download" button and wait for the "Burn successfully! After that, the main program update is completed, as shown in the following figure.



## 4.2 Algorithm Updates

- 1) Change the "Program Selection" to "Algorithm Program" and connect the host computer to the radar so that the host computer can display the point cloud data normally, as shown in the following figure.



- 2) Change the "Program Selection" to "Algorithm Program" and connect the host computer to the radar so that the host computer can display the point cloud data normally, as shown in the following figure.



- 3) Click the Start Download button and wait for the program to be burned successfully, as shown in the following figure, the algorithm program update is completed at this time.





## 5.After Sales Service

- This product enjoys the stipulated free warranty service since the date of installation. If the product is damaged or unusable due to non-human factors or product quality problems during the warranty period, please contact WJT or the local operator in time and provide the purchase documents, and the relevant service personnel will repair your product for free.
- No repair will be given to products that are disassembled by the user.
- After the warranty period expires, the relevant service personnel of Wanji Technology are also responsible for repairing the product's malfunction and damage, but the material cost of repairing and replacing components will be charged.
- After the warranty period expires, the relevant service personnel of Wanji still provide free services to answer questions, including purchase guidance, usage, installation of products and other consulting services.



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