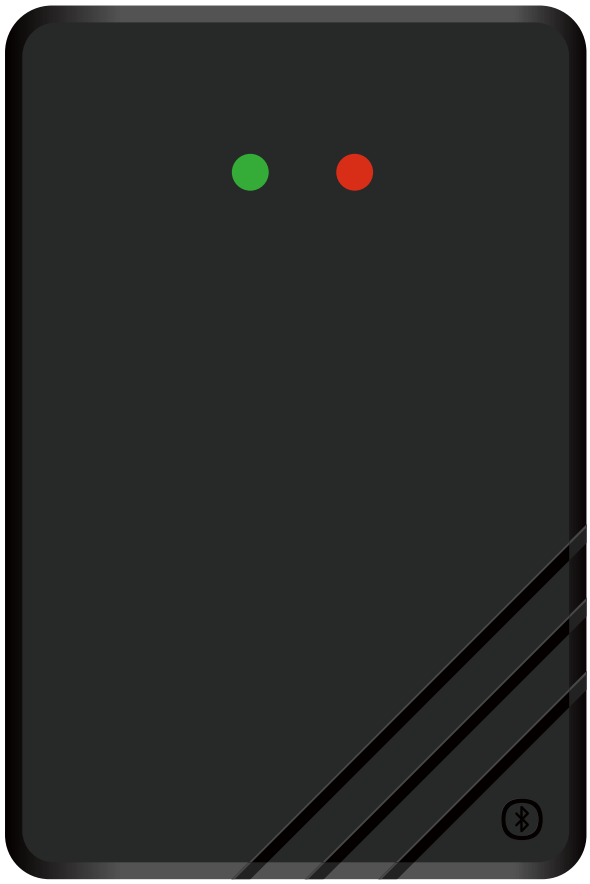
User Manual

80 GHz Millimeter-Wave Full-Type Anti-Collision Radar for Boom Barriers

v1.0 2026.06



Ⅰ. Precautions

When using the 80 GHz millimeter-wave anti-collision radar for boom barriers, please comply with the following precautions:

1. Configure the operating parameters of the radar reasonably according to the on-site conditions and in reference to the user manual.
2. Select an appropriate mounting height for the radar to avoid malfunction caused by excessively low or high installation positions.
3. Connect the radar signal wires and boom barrier control interfaces correctly in accordance with the User Manual.
4. The radar shall be powered independently by a 12 V 1 A DC power supply.Never connect it to 220 V AC mains.

Ⅱ. Interface Description

NO.	Wire Color	Cable Marking	Description
1	Red	VCC	12V DC +
2	Black	GND	12V DC –
3	Yellow	COM	Relay NO Output
4	White	Loop	Relay NO Output

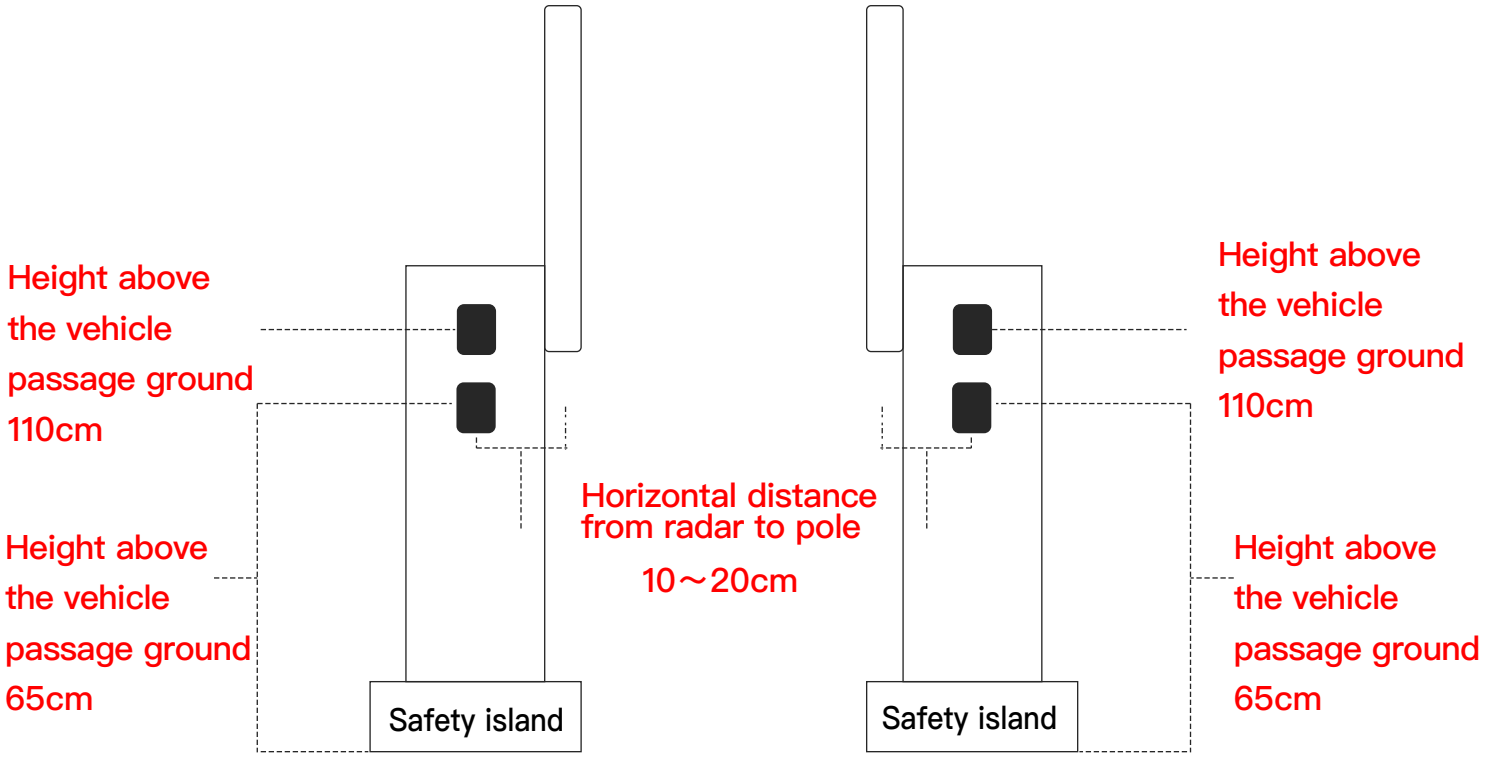
Note: Always power off the device before wiring adjustment, connection debugging or cable plugging/unplugging.Ensure the white and purple wires never come into contact with the 12 V positive power terminal.

III. Radar Installation

1. nstallation Position: Mount the radar closely against the boom barrier enclosure or a separate pole with the indicator facing upward.65cm–70cm；For large vehicles, two radars are recommended to be installed, with respective mounting heights of:65cm–70cm、100cm–110cm；

2. Recommended Horizontal Mounting Distance: For straight arm radar, distance to the pole:10cm–20cm， Non–straight arm radar: distance to the pole：20cm~30cm， The left and right mounting installation diagrams of the radar are shown below.

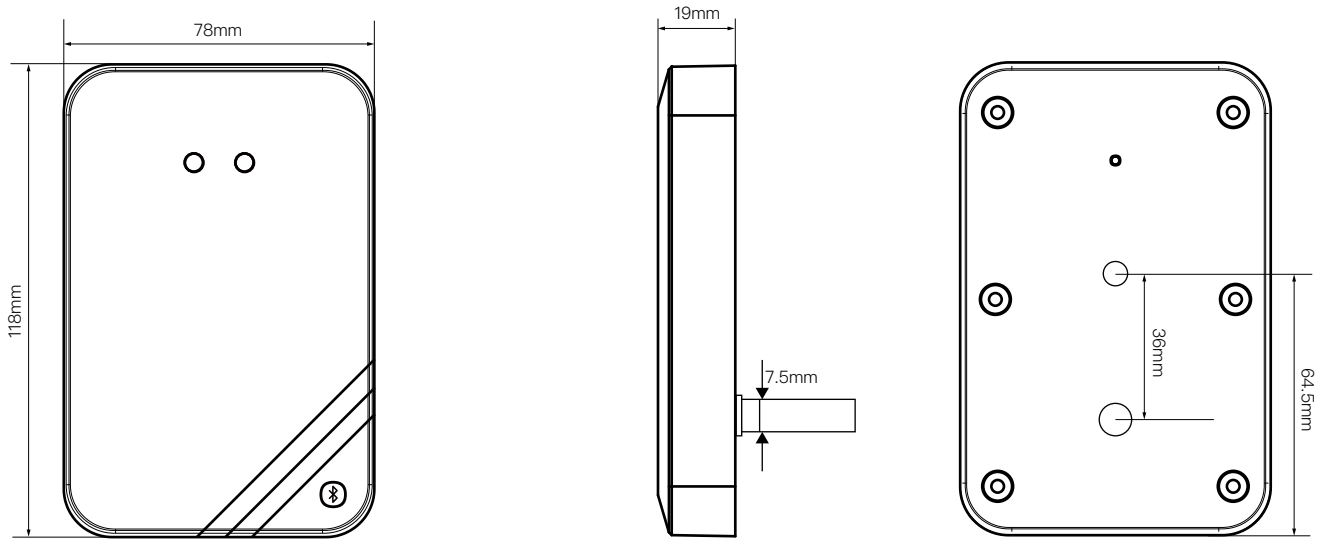
Note: During installation, ensure the radar protrudes or is flush with surrounding objects. Keep an area within 2 meters on both left and right sides of the radar free of obstructions; otherwise, signal interference may occur.



Left–side Fixed Mounting Schematic

Right–side Fixed Mounting Schematic

3. Drilling & Mounting：Drill holes at the selected position with Φ8 mm and Φ6 mm drill bits. After wiring and fixing holes are completed, route the radar cable through the central hole and fasten the fixing holes with screws to prevent shaking. Normally, one wiring hole plus one fixing hole is sufficient for installation.
4. Barrier Connection：Connect the red and black radar wires to the positive and negative terminals of a separate 12V/1A power supply. Connect the blue and orange wires to the common and ground loop terminals on the barrier mainboard. The purple and white wires re-quire no connection.

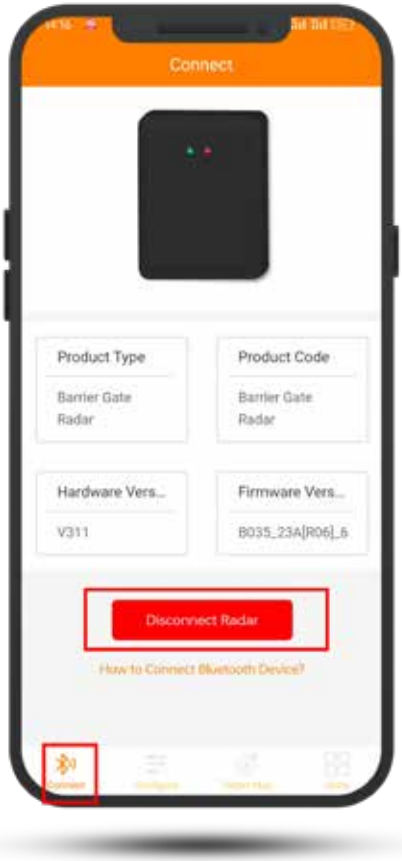


Radar Outline and Mounting Structure Drawing

IV. Radar Commissioning

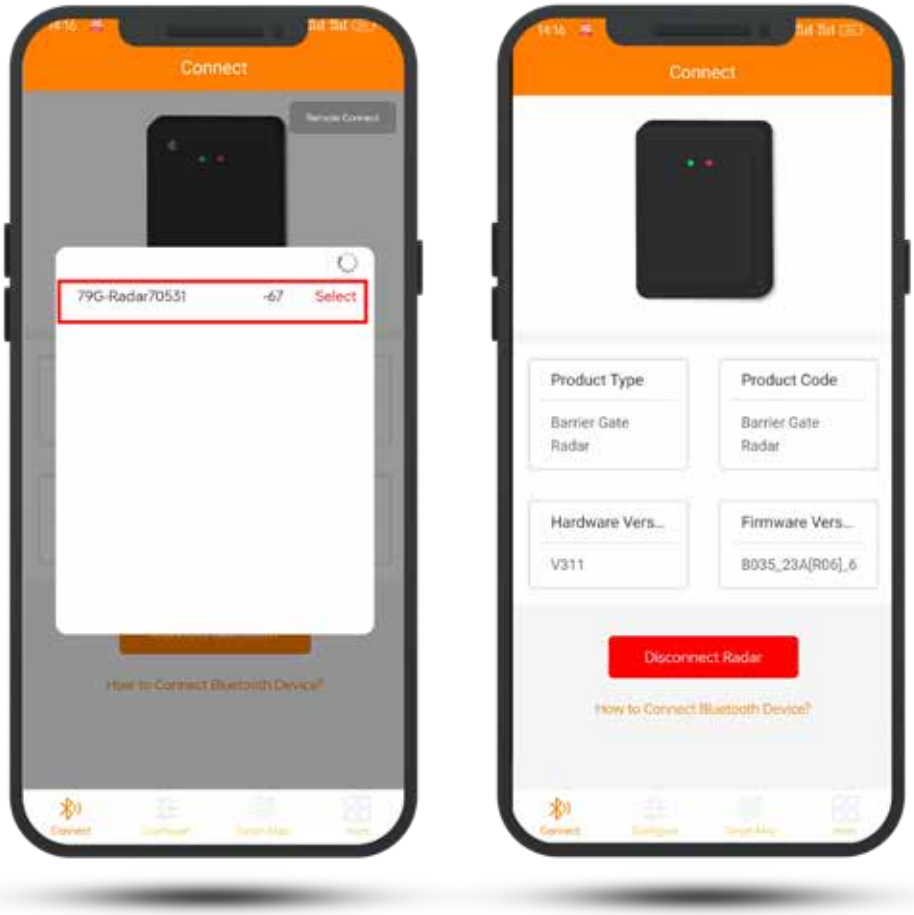
1. **Launch the APP**

   Enable Bluetooth and Location permissions on your mobile phone first, then launch the APP. Allow the APP to access Bluetooth and Location information permissions. When the radar connection page appears, tap the Connect Bluetooth Device button.



2. **Connect the rada**

   When the pop-up window appears as shown below, select 80G-Radar [Number] to establish connection. The successful connection interface is illustrated below.



Note: For 80G-Radar [Number], the number corresponds to the device SN code.

Connection Troubleshooting:

a. Check whether the APP has obtained Bluetooth and Location permissions on the mobile phone.

b. Power cycle the radar, then reconnect it.

3. **Radar Configuration(Once configuration is completed, the radar is ready for use. No further configuration is required for general application scenarios.)**

Step 1: On the mini-program, select the vehicle detection mode and barrier arm type, then set the arm length. It is recommended to set the value 0.5 m shorter than the actual arm length.

Step 2: Select mounting mode in the debugging tool: stand with your back to the radar pole. If the radar pole is on your left side relative to the radar, choose "Left Mount"; if the radar pole is on your right side relative to the radar, choose "Right Mount".

Step 3: Tap Save Radar Configuration.

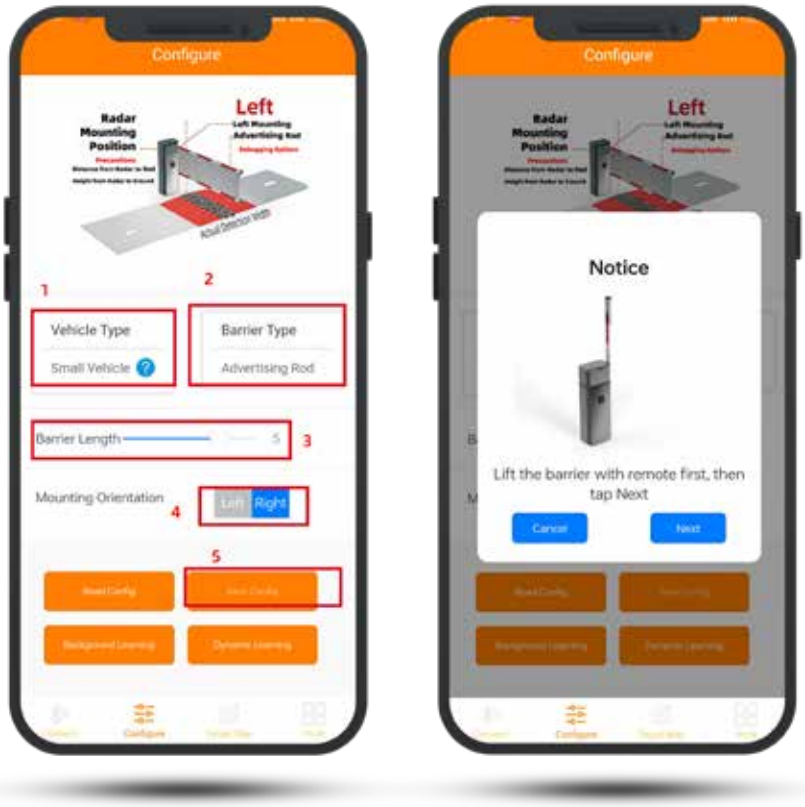
Step 4: Raise the barrier arm. Ensure no person enters the area within 2 meters on either side of the radar. Tap Lift Arm Background Calibration in the mini-program until the calibration is completed.

Step 5: Ensure no person enters the area within 2 meters on either side of the radar. Tap Arm Opening & Closing Calibration in the mini-program, then continuously raise and lower the arm via the remote control until the calibration finishes.

Step 6: Lower the barrier arm fully. The radar green indicator will turn off, and the radar will start self-calibration. Keep the area within 2 meters on both sides of the radar clear of any person for 30 seconds until self-calibration is completed.

The commissioning is now finished, and the radar operates normally.

Note: If the arm length, arm type or mounting method is modified, please complete the configuration starting from Step 3; otherwise, hazards such as vehicle crushing may occur.



V. Radar Precautions

1. The barrier enclosure or independent pole for radar installation must be firmly fixed. Avoid abnormal radar detection caused by shaking of the barrier enclosure or independent pole.

2. If the barrier arm is severely deformed, perform maintenance and repair in a timely manner to prevent false detection of the radar due to a deformed barrier arm.

3. No objects that interfere with target detection shall be present within the radar detection area. Protruding objects (such as metal guardrails, license plate recognition devices, walls, etc.) are prohibited on both left and right sides of the radar, so as not to interfere with radar detection performance.

4. For scenarios with both large and small vehicles, installing only one radar will result in a vehicle crushing risk. It is recommended to install two radars to ensure safe vehicle passage. One shall be mounted at approximately 1.1 m for large vehicle detection, and the other at approximately 0.65 m for small vehicle detection.

5. In on-site scenarios where vehicles enter and exit at an extreme oblique angle relative to the radar, use traffic cones and other guides to reduce the approach angle, and contact the technical support personnel of the manufacturer for assistance.