User Manual

VR30

Date: Dec 2025

Doc Version: 1.1

English

Thank you for choosing our product. Please read the instructions carefully before operation. Follow these instructions to ensure that the product is functioning properly. The images shown in this manual are for illustrative purposes only.

For further details, please visit our Company's website www.zkteco.com.

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The product will be updated from time to time without prior notice. The latest operation procedures and relevant documents are available on http://www.zkteco.com.

If there is any issue related to the product, please contact us.

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About the Company

ZKTeco is one of the world's largest manufacturer of RFID and Biometric (Fingerprint, Facial, Finger-vein) readers. Product offerings include Access Control readers and panels, Near & Far-range Facial Recognition Cameras, Elevator/Floor access controllers, Turnstiles, License Plate Recognition (LPR) gate controllers and Consumer products including battery-operated fingerprint and face-reader door locks. Our security solutions are multi-lingual and localized in over 18 different languages. At the ZKTeco state-of-the-art 700,000 square foot ISO9001-certified manufacturing facility, we control manufacturing, product design, component assembly, and logistics/shipping, all under one roof.

The founders of ZKTeco have been determined for independent research and development of biometric verification procedures and the productization of biometric verification SDK, which was initially widely applied in PC security and identity authentication fields. With the continuous enhancement of the development and plenty of market applications, the team has gradually constructed an identity authentication ecosystem and smart security ecosystem, which are based on biometric verification techniques. With years of experience in the industrialization of biometric verifications, ZKTeco was officially established in 2007 and now has been one of the globally leading enterprises in the biometric verification industry owning various patents and being selected as the National High-tech Enterprise for 6 consecutive years. Its products are protected by intellectual property rights.

About the Manual

This manual introduces the operations of **VR30**.

All figures displayed are for illustration purposes only. Figures in this manual may not be exactly consistent with the actual products.

Document Conventions

Conventions used in this manual are listed below:

GUI Conventions

For Software	
Convention	**Description**
Bold font	Used to identify software interface names e.g. **OK**, **Confirm**, **Cancel**.
>	Multi-level menus are separated by these brackets. For example, File > Create > Folder.
For Device	
Convention	**Description**
< >	Button or key names for devices. For example, press <OK>.
[ ]	Window names, menu items, data table, and field names are inside square brackets. For example, pop up the [New User] window.
/	Multi-level menus are separated by forwarding slashes. For example, [File/Create/Folder].

Symbols

Convention	Description
	This represents a note that needs to pay more attention to.
	The general information which helps in performing the operations faster.
	The information which is significant.
	Care taken to avoid danger or mistakes.
	The statement or event that warns of something or that serves as a cautionary example.

Table of Contents

1 Product Introduction

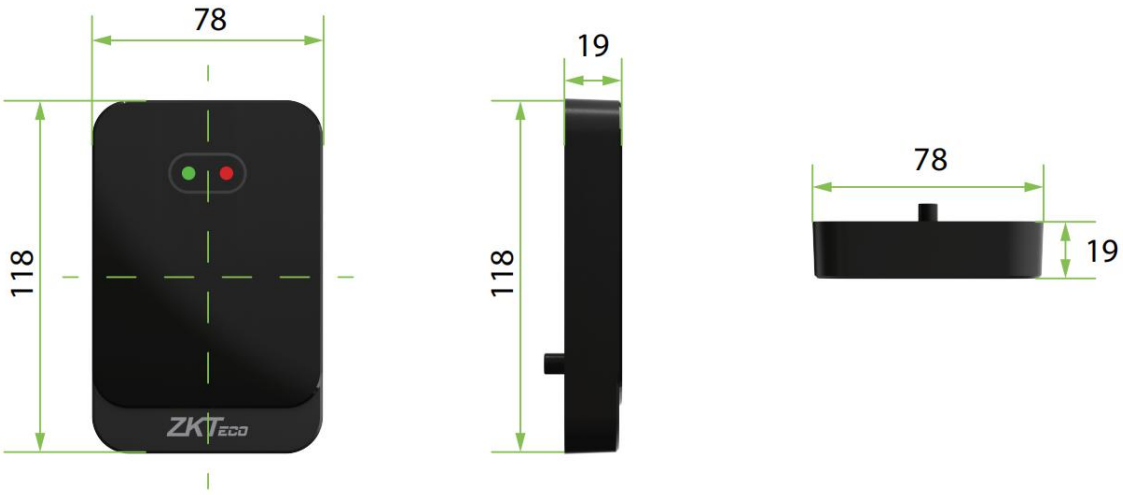
VR30 is the third generation of ZKTeco radars developed to detect and identify various vehicles (motorcycle, cars, trucks, etc.) and pedestrians near the barrier gate .It adopts highly integrated radio frequency chip, which has the characteristics of small size, low cost, 7/24 operation and all-weather performance, high detection sensitivity, high accuracy, simple commissioning and installation, stability and reliability.

The VR30 is an anti-smashing barrier radar, deploying 79GHz millimeter-wave for precise vehicle and pedestrian detection. Through the joint optimization design of software and hardware, this product can accurately identify and distinguish between pedestrians and vehicles passing through the barrier area, and prevent the barrier from hitting people and cars. Also, users could set parameters of VR30 with a mobile app (ZKEasy Go) when connected it to Bluetooth.

2 Functions

- Adopts 79GHz FMCW radar technology.
- Adjustable detection range(up to 7m).
- Broad coverage: 120° azimuth FOV (-60° to +60°) minimizes blind spots for single-lane and adjacent area coverage.
- Precise aiming: ±10° vertical FOV helps focus on the boom/ground zone and reduce distant clutter.
- Support Online debugging and upgrade via RS-485, Bluetooth and Relay.
- Compatible with multiple ZKTeco's barrier gate.
- Cost effective as it eliminates excavation expenses and future pavement repairs.
- Compatible with straight boom (default). Adaptable to folding boom, fence boom, and advertising boom (requires environmental learning/calibration).

3 Appearance and Dimensions(mm)



4 Parameters

Model	VR30
Operating Frequency	79GHz
Modulation Mode	FMCW
Antenna MIMO	2T3R
Transmitting Power	10dBm
EIRP	24dBm
Antenna Gain	14dbi
Azimuth Field of View	±60° (120° total)
Vertical Field of View	Elevation ±10° (20° total)
Maximum Detection Distance	0-7m Adjustable, same for vehicle and pedestrian

Operating Temperature	-40°C to 85°C
Operating Voltage	DC 12V
Power Consumption	⩽1.3W
Net Weight	197g
Package Dimension(L*W*H)	133*90*37mm
Product Dimension(L*W*H)	118*78*19mm
Online Debugging/Upgrading	Bluetooth,RS485
Supported Software	Apps: ZKEasy Go OS: iOS 12+; Android 10+
Ingress Protection Rating	IP67
Certification	CE

5 Installation Instruction

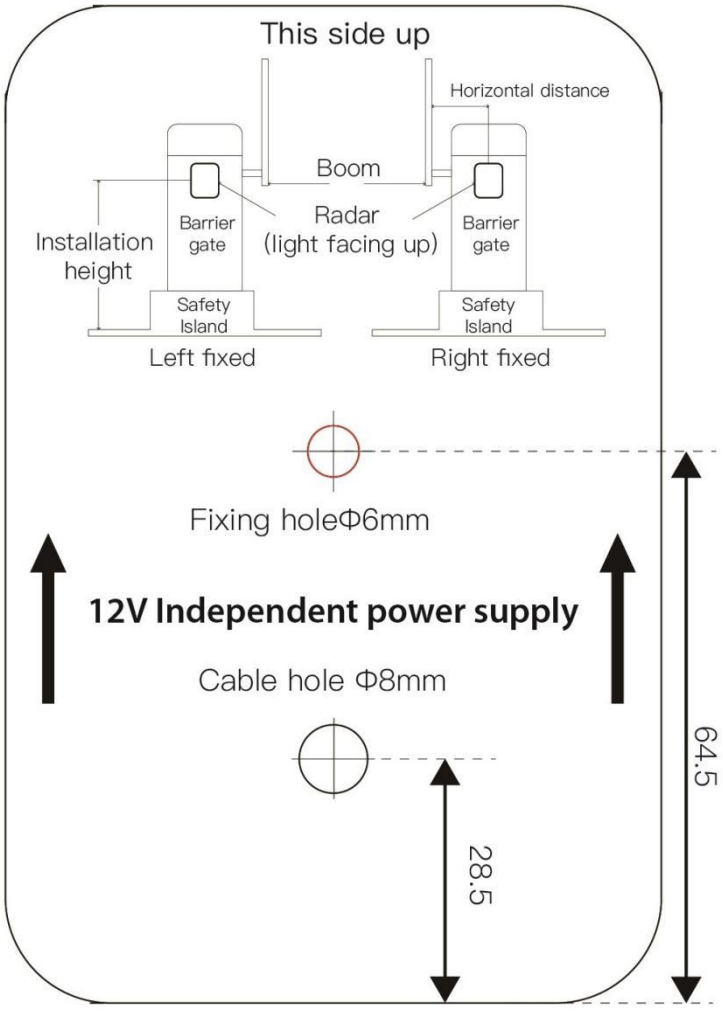
1. According to the actual situation on site, select the corresponding parameters of radar.
2. Not applicable to sliding gates and telescopic gates.

3. After changing the detection environment (such as installing a deflector, ice cream cone in the detection area), please recalibrate again by App.
4. Under normal circumstances, please set the detection distance(1~6m) according to the length of the boom. The detection distance is slightly less than or equal to the length of the boom to prevent people or objects outside the barrier boom from being detected by the radar.
5. If there is a misrecognition due to radar causing opening the gate or not closing, please recalibrate and perform environmental learning.
6. The radar antenna is integrated inside. When the radar surface is covered with foreign objects (such as water drops, rain, snow, dust, etc.), it should be cleaned in time.
7. The detection field of the radar must be clean, and there must be no objects that affect the target detection (such as metal fences, billboards, license plate recognition cameras, walls, etc.) to prevent the radar from being triggered by mistake.
8. It is not recommended to use the radar in the fence and advertisement boom type for a single mixed-in and mixed-out scenario.
9. Dual-radar installation is recommended for semi-trailer, cement tanker, crane.
10. When learning to record the environment, the fence/advertisement boom may shaking after the it falls to the ground, and then wait for the boom to fully stabilize before performing subsequent operations.

6 Product Installation

1. Confirm radar mounting holes

The installation hole of the radar is between 100 to 200mm from the inside of the straight boom and between 200 to 300mm from the inside of the non-straight boom. The installation height of radar is 650 to 700mm from the driveway ground for small car; Two radars are recommended for large car, with installation height of 650 to 700mm and 1000 to 1100mm. The installation position is shown in the figure.



2. Drilling

Use an electric drill to drill two holes in the selected position, the fixing hole is Φ6mm , and the cable hole is Φ8mm. After drilling the cable holes and fixing holes, put the radar cable through the cable hole and tighten the fixing hole with screw to ensure that the radar does not wobble.

7 Wiring

1. Interface cable description

Cable Identification	Cable Color	Description	Wiring
12V	Red	Power	The red wire connected to the 12V power positive output terminal;
GND	Black	GND	The black wire "GND" is connected to the negative output terminal of the 12V power supply.
Normally Open Signal Wire	Blue	COM	The blue and orange wires are normally open signals of the relay, connecting the ground sense coil terminals and the common terminals of the barrier control main board (no distinction between positive and negative).
	Orange	NO1	
TX	White	485-B/TTL	Connected to T/R+ terminal of 485.(Default TTL)
RX	Purple	485-A/TTL	
Button	Green	Configuration button	Reserve
	Yellow		

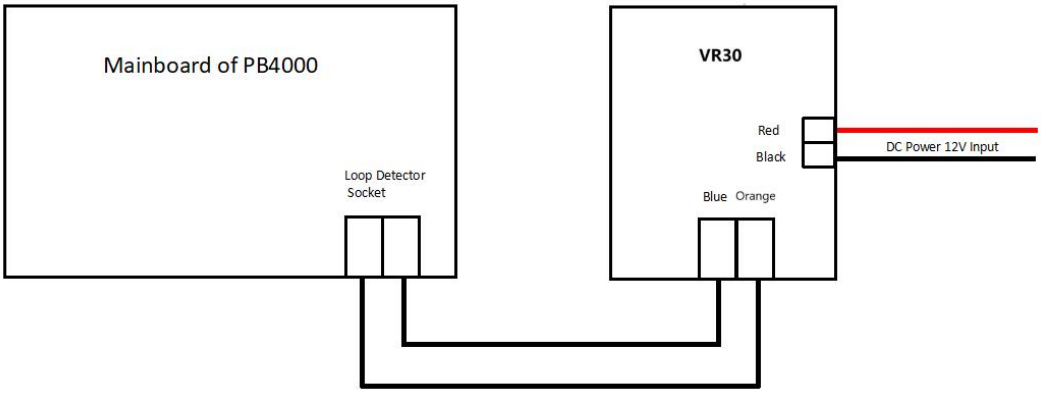
SAFETY WARNING:

Before debugging, wiring, or disconnecting any cables, always disconnect the power supply.

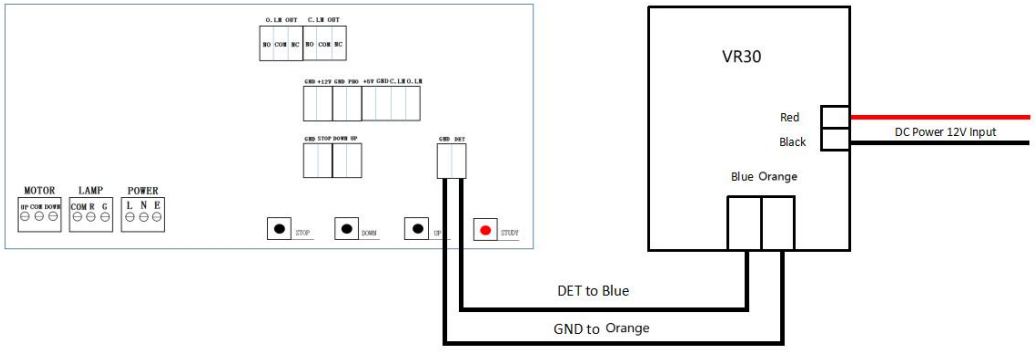
CRITICAL: Ensure white and purple wires never contact the positive(+) terminal of the 12V power supply to prevent damage to the radar.

2. Connected to the barrier gate

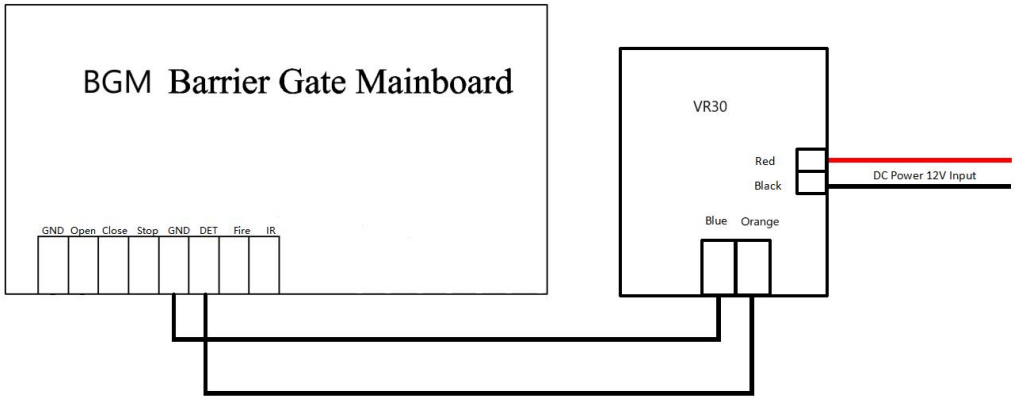
When the radar is connected to the PB4000, CMP200, BGM series barrier gate, the normally open signal wire of the radar, that is, the blue and orange wires, are connected to the ground sense coil terminals and common terminals of the barrier control main board (no distinction between positive and negative).



Radar connected to PB4000 barrier gate



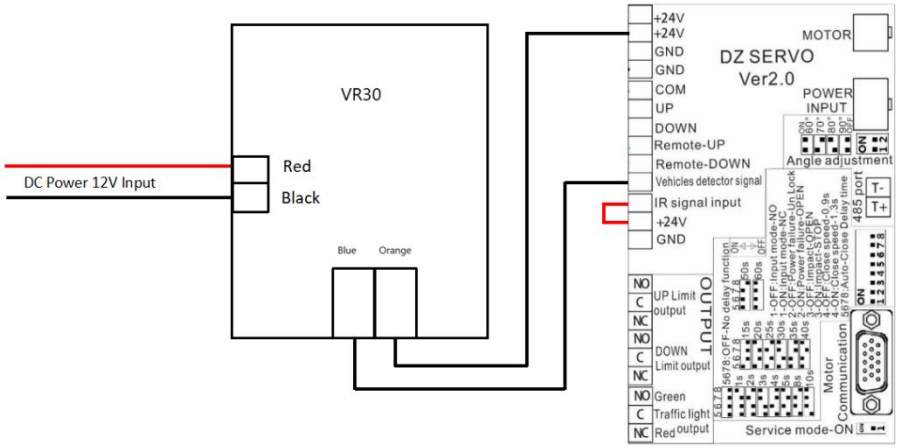
Radar connected to CMP200 barrier gate



Radar connected to BGM series barrier gate

Note: ProBG (Wiring)

When the radar is connected to the ProBG series barrier gate, the normally close signal wires of the radar, that is, the brown and purple wires, are connected to the ground sense coil terminals and common terminals of the barrier control main board (no distinction between positive and negative).



Radar connected to ProBG series barrier gate

8 Debug Radar with App (ZKEasy Go)

8.1 Download and Install the App to the Phone

1. If the system of phone is android, go to the Google Play and search "ZKEasy Go" for downloading it.

QR code for android phone(Android 10+)

2. If the system of phone is iOS, go to the App Store and search "ZKEasy Go" for downloading it.

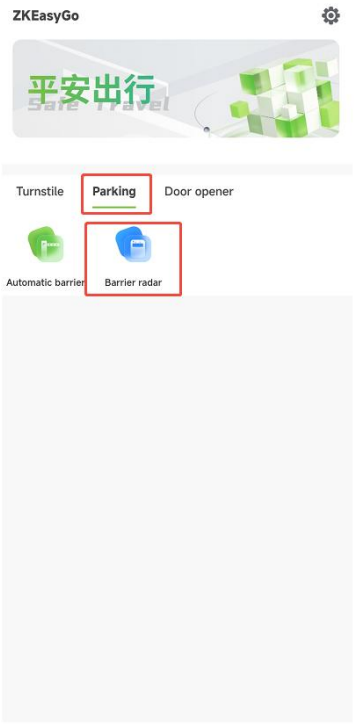
QR code for iOS(iOS 12.0+)

8.2 Connect to Bluetooth

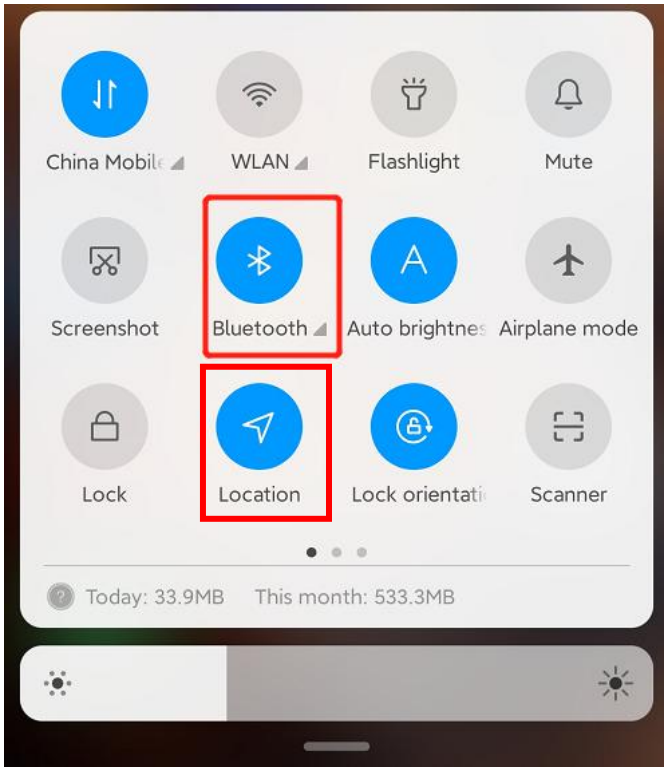
1. Turn on the device's Bluetooth

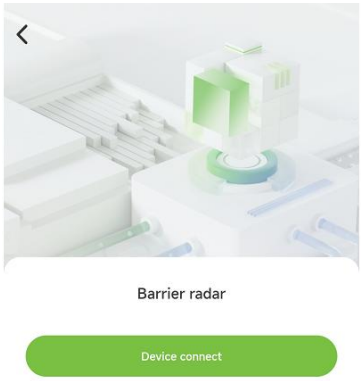
   Bluetooth is automatically turned on by default when the radar device is powered on.

2. Open ZKEasy Go app, select the **[Parking]** interface and click **[Barrier Radar]** icon to connect the device.

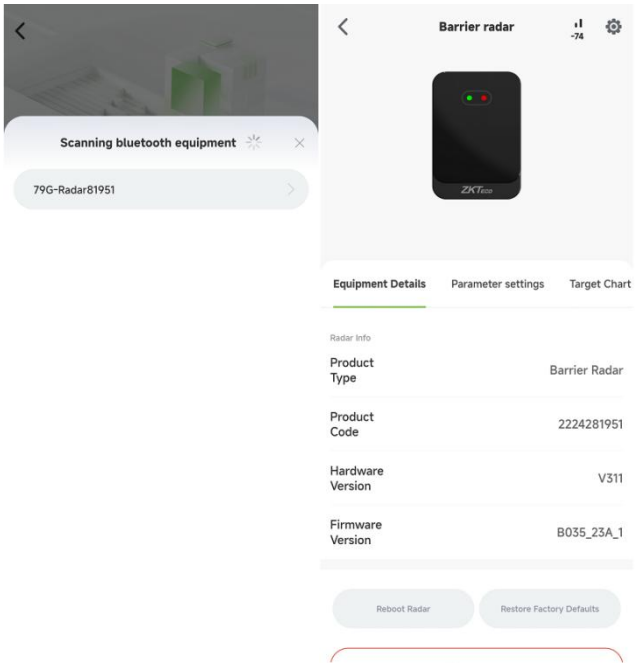


3. Open the Bluetooth and location of the phone, and click **[Device connect]** to connect the radar.



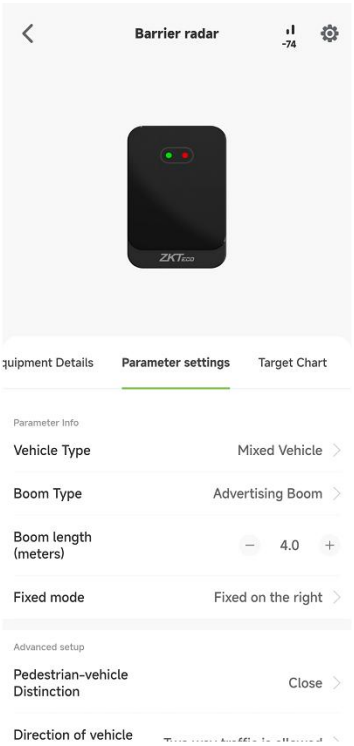


4. Choose the corresponding Bluetooth to connect it. Once the Bluetooth connected, It will automatically go to the Bluetooth settings screen.



8.3 Set Parameter for Radar

Enter the parameter setting interface as the pictures shown below.



Step 1: According to the actual installation environment, choose the **Vehicle Type, Boom Type** and **Boom length.** On the setting of **Boom length** is generally recommended to set the length shorter than the actual length of 50cm.

Step 2: Setting the **Fixed mode**: if the barrier is on the radar's left side, **select** left fixed; If on the right side, **select** right fixed.

Step 3: Slide to the bottom of this screen and click **[Save Radar Parameters]**.

Step 4: First keep the barrier boom in a raise state and make sure no one enters within 150cm to the left and right of the radar, then click **[Background Learning]** in the app. Follow the prompts until the learning is complete.

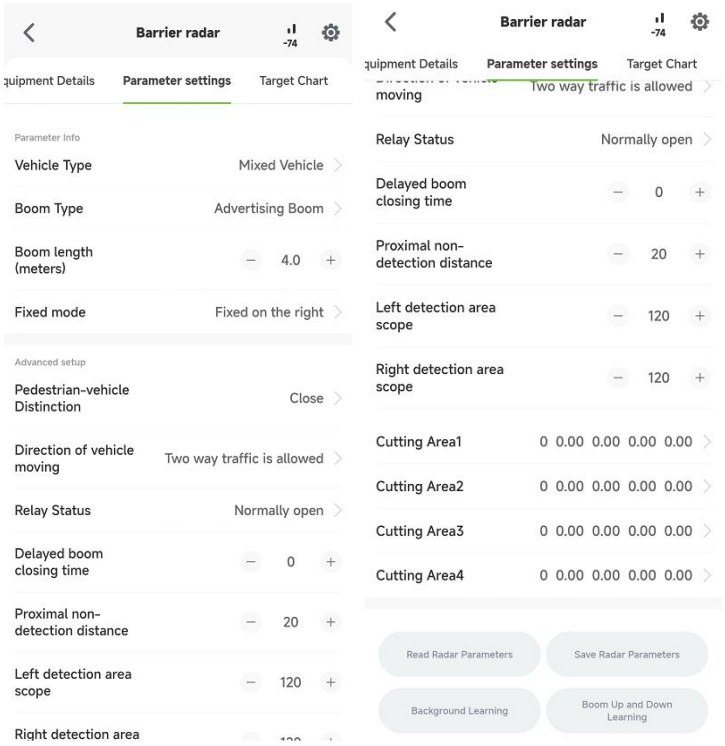
Step 5: Make sure no one enters within 150cm to the left and right of the radar, then click **[Boom Up and Down Learning]** in the app. Follow the prompts, using the remote control to keep opening and closing the barrier boom until the learning is complete.

Step 6: After finish **step 5**, the barrier boom will close, the radar indicator green light off, the radar into the self-learning, at this time to make sure no one enters within 150cm to the left and right of the radar in 30s. After 30s, the radar self-learning is completed and the setting of radar is finished.

Note:

1. In general scenarios, just follow the above steps to configure, no need to do other configurations.
2. If you have modified the **Boom Type**, **Boom length** or **Fixed mode,** please reset from step 3, otherwise will have problems such as smashing the car.

8.3.1 Parameter Description



Pedestrian-vehicle Distinction: This mode means that the radar will distinguish between pedestrian and vehicle. If turn it on, the indicator light will be yellow when detect a person.

Direction of vehicle moving: Entering from the left ,right side or both side of the radar.

Relay Status: Normally open and normally closed options.

Delayed boom closing time: Delayed closing of the barrier boom after the vehicle leaves.

Proximal non-detection distance: The distance in front of the radar that will not be detected by radar, for example, if the value is set as 0.4m, object 0.4m from radar will not be detected.

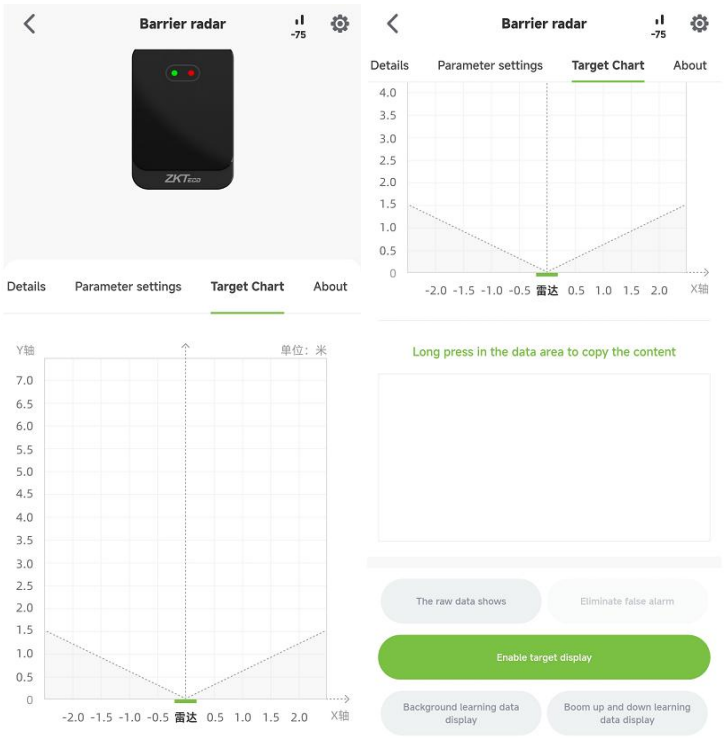
Left detection area scope: The left scope of the radar detection area.

Right detection area scope: The right scope of the radar detection area.

Cutting Area: If the site environment has a small obstacle in the detection area can occasionally be detected, in this situation you can draw a area according to the coordinate value that check from the **Target Chart,** all the point in this area are eliminated which means that the radar will not detect this area. For example, the obstacle of XY coordinates for (0.4,3), then you can draw a area such as X1 = 0.2, X2 = 0.6, Y1 = 2.8, Y2 = 3.2 cut area.

8.4 Display of Target Information

1. After the background learning is completed, you can click to display the target information. During this process, please do not perform other operations except stop the display.



2. If there is false alarm on the interface, click **[STOP DISPLAY]** and then click **[ELIMINATE FALSE ALARM]**. After Eliminate false alarm, it can be used normally.

9 FAQ

- **Problem:** After installation, the green light of the radar is always on, and the boom does not fall.

  Possible cause: Ensure any newly added reflective surfaces are outside the radar's detection zone, or recalibrate for background learning.

- **Problem:** The person is standing in front of the radar but the green indicator does not light.

  Possible cause: The radar is configured to activate only after a vehicle trigger; Pedestrian detection is disabled until a car is detected. Change the trigger mode to "pedestrian enabled" or "always active" detection.

- **Problem:** The red light of radar flashes when the 12V power supplied by the gate control board is on.

  Possible cause: It is recommended to connect an external 12V-1A power adapter.

10 Packing List

Number	Accessories	Quantity
1	VR30 Radar	1
2	Fixed nut	1
3	Installation aid stickers	1

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