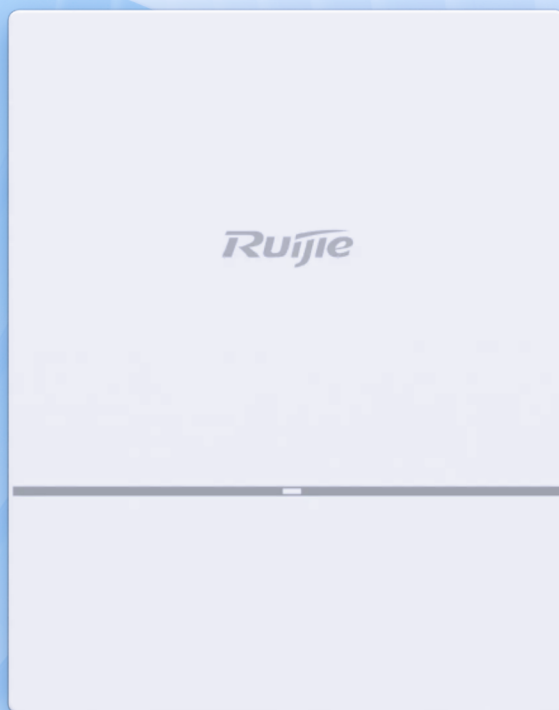


# RG-AP820-L(V2)

Wi-Fi 6 Dual-Radio  
Indoor Access Point



## 01 Product Overview

The RG-AP820-L(V2) is a Wi-Fi 6 dual-radio indoor access point (AP) launched by Ruijie Networks for indoor scenarios in the sectors covering general education, higher education, government, finance, and business.

In compliance with IEEE 802.11ax, IEEE 802.11ac Wave2, IEEE 802.11ac Wave1, and IEEE 802.11n standards, the RG-AP820-L(V2) adopts a hardware-independent dual-radio design and supports optional dual-radio modes (2.4 GHz + 5 GHz or 5 GHz + 5 GHz), ensuring robust compatibility and high performance. The RG-AP820-L(V2) can deliver a combined peak data rate of 1.775 Gbps in the 2.4 GHz + 5 GHz mode or 2.402 Gbps in the 5 GHz + 5 GHz mode.

The RG-AP820-L(V2) is designed considering factors such as wireless network security, radio control, mobile access, QoS, and seamless roaming. The RG-AP820-L(V2) can be used together with Ruijie access controllers (ACs) to implement access management, data forwarding, security, and access control for wireless users.

The RG-AP820-L(V2) adopts a rectangle design, with a height of only 26 mm (1.02 in.). With integrated antennas, a concealed LAN port, and discreet cabling, the RG-AP820-L(V2) can be mounted on a wall or ceiling. An attractive design with flexible mounting options enables the RG-AP820-L(V2) to smoothly blend into any indoor scenarios. In addition, the RG-AP820-L(V2) also supports both local power supply or Power over Ethernet (PoE), which can be selected based on power supply conditions. This makes the RG-AP820-L(V2) ideal for indoor environments including hotels, offices, hospitals, and schools.

## 02 Product Appearance



RG-AP820-L(V2) Front View



RG-AP820-L(V2) Rear View



RG-AP820-L(V2) Side View

## 03 Product Highlights

### High Speed and Intelligent Network Optimization, Improving User Access Experience

- Wi-Fi 6, dual-radio (2.4 GHz/5 GHz + 5 GHz), four spatial streams, a combined peak data rate of 2.402 Gbps
- Intelligent local forwarding technology, providing centralized and local forwarding modes to meet the needs of different scenarios
- OFDMA, improving multi-user access experience
- IEEE 802.11k/v/r support, roaming stickiness optimization, and remote association improvement for superior user experience.

### Secure and Reliable Network System

- User-level secure access, achieving secure authentication upon user access
- WPA3, 802.1X, PPSK and other authentication and encryption technologies to enhance data security.

### Multiple Management Modes

- Flexible Fit/Fat/Cloud mode switchover
- Comprehensive security protection with Ruijie Cloud, building an efficient and secure wireless network.

## 04 Product Features

### High-Speed Wireless Access for Superior User Experience

By maximizing Wi-Fi utilization and substantially reducing airtime competition between clients, the RG-AP820-L(V2) improves user experience. It supports Orthogonal Frequency-Division Multiple Access (OFDMA) and Multi-User Multiple-Input Multiple-Output (MU-MIMO) technologies. With up to four spatial streams (4SS) and 80 MHz channel width (HE00), the RG-AP820-L(V2) delivers a combined peak data rate of 2.402 Gbps in the 5 GHz frequency band, providing pioneering wireless capabilities for enterprises.

#### 1024-QAM for High Data Rate

In compliance with the IEEE 802.11ax standard, the RG-AP820-L(V2) provides a combined peak data rate of 2.402 Gbps, delivering superior high-speed experience.

#### OFDMA for High-Density Client Access

The OFDMA feature in the IEEE 802.11ax standard enables the RG-AP820-L(V2) to divide a Wireless Local Area Network (WLAN) channel into multiple sub-channels, with each client consuming one or more sub-channels. The RG-AP820-L(V2) can implement scheduling for multiple clients to receive and send packets concurrently. This reduces contention for air interface resources and backoff, shortens network latency, and boosts network efficiency.

### Diverse Wi-Fi Technologies

The RG-AP820-L(V2) supports the following radio transmission technologies:

- Dynamic frequency selection (DFS) optimizes the use of available radio spectrum to prevent radar channel interference.
- Cyclic delay/shift Diversity (CDD/CSD) improves downlink radio frequency (RF) performance, and converts spatial diversity to frequency diversity to avoid intersymbol interference, thus decreasing the bit error rate (BER) and effectively reducing signal distortion.
- Maximum ratio combining (MRC) improves the signal quality at the receiver end and enhances the reliability and performance of received signals.

The RG-AP820-L(V2) supports the following radio channel coding technologies:

- Space-time block coding (STBC) increases the range and improves the signal reception, and enhances the reliability of data transmission.
- Low-density parity check (LDPC) corrects errors efficiently and improves the throughput.
- Transmit beam-forming (TxBF) expands the signal coverage and enhances the reliability of specific devices, thereby improving the data rate.

## Intelligent Optimization, Reliability Guarantee

### Intelligent Local Forwarding

The RG-AP820-L(V2) integrates intelligent local forwarding technology and eliminates the traffic bottleneck on its connected AC. The data forwarding mode of the RG-AP820-L(V2) can be flexibly pre-configured through Ruijie's AC. The RG-AP820-L(V2) determines whether data needs to be forwarded by the AC or be sent to a wired network for data exchange based on the SSID or user VLAN.

If the RG-AP820-L(V2) forwards all traffic to the AC, the AC can implement centralized management and traffic forwarding, isolation, thereby optimizing network performance, improving roaming experience, and ensuring data security.

With the local forwarding technology, the RG-AP820-L(V2) classifies the data that is sensitive to the delay and requires real-time high-performance transmission, and forwards it through a wired network. This greatly relieves the traffic burden of the AC and better adapts to heavy-traffic transmission on 802.11ax networks.

### AI-based Wireless Optimization

Wi-Fi optimization is implemented on Ruijie Cloud based on the free Ruijie Cloud AI engine. Ruijie Cloud not only supports cloud management of APs, but also seamlessly integrates with ACs to simplify Wi-Fi maintenance and operation support. With the AI-based wireless optimization function of Ruijie Cloud, you can easily implement network analysis, wireless optimization, and task scheduling. In addition, Ruijie Networks provides an intelligent mobile app, on which network optimization can be performed and optimization reports can be generated.

As part of the Ruijie Cloud solution, Ruijie Reyee App is a mobile app designed to provide easy access to Ruijie device management. Ruijie Reyee App provides comprehensive monitoring, configuration, and troubleshooting tools, including network check, one-click optimization, and device topology view. Ruijie Reyee App can be downloaded for free from the iOS App Store and Google Play.

### Client Access Optimization

In Fit mode, the RG-AP820-L(V2) supports the IEEE 802.11k/v/r standard and provides intelligent identification and steering functions. This solves the problems of roaming stickiness and remote association, enabling superior Internet access experience.

### Abundant QoS Policies

The RG-AP820-L(V2) provides abundant QoS policies. It supports bandwidth limiting based on the WLAN, AP, and STA, and provides Wi-Fi Multimedia (WMM) that defines priorities for different service data. This implements immediate and quantitative transmission of audio and video data, and guarantees smooth application of

multimedia services.

The multicast-to-unicast technology supported by the RG-AP820-L(V2) addresses the problem of video freezing caused by packet loss and long latency in Video on Demand (VoD) and other multicast applications on wireless networks. This enables smooth multicast video services on a wireless network, improving user experience.

## Comprehensive Security Protection and Ease of Use

### Multiple Easy-to-Use Authentication Modes

The RG-AP820-L(V2) supports various authentication and encryption technologies, including web, 802.1X, WEP (64/128 bits), WPA, WPA2, WPA3, voucher code, user accounts, SMS, PPSK and PSK. WPA3 includes WPA3-Personal, WPA3-Enterprise, and WPA3-OWE. In compliance with standard Network Access Control (NAC), the AC offers control policies through authentication, authorization, device compliance check, and network attack detection or prevention. All these features guarantee high network security for authenticated users.

### All-in-One Design for Small Branch Offices

In small branch office scenarios, the RG-AP820-L(V2) not only serves as an AP to provide the wireless access service for the office area, but serves as a virtual private network (VPN) gateway. This all-in-one design simplifies network deployment and reduces building costs.

### PPPoE

The RG-AP820-L(V2) can function as a Point-to-Point Protocol over Ethernet (PPPoE) and access the Internet through PPPoE, eliminating the need to deploy gateways in branch offices for Internet access.

### NAT

The RG-AP820-L(V2) supports network address translation (NAT), which provides NAT service between the local area network (LAN) of a branch office and the Internet.

### IPsec VPN

The RG-AP820-L(V2) supports IPsec VPN, enabling the establishment of IPsec VPN tunnels between branch offices and the headquarters to implement LAN interconnection.

## Flexible Device Management Modes

### Flexible Switchover Among Fat, Fit, and Cloud Modes

The RG-AP820-L(V2) supports flexible switchover among Fat, Fit, and Cloud deployment modes. When deployed in Fat or Cloud mode, the RG-AP820-L(V2) can operate as a single device and be managed by a local AC. It can also be connected to Ruijie public cloud for cloud-based management. When deployed in Fit mode, the RG-AP820-L(V2) can be used with the AC to implement more functions. In Fit mode, the RG-AP820-L(V2) can be deployed through Zero Touch Provisioning (ZTP). In addition, complete remote management also greatly enhances the O&M management efficiency of a wireless network.

### Eweb Management

The RG-AP820-L(V2) provides the Eweb for AC and AP management. O&M personnel can implement wireless configurations easily and manage the wireless network in an all-round manner. On the Eweb of ACs, O&M personnel can manage APs as well as clients connected to the APs and limit the rates and network access behaviors of clients. Through the Eweb, O&M personnel can plan, manage, and maintain wireless networks conveniently.

### Association with Network Management Software

The RG-AP820-L(V2) can be associated with Ruijie Cloud which can manage all ACs and APs on the network, including device configuration backup and device status query. Ruijie Cloud also provides a wireless heat map to display the wireless signal distribution of APs in the actual environment.

## 05 Specifications

### Hardware Specifications

| Dimensions and Weight                | RG-AP820-L(V2)                                                           |
|--------------------------------------|--------------------------------------------------------------------------|
| Unit dimensions (W x D x H)          | 153 mm x 193 mm x 26 mm (6.02 in. x 7.60 in. x 1.02 in.)                 |
| Shipping dimensions (W x D x H)      | 377 mm x 322 mm x 228 mm (14.84 in. x 12.68 in. x 8.98 in.)              |
| Unit weight                          | Main unit: 0.42 kg (0.93 lbs)                                            |
| Mounting bracket: 0.07 kg (0.15 lbs) | 102.4 Tbps                                                               |
| Shipping weight                      | 5.75 kg (12.68 lbs)                                                      |
| Mounting                             | Wall/Ceiling-mount (a mounting bracket is delivered with the main unit.) |
| Color                                | White                                                                    |
| Lock option                          | Securing latch and Kensington lock                                       |

| Wi-Fi Radio               | RG-AP820-L(V2)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Radio design              | Dual-radio design and four spatial streams <ul style="list-style-type: none"> <li>Radio 1: 2.4 GHz/5 GHz, two spatial streams, 2x2, MU-MIMO</li> <li>Radio 2: 5 GHz, two spatial streams, 2x2, MU-MIMO</li> </ul>                                                                                                                                                                                                                                                                                                                   |
| Operating frequency bands | Radio 1:<br>802.11b/g/n/ax: <ul style="list-style-type: none"> <li>2.400 GHz to 2.4835 GHz ISM, channels 1 to 13</li> </ul> 802.11a/n/ac/ax: <ul style="list-style-type: none"> <li>5.150 GHz to 5.250 GHz, U-NII-1, channels 36, 40, 44, and 48</li> <li>5.250 GHz to 5.350 GHz, U-NII-2A, channels 52, 56, 60, and 64</li> <li>5.470 GHz to 5.725 GHz, U-NII-2C, channels 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, and 140</li> <li>5.725 GHz to 5.850 GHz, U-NII-3/ISM, channels 149, 153, 157, 161, and 165</li> </ul> |

| Wi-Fi Radio               | RG-AP820-L(V2)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating frequency bands | <p>Radio 2, 802.11a/n/ac/ax:</p> <ul style="list-style-type: none"> <li>5.150 GHz to 5.250 GHz, U-NII-1, channels 36, 40, 44, and 48</li> <li>5.250 GHz to 5.350 GHz, U-NII-2A, channels 52, 56, 60, and 64</li> <li>5.470 GHz to 5.725 GHz, U-NII-2C, channels 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, and 140</li> <li>5.725 GHz to 5.850 GHz, U-NII-3/ISM, channels 149, 153, 157, 161, and 165</li> </ul> <p>Note: Available frequency bands may vary with countries or regions. To use the above-mentioned frequency bands, ensure that they are supported in your country or region. For details, see For details, see WLAN Country or Region Codes and Channel Compliance.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Data rates                | <p>Combined peak data rate:</p> <p>2.4 GHz + 5 GHz, 1.775 Gbps</p> <p>5 GHz + 5 GHz, 2.402 Gbps</p> <p>Radio 1:</p> <p>2.4 GHz, 574 Mbps</p> <ul style="list-style-type: none"> <li>Two spatial stream Single User (SU) MIMO for up to 574 Mbps wireless data rate to individual 2SS HE40 802.11ax client devices (maximum)</li> <li>Two spatial stream Single User (SU) MIMO for up to 287 Mbps wireless data rate to individual 2SS HE20 802.11ax client devices (typical)</li> </ul> <p>5 GHz, 1.201 Gbps</p> <ul style="list-style-type: none"> <li>Two spatial stream Single User (SU) MIMO for up to 1.201 Gbps wireless data rate to individual 2SS HE80 802.11ax client device (maximum)</li> <li>Two spatial stream Single User (SU) MIMO for up to 574 Mbps wireless data rate to individual 2SS HE40 802.11ax client device (typical)</li> <li>Two spatial stream Multi-User (MU) MIMO for up to 1.201 Gbps wireless data rate to up to two 1SS HE80 802.11ax DL-MU-MIMO capable client devices simultaneously (maximum)</li> <li>Two spatial stream Multi-User (MU) MIMO for up to 574 Mbps wireless data rate to up to two 1SS HE40 802.11ax DL-MU-MIMO capable client devices simultaneously (typical)</li> </ul> <p>Radio 2: 5 GHz, 1.201 Gbps</p> <ul style="list-style-type: none"> <li>Two spatial stream Single User (SU) MIMO for up to 1.201 Gbps wireless data rate to individual 2SS HE80 802.11ax client device (maximum)</li> <li>Two spatial stream Single User (SU) MIMO for up to 574 Mbps wireless data rate to individual 2SS HE40 802.11ax client device (typical)</li> <li>Two spatial stream Multi-User (MU) MIMO for up to 1.201 Gbps wireless data rate to up to two 1SS HE80 802.11ax DL-MU-MIMO capable client devices simultaneously (maximum)</li> <li>Two spatial stream Multi-User (MU) MIMO for up to 574 Mbps wireless data rate to up to two 1SS HE40 802.11ax DL-MU-MIMO capable client devices simultaneously (typical)</li> </ul> |
| Data rate set             | <p>The following 802.11-compliant data rates in Mbps are supported:</p> <p>2.4 GHz radio</p> <ul style="list-style-type: none"> <li>802.11b: 1, 2, 5.5, 11</li> <li>802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, 54</li> <li>802.11n: 6.5 to 300 (MCS0 to MCS15, HT20 to HT40)</li> <li>802.11ac: 6.5 to 400 (MCS0 to MCS9, NSS = 1 to 2, VHT20 to VHT40)</li> <li>802.11ax: 8.6 to 574 (MCS0 to MCS11, NSS = 1 to 2, HE20 to HE40)</li> </ul> <p>5 GHz radio</p> <ul style="list-style-type: none"> <li>802.11a: 6, 9, 12, 18, 24, 36, 48, 54</li> <li>802.11n: 6.5 to 300 (MCS0 to MCS15, HT20 to HT40)</li> <li>802.11ac: 6.5 to 867 (MCS0 to MCS9, NSS = 1 to 2, VHT20 to VHT80)</li> <li>802.11ax: 8.6 to 1,201 (MCS0 to MCS11, NSS = 1 to 2, HE20 to HE80)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Packet aggregation        | 802.11n/ac/ax: A-MPDU and A-MSDU                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Antenna type              | <p>Built-in omnidirectional antennas</p> <ul style="list-style-type: none"> <li>2 x 2.4 GHz antennas (Radio 1)</li> <li>4 x 5 GHz antennas (Radio 1 &amp; Radio 2)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Antenna gain              | <p>2.4 GHz: 5 dBi</p> <p>5 GHz: 5 dBi</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

| Wi-Fi Radio            | RG-AP820-L(V2)                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Maximum transmit power | 2.4 GHz radio: 20 dBm (17 dBm per chain)<br>5 GHz radio: 20 dBm (17 dBm per chain)<br>Note: The transmit power is limited by local regulatory requirements. For details, see For details, see WLAN Country or Region Codes and Channel Compliance.<br>Vietnam<br>2.400 GHz to 2.4835 GHz, EIRP $\leq$ 23 dBm<br>5.150 GHz to 5.350 GHz, EIRP $\leq$ 23 dBm<br>5.470 GHz to 5.725 GHz, EIRP $\leq$ 30 dBm<br>5.725 GHz to 5.850 GHz, EIRP $\leq$ 30 dBm |
| Power increment        | Configurable in increments of 1 dBm                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Radio technologies     | 802.11b: Direct-Sequence Spread-Spectrum (DSSS)<br>802.11a/g/n/ac: Orthogonal Frequency-Division Multiplexing (OFDM)<br>802.11ax: OFDMA                                                                                                                                                                                                                                                                                                                |
| Modulation types       | 802.11b: BPSK, QPSK, and CCK<br>802.11a/g/n: BPSK, QPSK, 16-QAM, and 64-QAM<br>802.11ac: BPSK, QPSK, 16-QAM, 64-QAM, and 256-QAM<br>802.11ax: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM, and 1024-QAM                                                                                                                                                                                                                                                        |

The following table lists the radio frequency performance of Wi-Fi including different frequency bands, protocols, and data rates. It is country-specific, and Ruijie Networks reserves the right of interpretation.

| Wi-Fi Radio Performance     | RG-AP820-L(V2) |                                           |                                               |
|-----------------------------|----------------|-------------------------------------------|-----------------------------------------------|
| Frequency Band and Protocol | Data Rate      | Maximum Transmit Power per Transmit Chain | Maximum Receive Sensitivity per Receive Chain |
| 2.4 GHz, 802.11g            | 1 Mbps         | 23 dBm                                    | -93 dBm                                       |
|                             | 2 Mbps         | 23 dBm                                    | -93 dBm                                       |
|                             | 5.5 Mbps       | 23 dBm                                    | -92 dBm                                       |
|                             | 11 Mbps        | 21 dBm                                    | -89 dBm                                       |
|                             | 6 Mbps         | 23 dBm                                    | -91 dBm                                       |
|                             | 24 Mbps        | 22 dBm                                    | -87 dBm                                       |
|                             | 36 Mbps        | 22 dBm                                    | -80 dBm                                       |
|                             | 54 Mbps        | 20 dBm                                    | -74 dBm                                       |
| 2.4 GHz, 802.11n (HT20)     | MCS0           | 23 dBm                                    | -87 dBm                                       |
|                             | MCS7           | 19 dBm                                    | -69 dBm                                       |
| 2.4 GHz, 802.11n (HT40)     | MCS0           | 23 dBm                                    | -84 dBm                                       |
|                             | MCS7           | 19 dBm                                    | -66 dBm                                       |
| 2.4 GHz, 802.11ax (HE20)    | MCS0           | 23 dBm                                    | -87 dBm                                       |
|                             | MCS11          | 15 dBm                                    | -60 dBm                                       |
| 2.4 GHz, 802.11ax (HE40)    | MCS0           | 23 dBm                                    | -84 dBm                                       |
|                             | MCS11          | 15 dBm                                    | -56 dBm                                       |
| 5 GHz, 802.11a              | 6 Mbps         | 21 dBm                                    | -91 dBm                                       |
|                             | 24 Mbps        | 21 dBm                                    | -85 dBm                                       |
|                             | 36 Mbps        | 20 dBm                                    | -78 dBm                                       |
|                             | 54 Mbps        | 19 dBm                                    | -74 dBm                                       |

| Wi-Fi Radio Performance | RG-AP820-L(V2) |        |         |
|-------------------------|----------------|--------|---------|
| 5 GHz, 802.11n (HT20)   | MCS0           | 21 dBm | -87 dBm |
|                         | MCS7           | 18 dBm | -69 dBm |
| 5 GHz, 802.11n (HT40)   | MCS0           | 21 dBm | -84 dBm |
|                         | MCS7           | 18 dBm | -66 dBm |
| 5 GHz, 802.11ac (VHT20) | MCS0           | 21 dBm | -87 dBm |
|                         | MCS9           | 17 dBm | -64 dBm |
| 5 GHz, 802.11ac (VHT40) | MCS0           | 21 dBm | -84 dBm |
|                         | MCS9           | 17 dBm | -59 dBm |
| 5 GHz, 802.11ac (VHT80) | MCS0           | 21 dBm | -81 dBm |
|                         | MCS9           | 17 dBm | -55 dBm |
| 5 GHz 802.11ax (HE20)   | MCS0           | 21 dBm | -87 dBm |
|                         | MCS11          | 15 dBm | -60 dBm |
| 5 GHz, 802.11ax (HE40)  | MCS0           | 21 dBm | -84 dBm |
|                         | MCS11          | 15 dBm | -56 dBm |
| 5 GHz, 802.11ax (HE80)  | MCS0           | 21 dBm | -81 dBm |
|                         | MCS11          | 15 dBm | -54 dBm |

| Bluetooth Radio        | RG-AP820-L(V2)                                                           |
|------------------------|--------------------------------------------------------------------------|
| Bluetooth              | Bluetooth 5.0                                                            |
| Antenna type           | Integrated omnidirectional antenna                                       |
| Maximum antenna gain   | 4.5 dBi, with a downtilt angle of roughly 30 degrees                     |
| Maximum transmit power | 10 dBm                                                                   |
| Receive sensitivity    | -88 dBm (@BLE)                                                           |
| Mounting               | Wall/Ceiling-mount (a mounting bracket is delivered with the main unit.) |
| Color                  | White                                                                    |
| Lock option            | Securing latch and Kensington lock                                       |

| Port Specifications   | RG-AP820-L(V2)                                                                                                                                                                                                                                                                             |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Fixed service port    | 1 x 10/100/1000BASE-T port <ul style="list-style-type: none"> <li>• In compliance with IEEE 802.3af standard (PoE)</li> <li>• Auto MDI/MDIX crossover</li> <li>• PoE-PD: 54 V DC (nominal) 802.3af/at/bt (Class 3 or higher)</li> <li>• 802.3az Energy Efficient Ethernet (EEE)</li> </ul> |
| Fixed management port | 1 x RJ45 console port (serial console port)                                                                                                                                                                                                                                                |
| Status LED            | 1 x multi-color system status LED                                                                                                                                                                                                                                                          |
| Button                | 1 x Reset button <ul style="list-style-type: none"> <li>• Press the button for less than two seconds to restart the device.</li> <li>• Press the button for more than five seconds to restore the device to factory settings</li> </ul>                                                    |

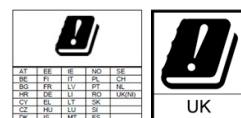
| Power Supply and Consumption | RG-AP820-L(V2)                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Input power supply           | <p>The AP supports the following two power supply modes:</p> <ul style="list-style-type: none"> <li>48 V DC/0.3 A power input over DC connector: The DC connector accepts 2.1 mm/5.5 mm center-positive circular plug. A DC power adapter needs to be purchased independently.</li> <li>PoE input over LAN/PoE: The power sourcing equipment (PSE) complies with IEEE 802.3af standard (PoE).</li> </ul> <p>Note:<br/>If both DC power and PoE are available, DC power is preferred.</p> |
| Overall power consumption    | <p>Maximum power consumption: 12.95 W</p> <ul style="list-style-type: none"> <li>DC powered: 12.95 W</li> <li>PoE powered (802.3af): 12.95 W</li> <li>PoE+ powered (802.3at): 12.95 W</li> <li>PoE++ powered (802.3bt): 12.95 W</li> <li>Idle mode: &lt; 8 W</li> </ul>                                                                                                                                                                                                                  |

| Environment and Reliability      | RG-AP820-L(V2)                                                                                                                                                                                                                                                                                                     |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature                      | <p>Operating temperature: -10°C to +50°C (14°F to 122°F)<br/>Storage temperature: -40°C to +70°C (-40°F to +158°F)<br/>Note: At an altitude in the range of 3,000–5,000 m (9,842.52–16,404.20 ft.), every time the altitude increases by 166 m (544.62 ft.), the maximum temperature decreases by 1°C (1.8°F).</p> |
| Humidity                         | <p>Operating humidity: 5% RH to 95% RH (non-condensing)<br/>Storage humidity: 5% RH to 95% RH (non-condensing)</p>                                                                                                                                                                                                 |
| Mean Time Between Failure (MTBF) | 200,000 hours (22 years) at the operating temperature of 25°C (77°F)                                                                                                                                                                                                                                               |

| Regulatory Compliance     | RG-AP820-L(V2)                                                                                            |
|---------------------------|-----------------------------------------------------------------------------------------------------------|
| Security standards        | <p>IEC 62368-1<br/>EN 62368-1<br/>EN 60950-22</p>                                                         |
| Cyber security standards  | <p>EN 18031-1<br/>EN 18031-2</p>                                                                          |
| EMC standards             | <p>EN 55032<br/>EN 55035<br/>EN 301 489-1<br/>EN 301 489-3<br/>EN 301 489-17</p>                          |
| Radio frequency standards | <p>EN 300328<br/>EN 301 893<br/>EN 300 440<br/>EN 62311<br/>EN IEC 62311<br/>EN 50665<br/>FCC Part 15</p> |

## Note:

- EU simplified DoC: Hereby, [Ruijie Networks Co., Ltd.] declares that the radio equipment type [RG-AP820-L(V2)] is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: <https://www.ruijie.com/>.
- UK simplified DoC: Hereby, [Ruijie Networks Co., Ltd.] declares that the radio equipment type [RG- AP820-L(V2)] is in compliance with UK Radio Equipment Regulation 2017. The full text of the UK declaration of conformity is available at the following internet address: <https://www.ruijie.com/>.
- The functions of Wireless Access Systems including Radio Local Area Networks(WAS/RLANs) within the band 5150-5350 MHz for this device are restricted to indoor use only within all European Union countries (BE/BG/CZ/DK/DE/EE/IE/EL/ES/FR/HR/IT/CY/LV/LT/LU/HU/MT/NL/AT/PL/PT/RO/SI/SK/FI/SE/TR/NO/CH/IS/LI/UK(NI))



## Software Specifications

| Basic Information           | RG-AP820-L(V2)            |
|-----------------------------|---------------------------|
| Applicable software version | RGOS 11.9(6)W3B1 or later |

| WLAN                                                | RG-AP820-L(V2)                                                                                                                                                                                                                                                                                          |
|-----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Recommended maximum number of active devices per AP | 120                                                                                                                                                                                                                                                                                                     |
| Maximum number of associated clients                | 1,024<br>Note: The number of associated clients varies according to the environment.                                                                                                                                                                                                                    |
| Maximum number of BSSIDs                            | 32 (up to 16 BSSIDs per radio)                                                                                                                                                                                                                                                                          |
| STA management                                      | SSID hiding<br>Each SSID can be configured with the authentication mode, encryption mechanism, and VLAN attributes independently.<br>Remote intelligent perception technology (RIPT)<br>Intelligent client identification technology<br>Intelligent load balancing based on the STA quantity or traffic |
| STA limiting                                        | SSID-based STA limiting<br>Radio-based STA limiting                                                                                                                                                                                                                                                     |
| Bandwidth limiting                                  | STA/SSID/AP-based rate limiting                                                                                                                                                                                                                                                                         |
| Wireless roaming                                    | Layer 2 and Layer 3 roaming (supported only in Fit mode)                                                                                                                                                                                                                                                |

| Security                      | RG-AP820-L(V2)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Authentication and encryption | Remote Authentication Dial-In User Service (RADIUS)<br>PSK, PPSK, Web, 802.1X, PEAP, WPA, WPA2, and WPA3 authentication<br>SMS authentication (used with the RG-WS series wireless access controller)<br>MAB authentication (used with the RG-WS series wireless access controller)<br>WEP (64/128 bits), WPA-Personal, WPA-Enterprise, WPA2-Personal, WPA2-Enterprise, WPA3-Personal (WPA2/WPA3 transition mode), WPA3-Enterprise (CCMP), WPA3-OWE<br>Note: The availability of PPSK is subject to networking constraints. If PPSK needs to be deployed, contact technical support personnel. |
| Data frame filtering          | Allowlist, static blocklist, and dynamic blocklist                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| WIDS                          | Wireless intrusion detection system (WIDS)<br>User isolation<br>Rogue AP detection and containment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| ACL                           | Dynamic ACL assignment based on 802.1X authentication (The AP needs to work with an AC.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| CPP                           | CPU Protect Policy (CPP)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| NFPP                          | Network Foundation Protection Policy (NFPP)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

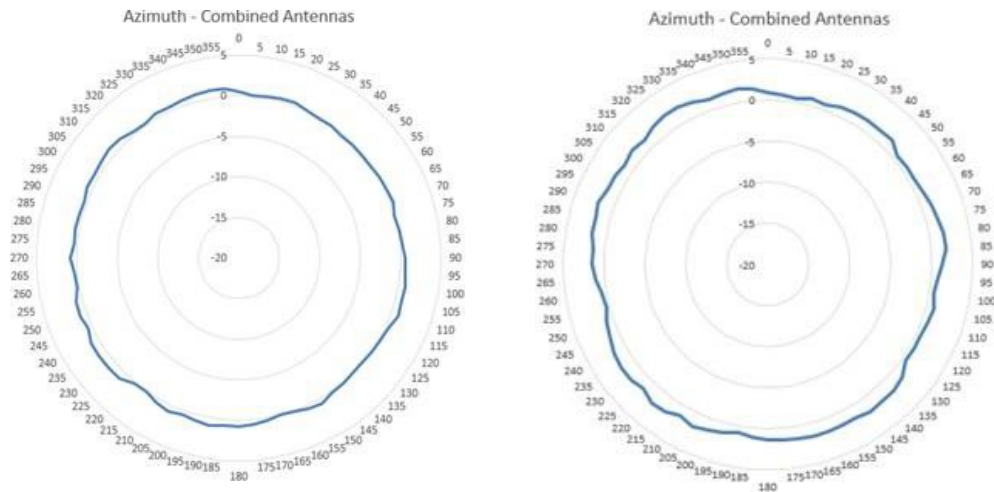
| Routing and Switching | RG-AP820-L(V2)                                                                                                             |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------|
| IP service            | Static IPv4 address<br>IPv4 DHCP client<br>FTP ALG and DNS ALG                                                             |
| IPv6 basics           | IPv6 addressing, Neighbor Discovery (ND), ICMPv6, and IPv6 ping<br>IPv6 DHCP client                                        |
| IP routing            | IPv4/IPv6 static routing<br>Multicast-to-unicast conversion<br>DHCP snooping, DHCP Option 82, DHCP server, and DHCP client |
| Multicast             | Multicast-to-unicast conversion                                                                                            |
| VPN                   | PPPoE client<br>IPsec VPN                                                                                                  |
| LLDP                  | Link Layer Discovery Protocol (LLDP)<br>LLDP-MED<br>LLDP-PoE                                                               |

| Management                    | RG-AP820-L(V2)                                                                                                                                                                                                                                                |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Network management            | Fault detection and alarm<br>Information statistics collection and logging<br>SNMP v1/v2c/v3<br>NTP Server and NTP Client                                                                                                                                     |
| Network management platform   | Ruijie Cloud<br>Web-based management (Eweb)                                                                                                                                                                                                                   |
| User access management        | Console, Telnet, SSH, SNMP, and TFTP-based management                                                                                                                                                                                                         |
| Fat/Fit/Cloud mode switchover | When the AP works in Fit mode, it can be switched to Fat mode through an AC.<br>When the AP works in Fat mode, it can be switched to Fit mode through the console port or Telnet.<br>When the AP works in Cloud mode, it can be managed through Ruijie Cloud. |

## 06 Antenna Pattern Plots

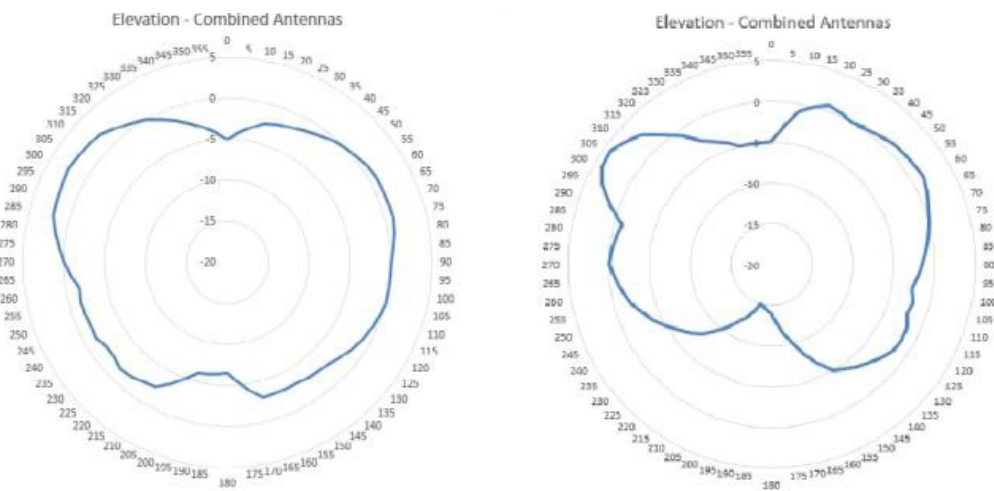
### Horizontal Planes (Top View)

The following figure shows the azimuth antenna patterns at 2.4 GHz and 5 GHz radios.



### Vertical Plane (Side View, AP Facing Up)

The following figures show the elevation antenna patterns at 2.4 GHz and 5 GHz radios.



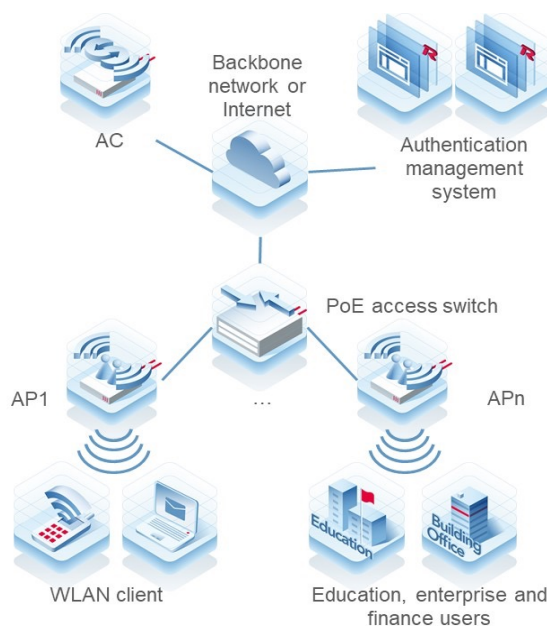
Note: Operating frequency bands are country-specific.

## 07 Typical Applications

### Typical Scenario

The RG-AP820-L(V2) is applicable to densely populated areas with simple building structures, no special obstructions, and a large capacity demand. Such areas include meeting rooms, libraries, classrooms, bars, and leisure centers. The RG-AP820-L(V2) can be flexibly deployed based on the environment.

The following figure shows the typical network topology of the RG-AP820-L(V2).

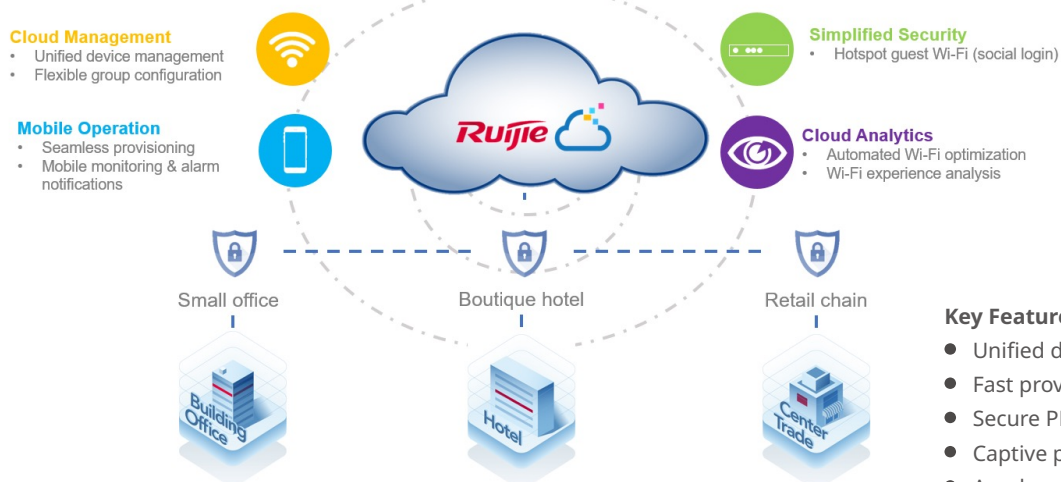


### Public Cloud Deployment

With Ruijie public cloud services, the RG- AP820-L(V2) is ideal for small- and medium-scale scenarios, including small offices, boutique hotels, and retail stores.

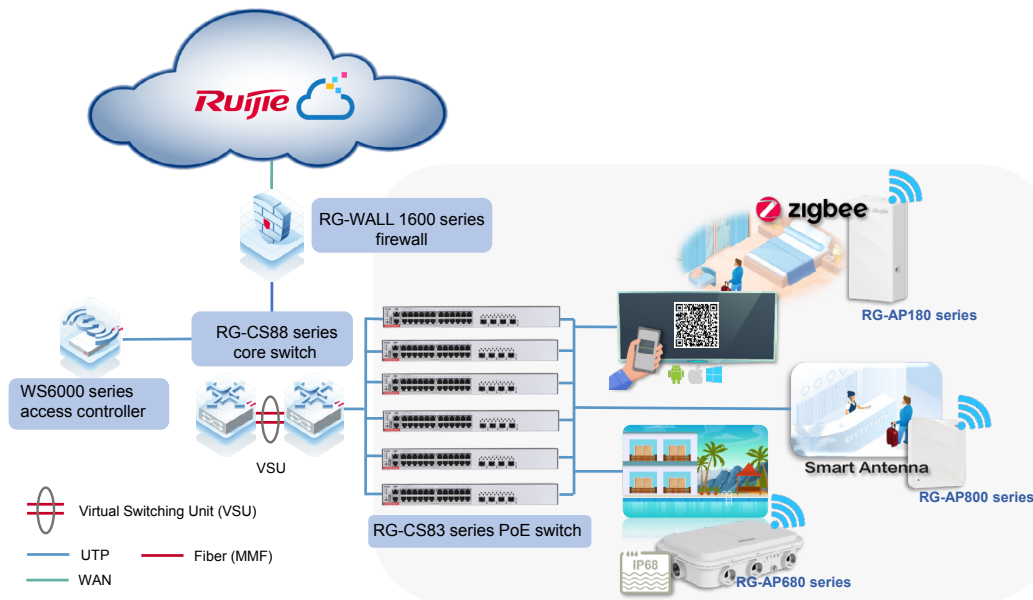
Ruijie Networks provides customers with Ruijie Cloud lifetime free licenses. It significantly streamlines the IT operational efficiency, and simplifies wireless deployment with cost-effective options for small and medium-sized enterprises.

Ruijie public cloud services provides network provisioning, monitoring, optimization, operation, and maintenance. Devices can be easily deployed or swapped in plug-and-play mode. Automatic RF planning meets the increasing needs of user experience.



## Hybrid Cloud Deployment

For enterprise office, campus network, and hospitality customers with single or multiple sites, a hybrid mode consisting of Ruijie RG-WS series wireless access controller (on-premises) and cloud-based management (optional) is recommended for high-density AP deployment. Wireless access controllers are installed at the customer's site with fully integrated wireless management and authentication features, supporting large-scale AP management with cluster-based controller architecture. Optionally, the cloud management platform allows for value-added features such as centralized device configuration and monitoring, AI-based RF optimization, and reporting.



### Key Features:

- Centralized device management and reporting through Ruijie Cloud.
- Ultra-seamless roaming management
- One-click AI-based RF optimization
- High performance and security with all user authentication and traffic forwarding handled locally
- Flexible authentication options, including 802.1X, PPSK and voucher authentication
- Unified management of all series of Ruijie APs

Note: Operating frequency bands are country-specific. Note: For more applicable scenarios, contact Ruijie pre-sales engineers.

## 08 Ordering Information

| Model          | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| RG-AP820-L(V2) | Wi-Fi 6 dual-radio indoor wireless access point<br>In compliance with IEEE 802.11a/b/g/n/ac and IEEE 802.11ax standards<br>Built-in omnidirectional antennas<br>Up to four spatial streams<br>Combined peak data rate of 2.402 Gbps<br>Fat/Fit mode switchover<br>IEEE 802.3af-compliant PoE and local power supply<br>Note: <ul style="list-style-type: none"> <li>• The PSE needs to be purchased separately.</li> <li>• The local power adapter needs to be purchased separately. The output voltage and current need to be 48 V and 0.3 A, respectively.</li> </ul> |
| RG-E-120(E)    | PoE adapter:<br>1 x 1000BASE-T port<br>In compliance with IEEE 802.3af standard (PoE)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

## 09 Package Contents

| Dimensions and Weight                           | RG-AP820-L(V2) |
|-------------------------------------------------|----------------|
| RG-AP820-L(V2) access point                     | 1              |
| Mounting bracket                                | 1              |
| Wall anchor                                     | 2              |
| M4 x 20 mm Phillips pan head self-tapping screw | 2              |
| Warranty Card and Hazardous Substance Table     | 1              |
| Quick Start Guide                               | 1              |

## 08 Warranty

For more information about warranty terms and period, contact your local sales agency:

- Warranty terms: <https://www.ruijie.com/support/servicepolicy>
- Warranty period: <https://www.ruijie.com/support/servicepolicy/Service-Support-Summary/>

Note: The warranty terms are subject to the terms of different countries and distributors.

## 09 More Information

For more information about Ruijie Networks, visit the official website of Ruijie Networks or contact your local sales agency:

- Ruijie Networks official website: <https://www.ruijie.com/>
- Online support: <https://www.ruijie.com/support>
- Hotline support: <https://www.ruijie.com/support/hotline>
- Email support: [service\\_rj@ruijie.com](mailto:service_rj@ruijie.com)



**Ruijie Networks Co., Ltd.**

For more information, visit [www.ruijie.com](http://www.ruijie.com) or call 86-400-620-8818.