



79 GHz Anti-Smashing Radar

FAQ Manual



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1 How to download the radar app

The radar app is for both Android and iOS users. Please scan the following QR codes as needed.

Figure 1-1 QR code



2 Essential precautions for installation

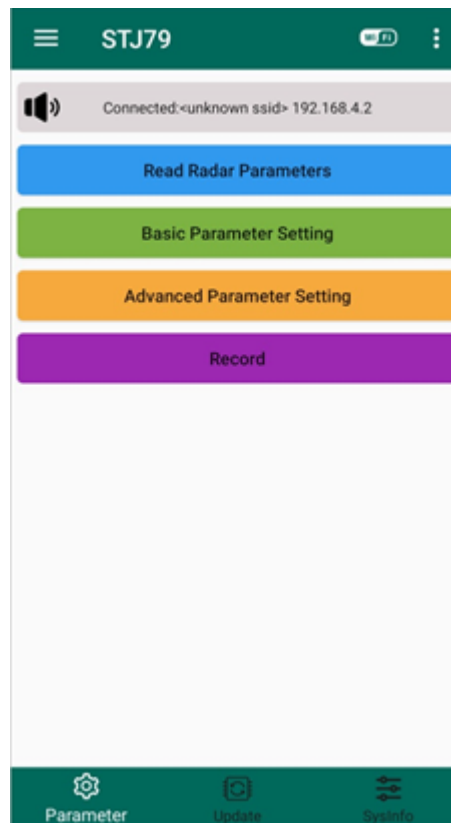
1. The radar should be installed at a height of 60 cm from the ground, which can be raised to 70 cm in scenarios with large vehicles.
2. There should be no objects obstructing the detection range in front of the radar.
3. The installation environment for the radar, including the barrier cabinet and radar bracket, must be stable and free from any wobbling.
4. The radar should be installed vertically to the lane both in anti-smashing mode and in triggering mode.
5. When you face the radar and the indicator lights are at the upper side, your left and right hands are the left and right sides of the radar.
6. Before debugging the radar, please confirm its firmware version. If it is not the latest version, please upgrade it, as the firmware is forward compatible.

3 How to connect the radar to the mobile app or the host computer

Connect to mobile app:

The default Wi-Fi username for the barrier radar upon leaving the factory is: RADAR + 13 digits, and the password is 123456789. The specific operation is shown in the figure below.

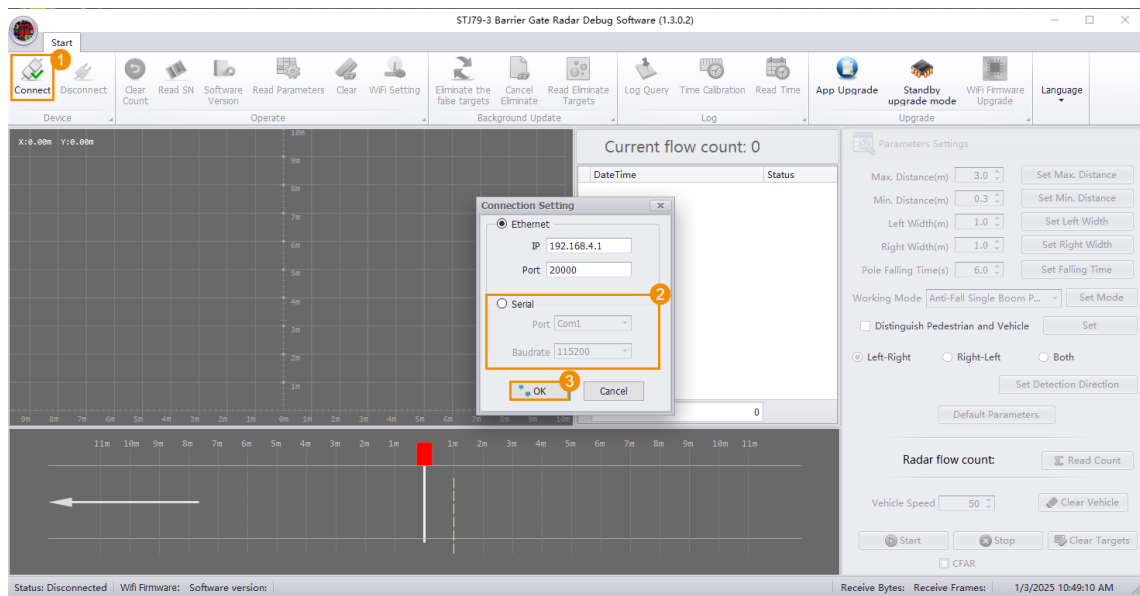
Figure 3-1 Connection on mobile app



Connect to host computer:

You can connect to a computer through RS-485 cable to debug the configuration application of the radar. Alternatively, you can connect the radar to a laptop via Wi-Fi for network communication, as illustrated in the diagram below.

Figure 3-2 Connection on host computer



4 How to adjust the radar for single-arm barrier gates

1. The radar must be correctly installed on the barrier, ensuring that there are no obstructions in front of it.
2. The mobile app should be properly connected to the radar's Wi-Fi, enabling adjustments to the radar parameters via the app. Below are the radar detection range diagram and the default parameters set at the factory.

Figure 4-1 Radar detection range

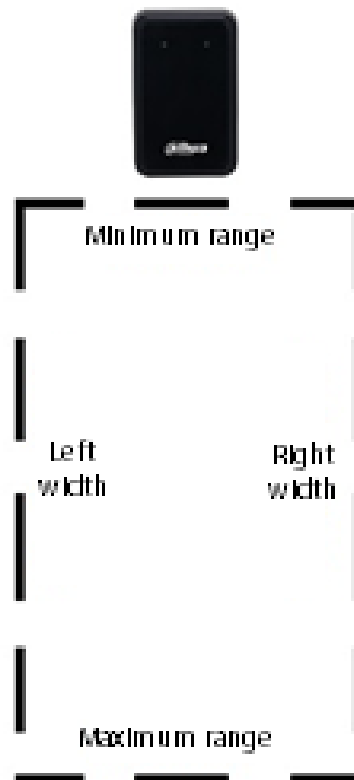


Table 4-1 Radar parameters

Name	Range	Default value
MaxRange (m)	0.3–6	3
MinRange (m)	0.3–6	0.3
LeftWidth (m)	0–1	1
RightWidth (m)	0–1	1
FallingTime (s)	0.5–8	6
FilterSingle	Yes/No	No
Direction (in trigger mode only)	Left-Right/Right- Left/None	None

Name	Range	Default value
Working mode	Boom Pole on Radar Left, Boom Pole on Radar Right, Anti-fall Single Boom pole, Trigger Mode, Rail Fence on Radar Left and Rail Fence on Radar Right.	Anti-fall Single Boom pole
Sensitivity	0-1	0.3



MaxRange: The maximum lengthways detection distance of the radar. The value is generally the actual arm length or lane width.

MinRange: The range filtered by the radar. When there is interference near the radar, set a higher value to avoid false alarms.

LeftWidth: Detection width at the left side of the radar normal line.

RightWidth: Detection width at the right side of the Radar normal line.

FallingTime: Set based on the actual falling duration of the arm. This is only for signal feedback. The speed the arm falls at will not be affected.

FilterSingle:

- Yes: The radar detects vehicles only.
- No: The radar detects both vehicles and pedestrians.

Working mode: Select according to the actual arms, such as straight arm, fence arm and advertising arm.

Direction: Whether to filter out the vehicles coming from the wrong way. It is available in trigger mode only.

Sensitivity: Reserved parameter.

3. Set MaxRange as the arm length, set FallingTime as the actual arm falling duration, and set LeftWidth and RightWidth according to the actual needs.



The total of LeftWidth and RightWidth should be more than 1 mile as the wider the detection range, the more stable the detection.

4. After the completion of parameter setting, open the app and select **SysInfo** > **Open** or follow the instructions on the host computer to view target points. If no false alarms were found, the debugging process is completed; if yes, please check if there is anything to do with the following problems.

Figure 4-2 View false alarm points on app

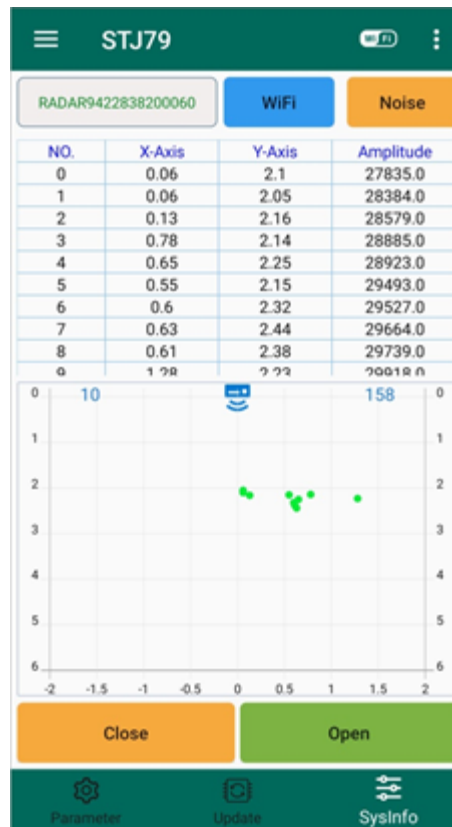
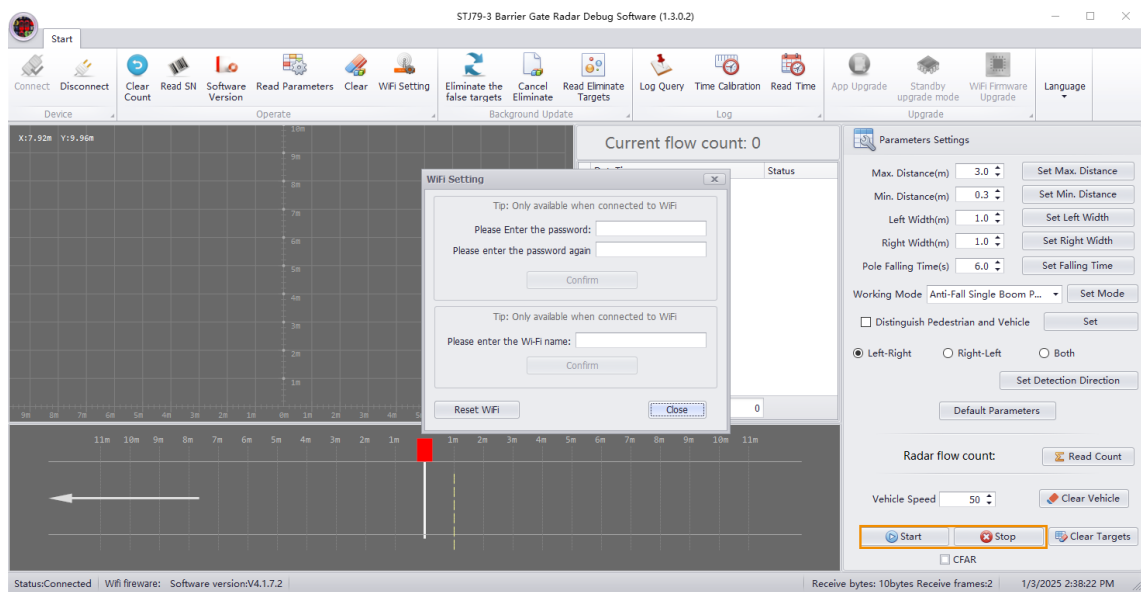


Figure 4-3 View false alarm points on host computer



5 How to set the radar parameters mounted on barrier cabinet with either an advertising arm or a fence arm

1. When the radar is mounted on barrier cabinet with either an advertising arm or a fence arm, the radar must be positioned within 50 cm of the barrier, and there should be no obstacles obstructing its front.
2. You should refer to "3 How to connect the radar to the mobile app or the host computer" for connection between the host computer and the radar and "4 How to adjust the radar for single-arm barrier gates" for radar parameter settings.
3. Set MaxRange as the arm length, set Working Mode as Advertising Arm on Radar Left/Right according to mounting position, set FallingTime as the actual arm falling duration, and set LeftWidth and RightWidth according to the actual needs.



The total of LeftWidth and RightWidth should be more than 0.6 m or the default value as the wider the detection range, the more stable the detection.

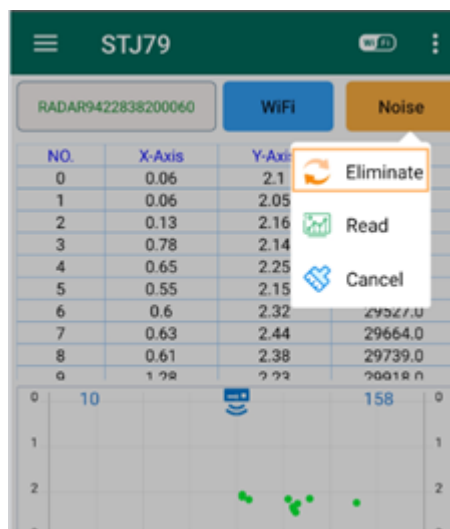
4. After the completion of parameter setting, open the app and select **SysInfo** > **Open** or follow the instructions on the host computer to view target points. If no false alarms were found, the debugging process is completed; if yes, rearrange the anti-smashing area to prevent false alarms.

6 What to do if the radar is interfered by drainage ditch or manhole cover

Problems

Please check if there are metallic objects, such as drainage ditches or manhole covers, within the radar detection range of 1.5 miles. These metallic objects could trigger false alarms. If these false alarm points are situated at the center of the detection range, filtering them out could result in a significant blind spot. In this case, the noise elimination function can be employed to exclude these points from detection.

Figure 6-1 Eliminate noise



This is suitable when there are few false alarm points; however, if there are many, it is advisable not to filter them out, as this would create a large undetected area, increasing the risk of vehicle damage. When faced with numerous false alarm points, adjustments to the on-site environment are necessary.

Solutions

1. If the pole is 4 miles long and the false alarm point falls within the range of 1 meter to 2 meters on the Y-axis, you need to confirm the firmware version:
Host computer: V1.6 or later versions.
Android app: STJ79_3H_V3.X.3.7.bin or later versions.
2. Enable noise elimination function. To avoid false alarms, there should be no people or vehicles passing in front of the radar, the pole must be positioned vertically, and the duration should be approximately 5 seconds. Once the response indicates that the settings were successful, the process of elimination is complete.
3. Enable noise elimination function again to check if there are any false alarm left. If there is any, the elimination process should be performed again.
4. Click **Read** to compare the current data with the previous false alarm points and determine if the point distribution is consistent. If it is, the elimination is deemed correct. The eliminated points may not match the false alarm points exactly, but there should not be significant differences in distribution.



Utilizing the noise elimination feature necessitates raising the arm. When the advertising arm or fence arm is positioned horizontally, this feature may erroneously classify the arm as a false alarm, resulting in detection instability.

7 How to update the firmware of the radar

- Online update:
 1. Download the radar firmware to your phone, ensure that the app is properly connected to the radar, select the firmware, and then tap firmware **Update**. Once the update is complete, the radar will automatically restart and display a message indicating that the update was successful.
 2. Turn on the host computer, click on **Application update** , select the firmware after a successful connection, and then click **Start update**. Once the update is complete, the radar will automatically restart and the computer displays update successful.
 3. Please check the radar version before upgrading. The firmware for radar version 3.0.x.x is 3.0.x.x, and the firmware for version 3.1.x.x is 3.1.x.x.

Figure 7-1 Update firmware on app

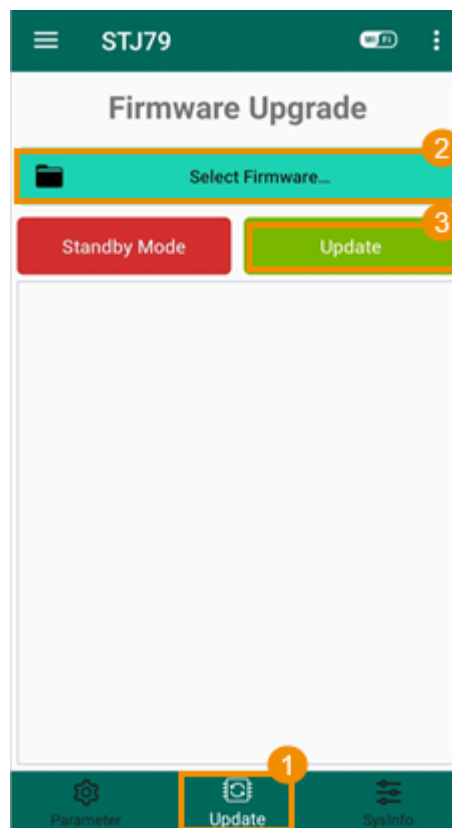
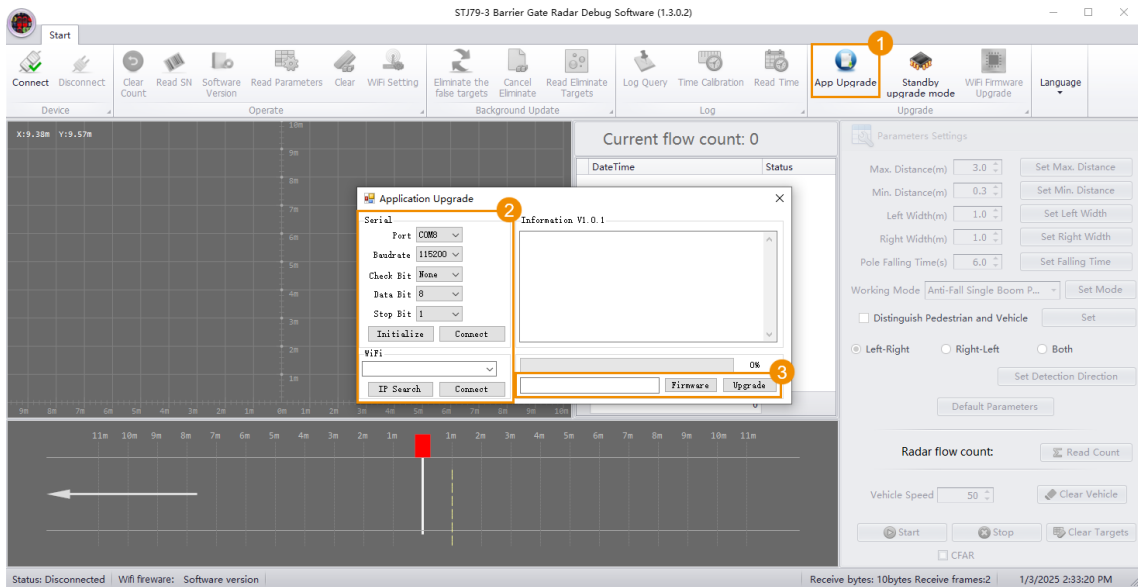


Figure 7-2 Update firmware on host computer



● Standby update:

Firmware updates are typically carried out using the online update method. If the wrong firmware is installed and results in the radar freezing, **Standby Mode** can be utilized for the update. The process for upgrading in backup mode is as follows, and note that the white and purple lines remain connected throughout the update.

1. Power off the radar.
2. Short-circuit the white and purple wires.
3. Power on the radar, and connect to Wi-Fi (serial port).
4. Update in standby mode (please contact technical support for the key to access backup mode).
5. Upon the completion of update, disconnect the white and purple wires.

Figure 7-3 Update firmware in standby mode on app

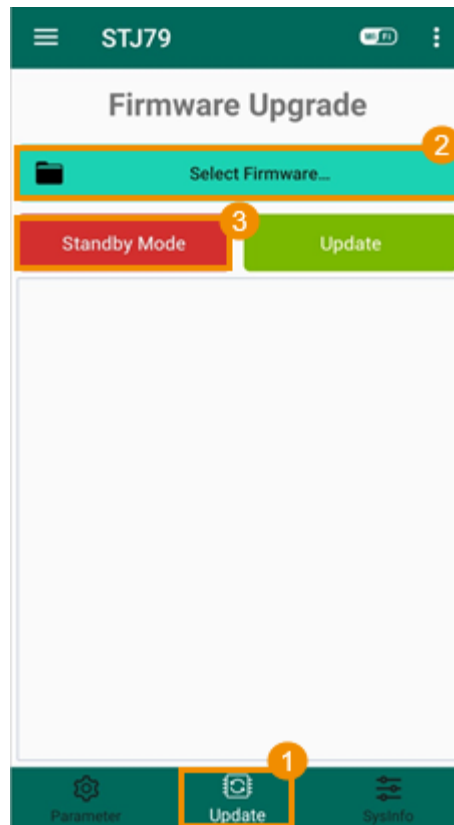
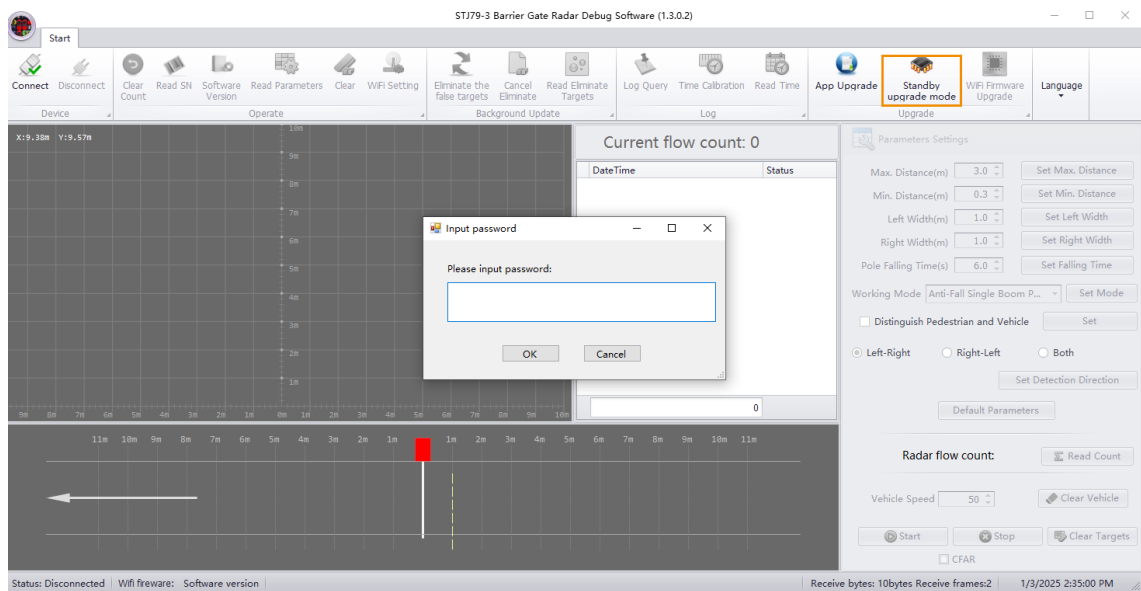


Figure 7-4 Update firmware in standby mode on host computer



8 No Wi-Fi signals after the radar powers on

1. Confirm that the radar power supply is 12 VDC with a drive current exceeding 1 A.
2. Confirm that only one radar is powered on. If there are multiple Wi-Fi networks with the same name, only one will be detected. After confirming this, proceed with the normal connection and change the Wi-Fi name before debugging the other device.
3. If the radar is operating normally but there are still no Wi-Fi signals, please reach out to customer service.

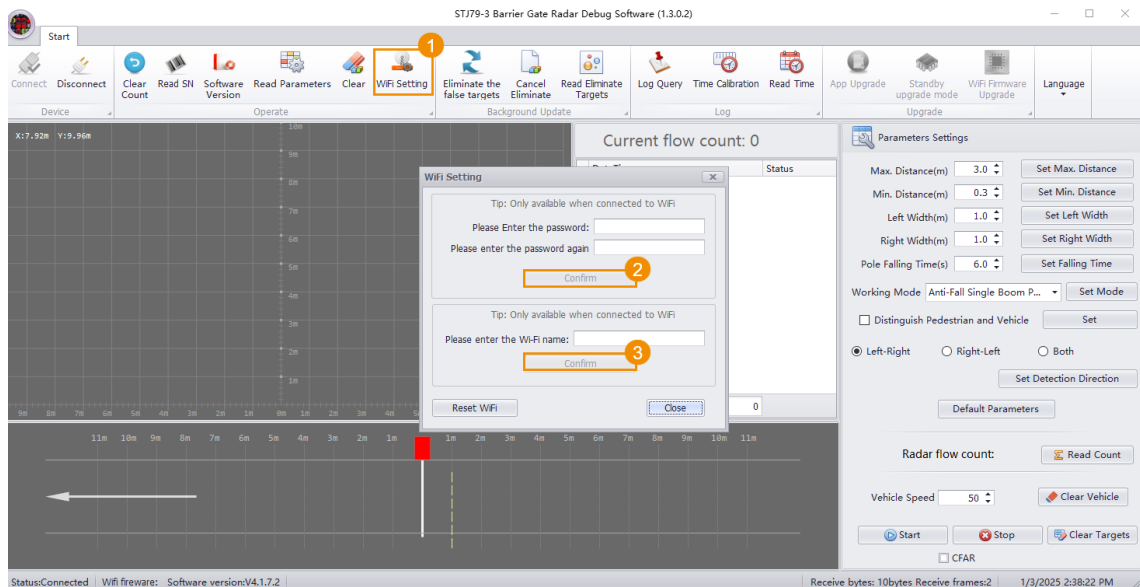


The radar Wi-Fi is intended solely for the convenience of technical debugging and will not impact the radar's performance.

9 How to reset the name and password of the Wi-Fi

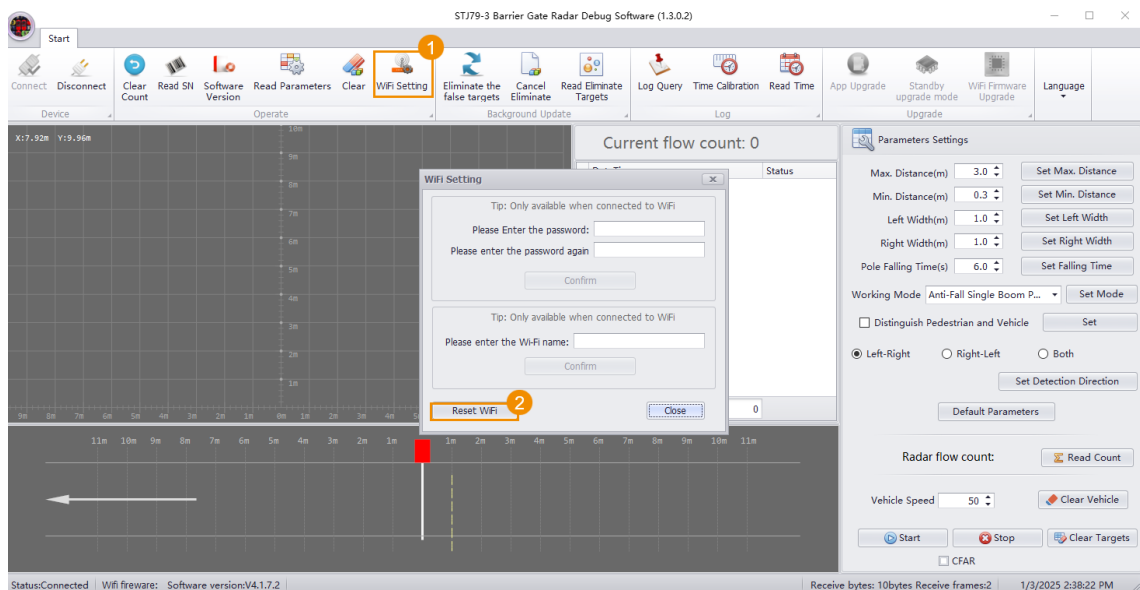
- You can connect the Wi-Fi on the host computer to edit the name and password of the Wi-Fi.

Figure 9-1 Change Wi-Fi information



- If you forgot the password, you can connect the host computer to the radar using a USB to RS-485 serial cable, then click **Reset Wi-Fi** to reset the radar's Wi-Fi name and password to their factory defaults.

Figure 9-2 Reset Wi-Fi



10 The phone is unable to read the parameters with connection to Wi-Fi, and the radar is not functioning

1. Confirm that the radar power supply is 12 VDC with a drive current exceeding 1 A.
2. Confirm that only one radar is powered on. If there are multiple Wi-Fi networks with the same name, only one will be detected. After confirming this, proceed with the normal connection and change the Wi-Fi name before debugging the other device.
3. If the radar is operating normally but there are still no Wi-Fi signals, please reach out to customer service.



The radar Wi-Fi is intended solely for the convenience of technical debugging and will not impact the radar's performance.

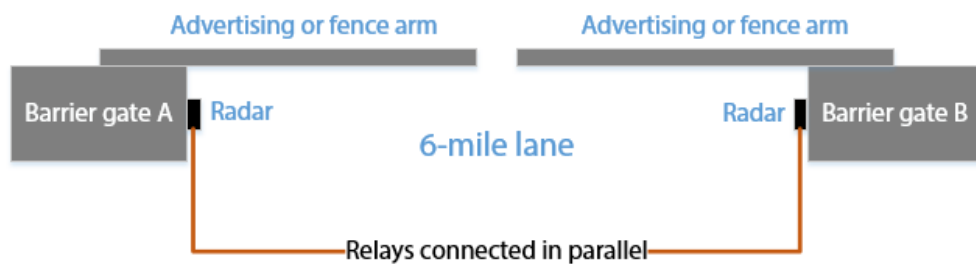
11 Two face-to-face barrier arms (straight, advertising and fence arms) fall and rise inconsistently

Two barrier cabinets face each other, but the relay signals are not connected. Each radar can be configured based on the actual status of its corresponding barrier cabinet. Please refer to "5 How to set the radar parameters mounted on barrier cabinet with either an advertising arm or a fence arm" for more details.

12 How to configure the radars when the 2 face-to-face barrier arms rise and fall together with 2 radar relays connected in parallel

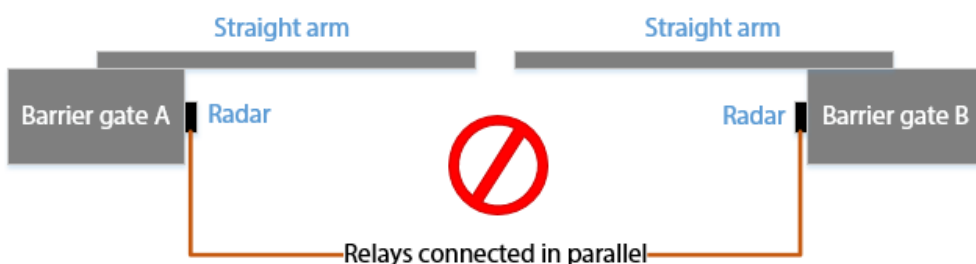
- If the case is that the 2 barrier gates have either advertising or fence arms and the passage is 6 miles wide, you can follow the steps below:

Figure 12-1 Case 1



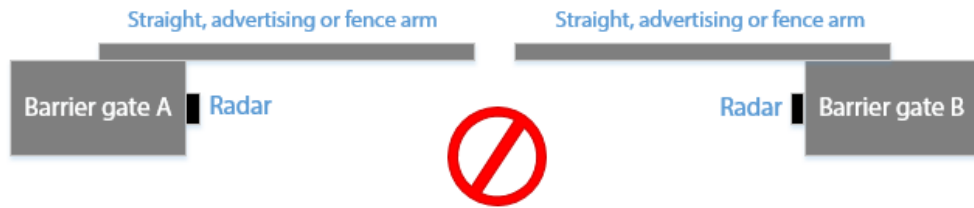
1. The power supply is operating normally, and the radar firmware version is 3.x.3.5 or later.
 2. The radar Wi-Fi name has been updated, and the arm and radar orientations, along with the minimum detection distance, have been correctly configured.
 3. The left and right width is properly set with the radar detection range on both sides exceeding 0.6 miles as a broader detection range improves stability.
 4. The maximum detection range for each radar is configured to 5 miles, ensuring that the detection ranges of the 2 radars overlap. It allows each radar to effectively detect incoming targets and thereby enhancing detection stability. The maximum detection range should be set at a distance 1 mile away from the opposite barrier or more.
- The following situations cannot be set as overlapping detection areas. Please configure according to the actual environment for each radar:
 1. The relay signals of the straight arms are connected in parallel, which poses a risk of erroneous detection on the opposite arm; therefore, there should be no overlapping areas.

Figure 12-2 Case 2



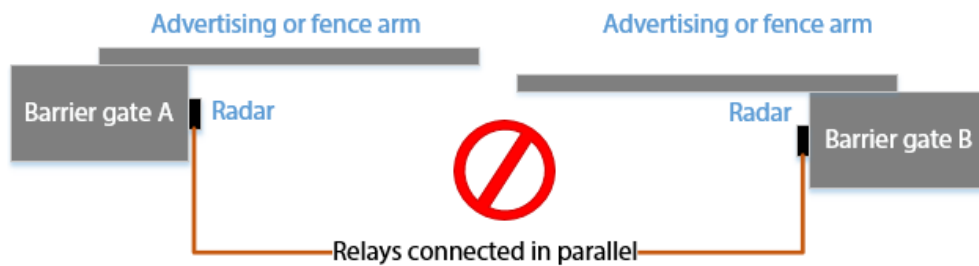
2. The relay signals are not connected in parallel and the 2 arms are not synchronized; there should be no overlapping areas.

Figure 12-3 Case 3



3. Advertising and fence arms are not aligned on the same straight line with a gap of at least 20 centimeters; there should be no overlapping areas.

Figure 12-4 Case 4



13 Radar powers on and its indicator remains solid green

Upon powering up, the radar's indicator will turn green by default with the relay in a closed position (assuming a vehicle will be present). This configuration primarily ensures that the radar does not mistakenly lower the barrier due to a restart triggered by certain factors, such as an unstable power supply, thereby mitigating potential risks. Normal operation will commence once a target is detected entering the area.

If the light remains on after being manually triggered once, it is essential to check the host computer for any false alarms within the radar's detection range. If false alarms are identified, adjustments to the detection range should be made accordingly.

14 The radar's green indicator flickers every 2 seconds after powering on

Once the radar is powered on, the green light will flicker every 2 seconds regularly. It is due to an abnormal encrypted ID of the radar. It is necessary to retrieve the chip ID and contact customer service. The customer service team will respond with a string of encrypted IDs, which can be copied and entered into the radar.

Figure 14-1 Read Chip ID

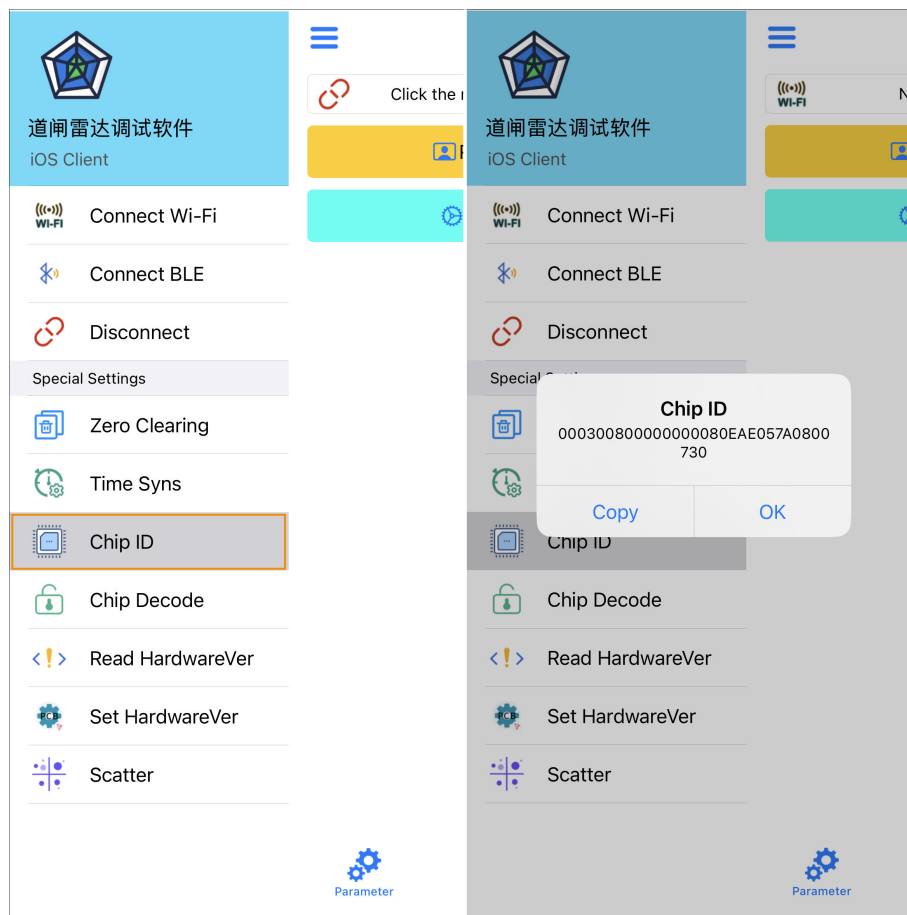
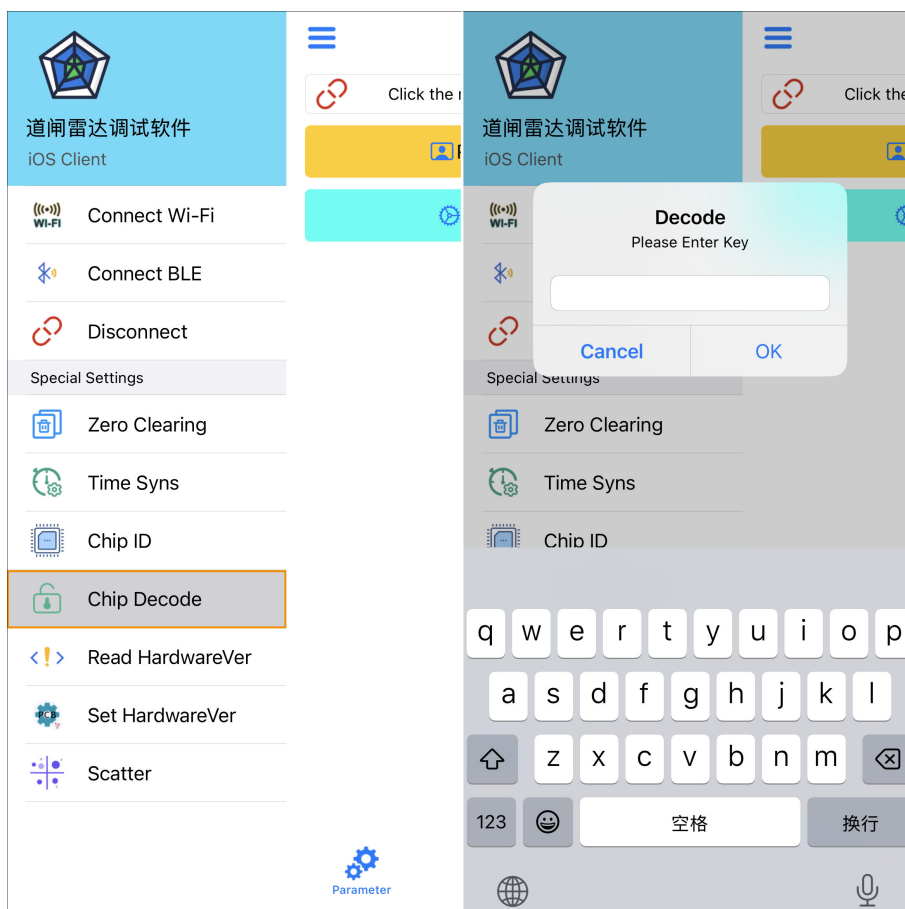


Figure 14-2 Enter encrypted ID



15 The radar needs a separate power adapter; do not obtain power from the control box

Confirm that the radar power supply is 12 VDC with a drive current exceeding 1 A.

If the 12VDC BAISEN control box has inadequate drive current, the radar may easily restart when powered from it. If you need to source power from the control box, please contact customer service to test and confirm its driving capability in advance.

16 What effects do rain, snow, standing water, and snow accumulation have on radar

Rain, snow, and standing water will not trigger false alarms for the radar, nor will they result in abnormal radar operation.

Snow accumulation can trigger false alarms for the radar. Snow on metal railings can contribute to radar false alarms. In this instance, reducing the maximum detection range by 50 centimeters will not impact detection and will effectively filter out false alarms caused by snow accumulation.

17 The fence arm will not be activated when people enter from one side of the arm

Since some fence arms have longer sections near the arm, the radar can be obstructed when the arm falls at a certain angle. This results in targets approaching from the side of the arm not being detected. As the radar cannot penetrate the advertising arm but partially penetrate the fence arm, it's essential to differentiate between the advertising arm and the fence arm positions compared to the radar. Set the mode as **Rail Fence on Radar Left** or **Rail Fence on Radar Right** for fence arms in firmware (V3.1.5.1 and later) will improve the triggering speed of reverse targets during the falling process.

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