

SMDC703P

User Manual

Short-Range Products

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About the Document

Revision History

Version	Date	Author	Description
-	2026-06-15	Aurelia Chen/ Shay Shen	Creation of the document
1.0.0	2026-06-15	Aurelia Chen/ Shay Shen	Preliminary

Safety Information

When operating and installing this equipment, you must follow the safety information in the product labels and this user manual.

The "DANGER", "WARNING", and "CAUTION" items mentioned in this document are only supplementary to the safety matters and do not represent all safety matters.

General

Installation

Personnel who install, operate, and maintain this product must understand all safety precautions and master the correct methods before installation, operation, and maintenance. Please follow these basic installation requirements:

- The product must be installed, operated, and maintained by trained personnel.
- The product must be serviced by Quectel-authorized personnel.
- The replacement of parts must be performed by Quectel-authorized personnel.
- If malfunctions or abnormalities occur due to installation, the operator must contact Quectel in time.
- Strictly follow the factory assembly method after installation, otherwise it may affect the product performance.

Personal Safety

- Keep the product away from children.

Product Safety

- Keep the product away from fire and heat sources. Do not throw it into fire to avoid fire hazards or damage to the product.
- Avoid subjecting the product to severe vibration, impact, or compression to prevent damage to internal components or product failure.
- Pay attention to waterproof measures and ensure that the product interfaces are protected from water spray or immersion to prevent damage or malfunction.
- Do not attempt to disassemble or repair the product yourself, as this may cause safety risks or damage to the internal structure.
- Ensure the product is securely installed in a stable and reliable manner, whether on table, wall, or rack.
- Do not block or cover the product's ventilation openings.

Electrical Safety

ESD Protection

- To prevent electrostatic discharge (ESD) damage from friction or movement, the operator must take appropriate ESD precautions before installing, operating, or maintaining the product.
- Before touching or handling the product, the operator must wear an anti-static wristband and connect it to a grounded surface.

Compliance Information

European Union (EU)

This product and applicable accessories are CE-certified and strictly comply with the following harmonized European Union (EU) directives:

- Radio Equipment Directive (RED) 2014/53/EU: Compliance for wireless/RF devices (e.g., Wi-Fi, Bluetooth).
- Restriction of Hazardous Substances Directive (RoHS) 2011/65/EU: Restrictions on hazardous substances (e.g., lead, mercury).
- Waste Electrical and Electronic Equipment Directive (WEEE) 2012/19/EU: Obligations for e-waste recycling.
- Registration, Evaluation, Authorisation, and Restriction of Chemicals (REACH): Chemical substance regulations.

North America

United States:

- FCC Part 15 (CFR 47): EMI/EMC compliance for digital/radio frequency devices.

1. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference.
- (2) This device must accept any interference received, including interference that may cause undesired operation.

2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help.

The device has been evaluated to meet general RF exposure requirement. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body.

Canada:

- ISED RSS Standards: RF compliance (e.g., RSS-247 for Wi-Fi devices).

This device contains licence exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

The device has been evaluated to meet general RF exposure requirement. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- 1) L'appareil ne doit pas produire de brouillage;
- 2) L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Le dispositif a été évalué pour répondre aux exigences générales d'exposition aux ondes radiofréquences. Cet équipement doit être installé et utilisé avec une distance minimale de 20cm entre le radiateur et votre corps.

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1 Product Overview

SMDC703P is a high-performance USB dongle, supporting IEEE 802.11b/g/n Wi-Fi 4 and BLE 5.4 protocols.

1.1 Technical Specifications

Table 1: Key Features

Basic Information	
Protocols and Standard	● Wi-Fi protocols: IEEE 802.11b/g/n ● Bluetooth protocol: BLE 5.4 ● All hardware components are fully compliant with EU RoHS directive
Power Supply	12V Power Supply: ● 6–24 V ● Typ.: 12 V
Temperature Ranges	● Normal operating temperature ¹: -20 °C to +85 °C ● Storage temperature: -40 °C to +125 °C
Dimensions	(35.5 +0.1/-0.15) mm × (19.5+0.1/-0.15) mm × (4.5 ±0.27) mm
Weight	Approx. 4.27 g
Antenna	
Antenna	PCB antenna
Application Interface	
Application Interface	USB Type-A

¹ Within the normal operating temperature range, the product's indicators comply with IEEE and Bluetooth specification requirements.

1.2 Wi-Fi Performances

Table 2: Wi-Fi Performances

Operating Frequency			
2.4 GHz: 2.400–2.4835 GHz			
Modulation			
802.11b: DSSS 802.11g: OFDM 802.11n: OFDM - BLE 5.4: GFSK			
Operating Mode			
- AP - STA - AP + STA - Wi-Fi Direct			
Encryption Mode			
Open/WEP-Open/WPA/WPA2/WPA3			
Transmission Data Rate			
802.11b: 1 Mbps, 2 Mbps, 5.5 Mbps, 11 Mbps 802.11g: 6 Mbps, 9 Mbps, 12 Mbps, 18 Mbps, 24 Mbps, 36 Mbps, 48 Mbps, 54 Mbps 802.11n: HT20 (MCS 0–MCS 7)			
Condition (12 V; Temp. 25 °C)	EVM	Typ.; Unit: dBm; Tolerance: ±1.5 dB	
		Transmit Power	Receiver Sensitivity
2.4 GHz	802.11b @ 1 Mbps	15	-98
	802.11b @ 11 Mbps	15	-89
	802.11g @ 6 Mbps	15	-93
	802.11g @ 54 Mbps	15	-76
	802.11n, HT20 @ MCS 0, BPSK	15	-93
	802.11n, HT20 @ MCS 7, 64QAM	15	-73

NOTE

The module supports the above frequency bands and transmit power in hardware, but actual applications may be subject to local regulations.

1.3 Bluetooth Performances

Table 3: Bluetooth Performances

Operating Frequency		
2.400–2.4835 GHz		
Modulation		
GFSK		
Operating Mode		
Bluetooth Low Energy (BLE)		
Condition (12 V; Temp.: 25 °C)	Unit: dBm; Tolerance: ±2 dB	
	Transmit Power	Receiver Sensitivity
BLE (1 Mbps)	4.5	-96

1.4 Antenna Specification

Table 4: Requirements for PCB Antenna

Parameter	Requirement
Frequency Ranges (GHz)	2.4 GHz: 2.400–2.4835
Cable Insertion Loss (dB)	< 1
VSWR	≤ 1.8 (Max.)
Gain (dBi)	3.5 (Typ.)

Max. Input Power (W)	50
Efficiency	62 % (Avg.)
Polarization Type	Vertical

1.5 Functional Diagram

The functional diagram illustrates major functional parts of the product:

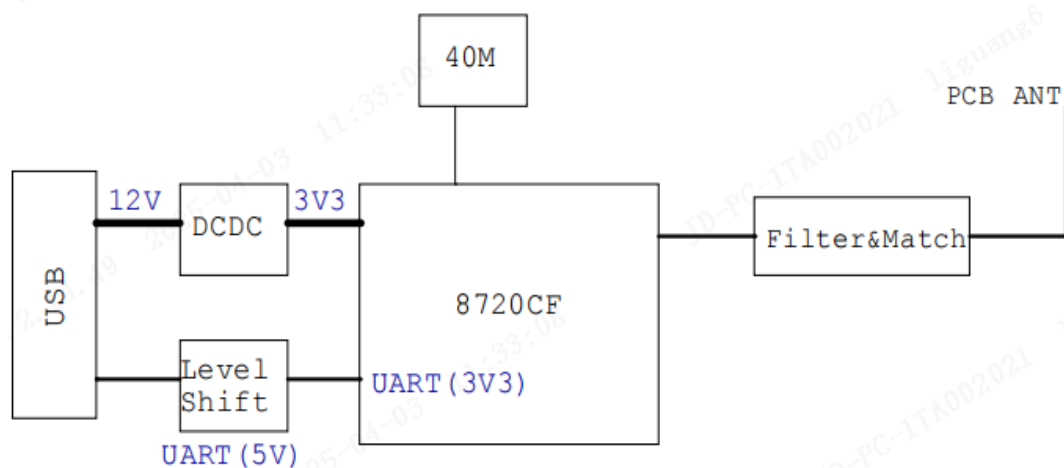


Figure 1: Functional Diagram

2 Appearance, Interface and Dimensions

This section displays images that represent the appearance, interfaces, and dimensions. These exhibited images serve illustrative purpose only and may not accurately reflect the actual product. To view the authentic appearance and label, please refer to the product you have received from Quectel.

2.1 Appearance

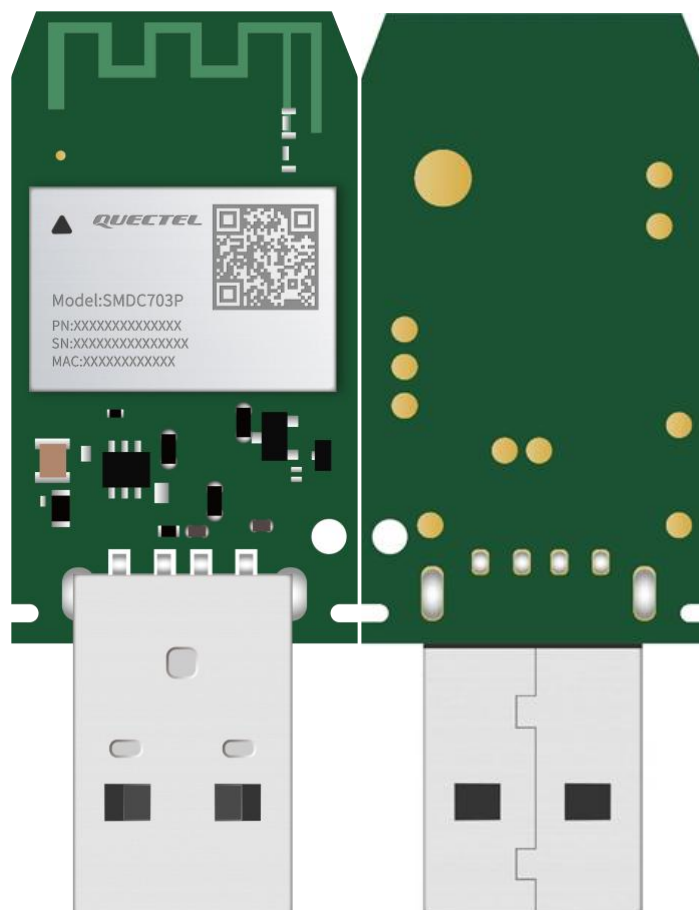


Figure 2: Top and Bottom Views

2.2 Interfaces

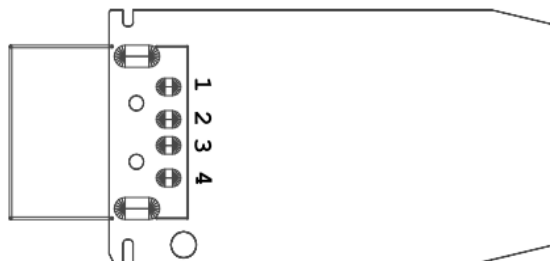


Figure 3: Pin Assignment (Top View)

Table 5: Pin Description

Power Supply and GND Pin					
Pin Name	Pin No.	I/O	Description	DC Characteristic	Comment
12V	4	PI	Power supply for the product	Vmin = 6 V Vnom = 12 V Vmax = 24 V	
GND	1				Connect it to ground.
Wi-Fi Application Interfaces					
Pin Name	Pin No.	I/O	Description	DC Characteristic	Comment
TX	2	DO	Transmit Data	Vnom = 5 V	
RX	3	DI	Receive Data		

NOTE

To reduce the probability of product damage and extend product service life, do not power up and down frequently.

2.3 Dimensions

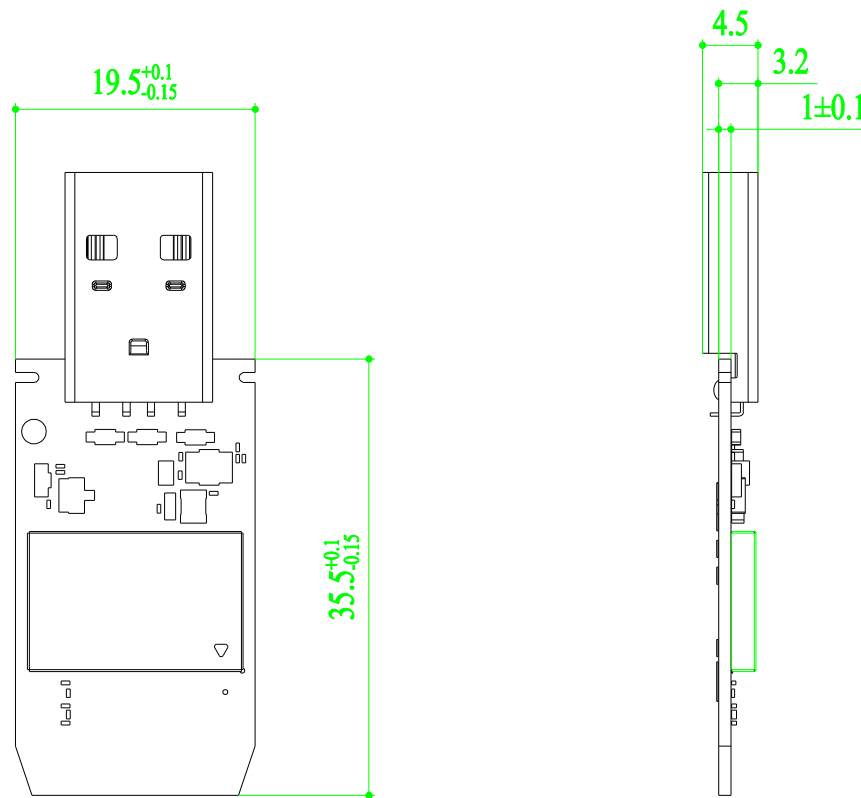


Figure 4: Detailed Dimensions (Unit: mm)

3 Operating Instructions

3.1 Function Operation

The USB dongle enables network access by connecting to an AP. Two options are available to implement this function, with Option 1 preferred.

1. Option 1

Step 1: Connect the red wire on the rear side of the electronic control board to the positive terminal of the 12V power supply, and the black wire to the negative terminal; then power on the board.



Figure 5: Electronic Control Board Power Supply Wiring

Step 2: Plug the USB dongle into the electronic control board.

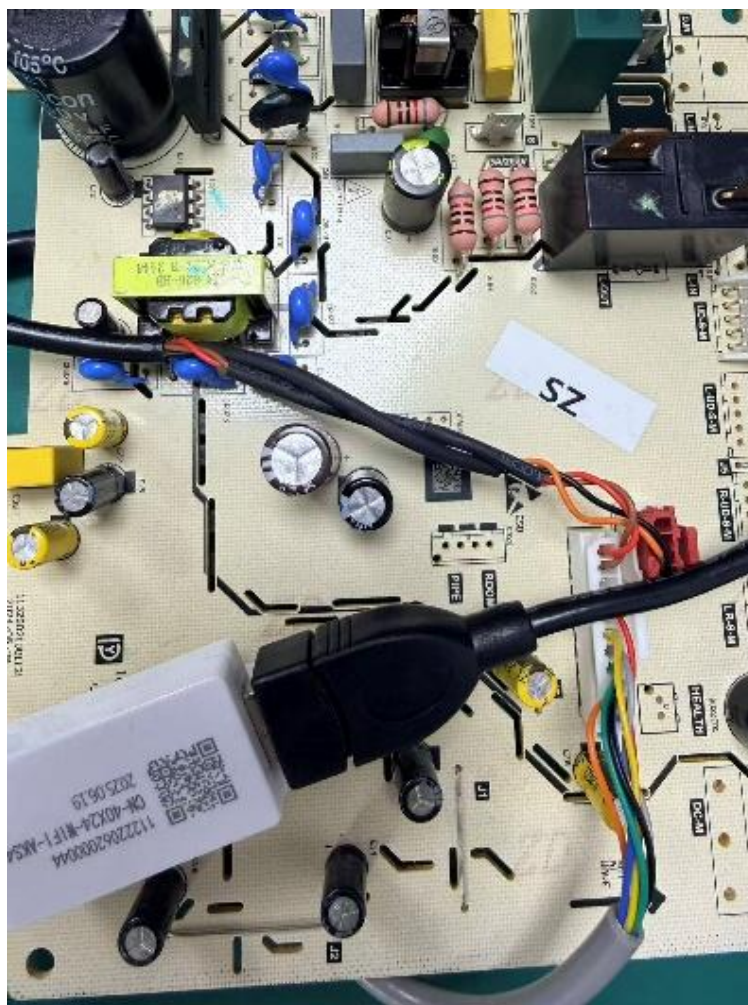


Figure 6: USB Dongle Powered by Electronic Control Board

Step 3: Open the “AUX home” app on your mobile phone.

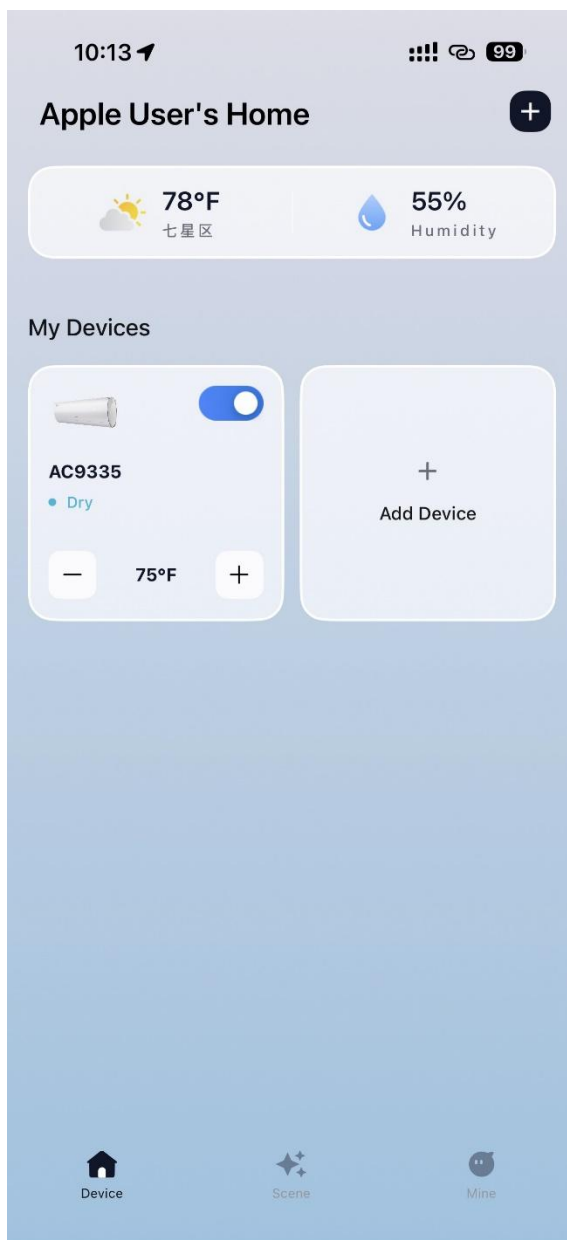


Figure 7: AUX home App Interface

Step 4: Turn on Bluetooth and Wi-Fi on your mobile phone. After the dongle is connected to the control board, the AUX home app will automatically discover the air conditioner device. Tap “Remote Control” to access the network configuration page of the dongle.

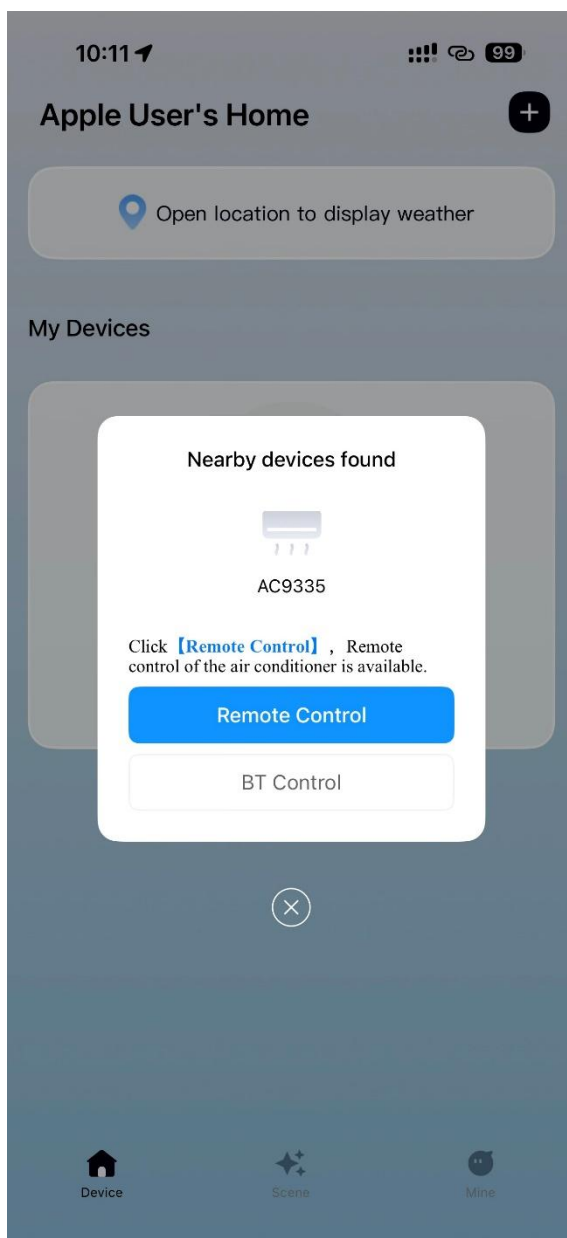


Figure 8: Nearby Devices Detected

Step 5: Go to the network configuration page. Select the 2.4 GHz Wi-Fi network your mobile phone is connected to with available internet, input the Wi-Fi password, then tap “Next step” to initiate automatic network configuration.

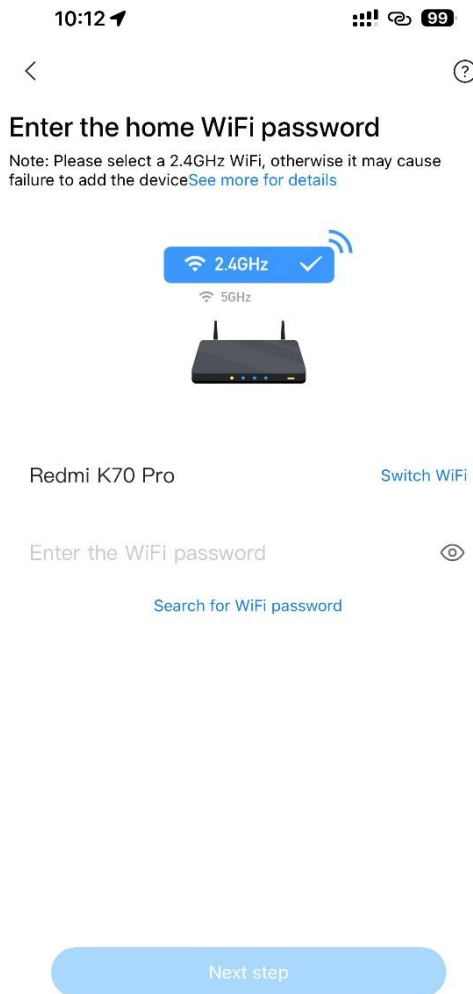


Figure 9: Select the AP You Want to Connect to

NOTE

Do not select a 5 GHz Wi-Fi network, otherwise the network configuration will fail.

2. Option 2

Step 1: Use fly wires to connect the 12V, RX, TX and GND test points on the USB dongle. Connect 12V and GND to the positive and negative terminals of the power supply respectively. Cross-connect RX, TX and GND to TX, RX and GND on the serial port adapter, then plug the serial port adapter into your computer.

Step 2: Open PyEMU_OTA_Fix_241022.exe, select the serial port connected to your computer and turn

on the switch, then click AP/Bluetooth. After that, repeat the network configuration steps from Step 3 to Step 5 of Option 1 to complete the network configuration.

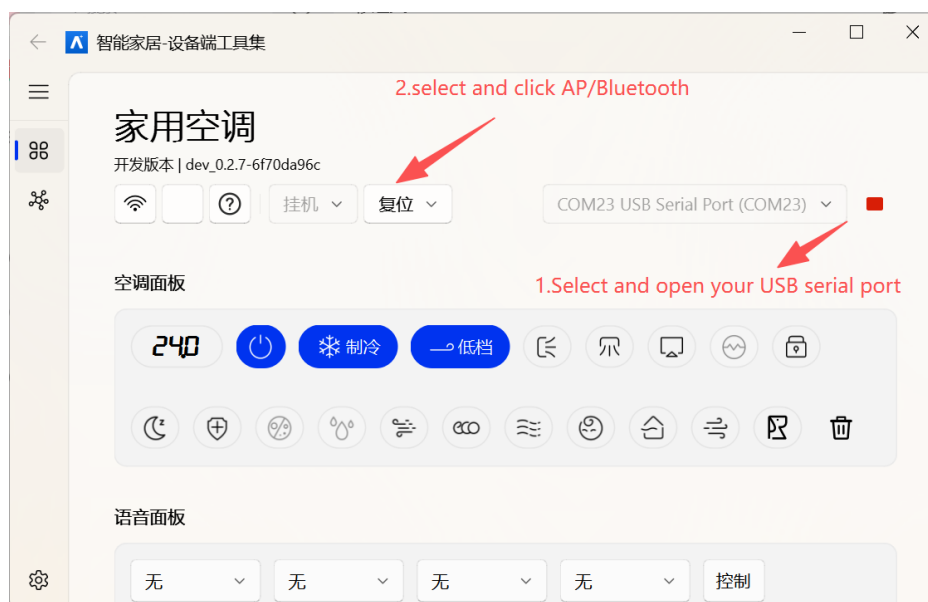


Figure 10: Choose Wi-Fi Network Connection

After successful network configuration, the AUX home app will pop up a completion prompt, add the device to your device list, and allow you to rename the device as needed.

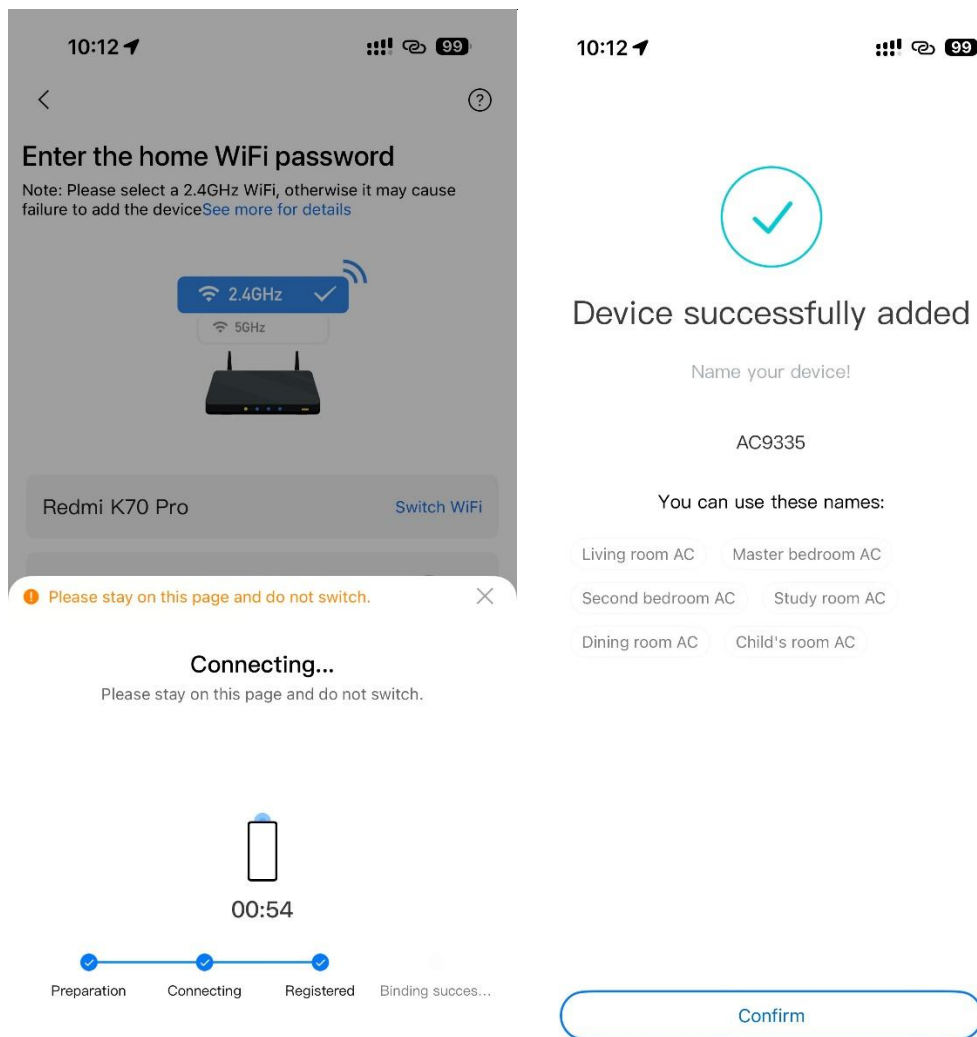


Figure 11: Network Configuration Success Page

When you control the air conditioner via your mobile phone, the digital tube and indicator light on the control board will respond if pairing succeeds with Option 1. For successful pairing via Option 2, status changes of the indicator will be displayed in the PyEMU_OTA_Fix_241022.exe program.

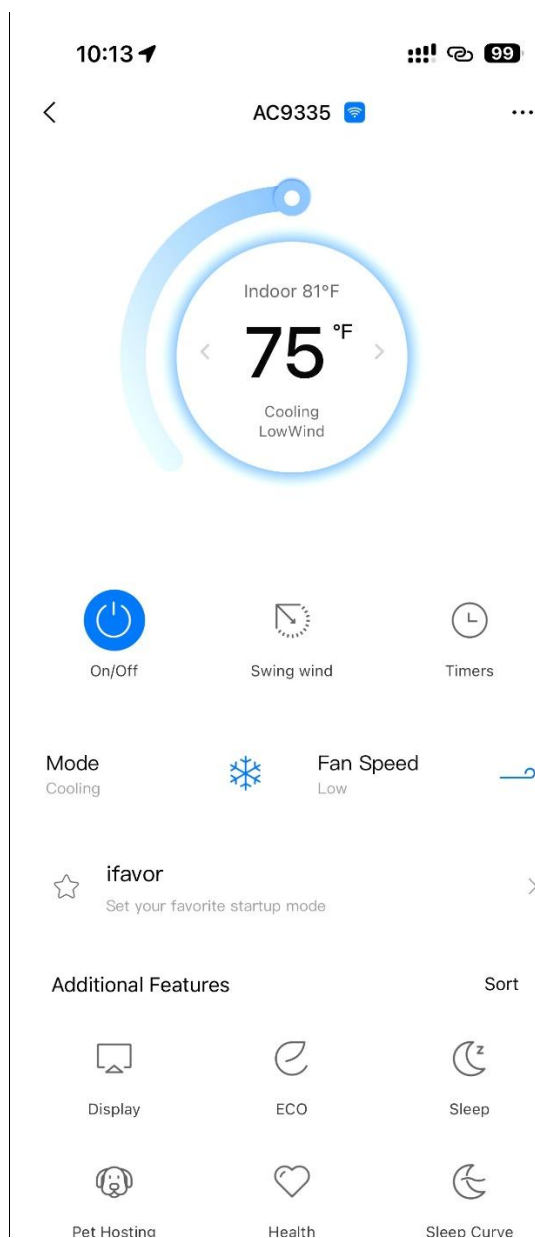


Figure 12: AUX home App AC Control Interface

4 Electrical Characteristics and Reliability

4.1 Absolute Maximum Ratings

Table 6: Absolute Maximum Ratings (Unit: V)

Parameter	Min.	Max.
12V	6	24

4.2 Power Supply Ratings

Table 7: Power Supply Ratings (Unit: V)

Parameter	Description	Conditions	Min.	Typ.	Max.
12V	Power supply for the product	The actual input voltages must be kept between the minimum and maximum values.	6	12	24

4.3 Power Consumption

Test conditions for module power consumption are as follows:

- Ambient temperature 25 °C
- Typical power domain
- 50 Ω impedance

The following power consumption data are the average values for your reference only. Actual values may vary among different modules due to differences in internal components, software versions and test ambient temperatures. For more details, please contact Quectel Technical Support.

4.3.1 Wi-Fi Power Consumption

Table 8: Wi-Fi Power Consumption in Non-signalling Mode (Unit: mA)

Condition (Duty Cycle: 100%)			I _{12V} (AVG)
2.4 GHz	802.11b	802.11b @ 1 Mbps	68.01
		802.11b @ 11 Mbps	68.43
	802.11g	802.11g @ 6 Mbps	68.36
		802.11g @ 54 Mbps	68.35
	802.11n	HT20 @ MCS 0	68.02
		HT20 @ MCS 7	67.95

4.3.2 Bluetooth Power Consumption

Table 9: Bluetooth Power Consumption in Non-signalling Mode (Unit: mA)

Condition			I _{12V} (AVG)
BLE (1 Mbps)	CH0	TX Power (4.5 dBm)	32.00
		RX Sensitivity (-97 dBm)	21.12
	CH19	TX Power (4.5 dBm)	32.13
		RX Sensitivity (-97 dBm)	21.11
	CH39	TX Power (4.5 dBm)	32.37
		RX Sensitivity (-97 dBm)	21.12

5 Packaging

5.1 Packaging Specification

This chapter outlines the key packaging parameters and processes. All figures below are for reference purposes only, as the actual appearance and structure of packaging materials may vary in delivery.

The modules are packed in a blister tray packaging as specified in the sub-chapters below.

5.1.1 Blister Tray

Blister tray dimensions are illustrated in the following figure:

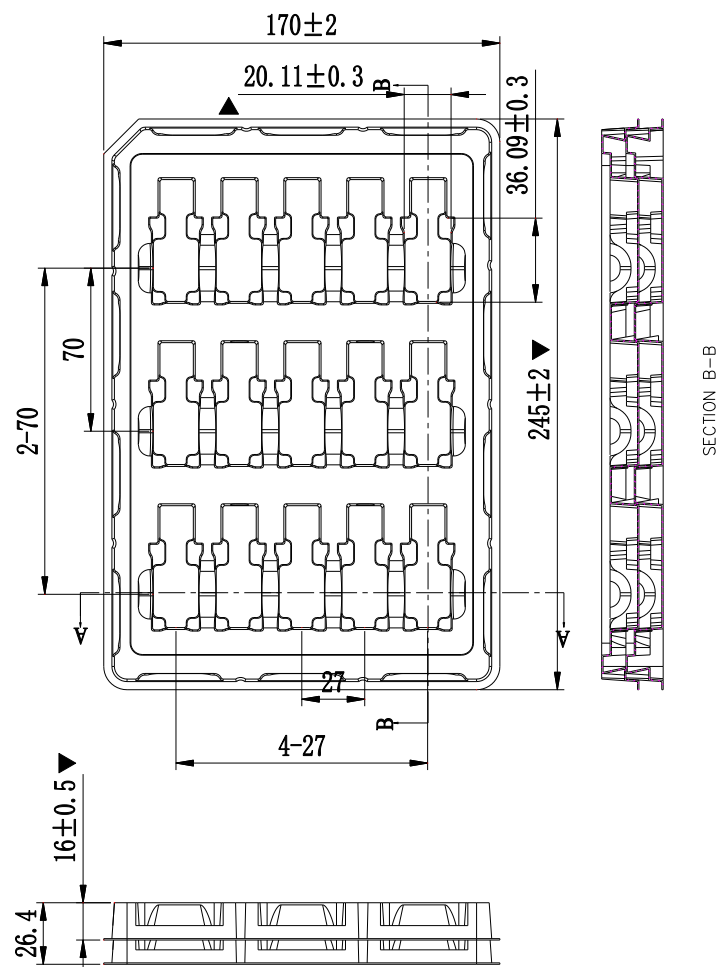
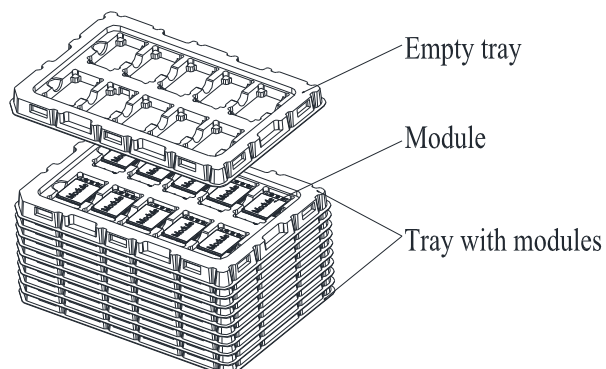


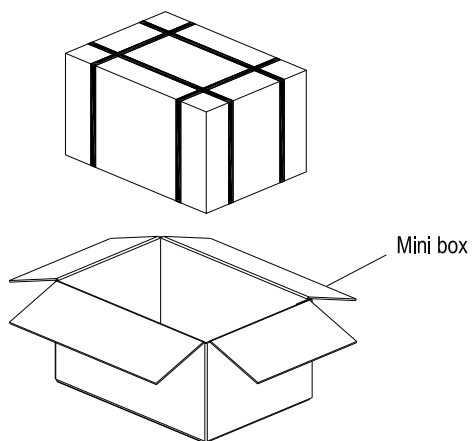
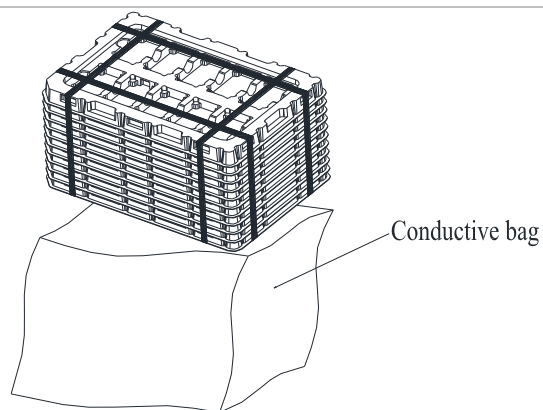
Figure 13: Blister Tray Dimension Drawing (Unit: mm)

5.1.2 Packaging Process



Each blister tray packs 15 modules. Stack 10 trays with modules, and place 1 empty tray on top.

Fasten the 11 trays and place them into a conductive bag and fasten it.



Pack the conductive bag with blister trays into a mini box. 1 mini box can pack 150 modules.

Place the 4 packaged mini boxes into 1 carton and seal it. 1 carton can pack 600 modules.

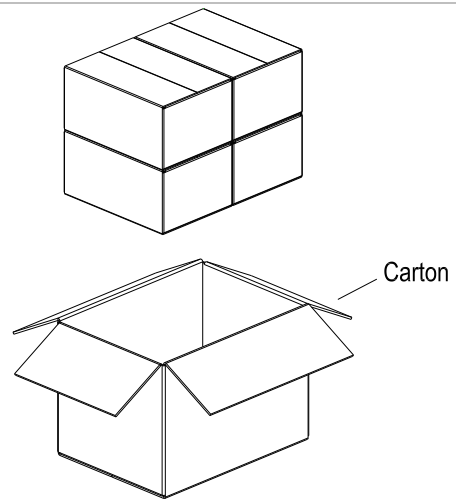


Figure 14: Packaging Process

6 Appendix References

Table 10: Terms and Abbreviations

Abbreviation	Description
AP	Access Point
BLE	Bluetooth Low Energy
CCK	Complementary Code Keying
DSSS	Direct Sequence Spread Spectrum
ESD	Electrostatic Discharge
EVM	Error Vector Magnitude
GFSK	Gauss frequency Shift Keying
GND	Ground
HE	High Efficiency
HT	High Throughput
I/O	Input/Output
IEEE	Institute of Electrical and Electronics Engineers
Mbps	Megabits per second
MCS	Modulation and Coding Scheme
OFDM	Orthogonal Frequency Division Multiplexing
PCB	Printed Circuit Board
QAM	Quadrature Amplitude Modulation
RF	Radio Frequency
RoHS	Restriction of Hazardous Substances
STA	Station

USB	Universal Serial Bus
VSWR	Voltage Standing Wave Ratio
WEP	Wired Equivalent Privacy
WPA	Wi-Fi Protected Access