RG-AP530-I(S3)

Wireless Access Point

Datasheet

Ruijie Networks Co., Ltd.

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RG-AP530-I(S3)

2 Product Overview

Ruijie RG-AP530-I(S3) is an 802.11ac AP customized for train deployment. Supporting three spatial streams, each radio performs at 1,300Mbps and the AP offers an access rate of up to 1,900Mbps. Near Gigabit access totally solves the wireless performance bottleneck problem.

The RG-AP530-I(S3) AP offers a complete set of features on security, radio frequency (RF) control, mobile access, Quality of Service (QoS), and seamless roaming. Teaming with Ruijie RG-WS Wireless Controller Series (ACs), the AP enables data forwarding, security and access control. With the dual-radio dual-band design, the AP supports dual-radio 2.4GHz/5GHz and concurrent 802.11a/n/ac and 802.11b/g/n. With a compact design (180mm × 100mm × 40mm), the IP54 rated AP can be installed easily in every position in trains. The highly flexible AP also supports PoE and local power supply of 110V. The device implements ATS system that is specifically designed for railway operation, dynamically adjusting communications between trains running in different directions and trackside APs. The RG-AP530-I(S3) AP is designed rough for various railway applications, offering excellent capital and maintenance cost savings.

3 Product Features

Outstanding Performance and Stability

- **Ultra-speed 802.11ac wireless connection**

  The RG-AP530-I(S3) AP supports 802.11n@2.4GHZ, 802.11ac@5GHZ with access rates of up to 1.9Gbps. The superior performance greatly enhances network experiences, concurrent user capacity, and coverage range.

- **Industry-leading Gigabit uplink flexibility**

  The AP offers one 10/100/1000Base-T uplink port to adapt to various wired network scenarios. The wired access will not be an obstacle for wireless connectivity anymore, offering exceptional networking flexibility.

- **Versatile power supply designs**

  The AP complies with 802.3at power standard. The AP can also get power from a PoE switch or PoE power adaptor leveraging Ethernet cables. Remote management allows administrator to monitor the device with ease. All the features reduce deployment complexity as well as installation costs.

- **Reliable interface design**

  The rugged AP equips with M12 and QMA connectors. It complies with EN50155 to withstand extreme shock and vibration on trains.

- **Flexible WDS networking mode**

  Wireless Distribution System (WDS) enables the wireless interconnection of access points or wireless bridge. It supports WDS bridging of up to 5 hops and long-range wireless bridge. Together with the point-to-multipoint technology, the AP fulfills client's Wi-Fi needs with ease.

- **Industry-leading local forwarding technology**

  Employing Ruijie industry-leading local forwarding technology, the AP eliminates the traffic bottleneck of ACs. In collaboration with Ruijie RG-WS Wireless Controller Series, users can pre-set a forwarding mode for the wireless device. The AP can determine whether to forward data to the AC, or directly send the data to a wired network for processing. The local forwarding technology can forward large-scale, delay-sensitive, and real-time data through the wired network. All the features alleviate the traffic pressure on ACs and fulfill the high traffic transmission requirements of 802.11ac network.

- **Seamless roaming experience**

Working with RG-WS wireless ACs, the AP enables wireless users to roam seamlessly on Layer 2 and Layer 3 networks without interruption.

- **Abundant QoS policies**

  The AP supports an extensive array of QoS policies. For example, it provides bandwidth limitation based on WLAN/AP/STA to guarantee key services with priority bandwidth.

- **Built to withstand harsh environments**

  The IP54 rated AP offers a case that is absolutely water/dust/humidity resistant and flame retardant. It is built to work on train under severe shock and vibration conditions. The ruggedized design extends product life and lowers maintenance costs.

- **Wide temperature range**

  The case and ruggedized components both operate well in extreme temperatures from -40 to 70℃.

Comprehensive Security Policies

- **Protect users with data encryption**

  A complete set of data security mechanism and technologies including WEP, TKIP and AES is available. The features guarantee data transmission security of the wireless network.

- **Flexible virtual AP technology**

  With the virtual AP technology, the AP provides up to 14 Extended Service Set IDs (ESSIDs) to support 14 802.1Q VLANs. Network administrators can separately encrypt and isolate subnets or VLANs that have the same SSID. They can also flexibly configure a separate authentication mode and encryption mechanism for each SSID.

- **Standard CAPWAP tunnel encryption**

  The AP and RG-WS wireless ACs support international standard CAPWAP (Control And Provisioning of Wireless Access Points) for the highest levels of data transmission security.

- **RF security**

  Working with Ruijie RG-SNC Smart Network Commander and RG-WS AC series, the AP can act as an RF probe to detect rogue access points and other interference sources. Alerts will be sent to network administrator for immediate action against all the potential threats.

- **User access control**

  The AP supports multiple authentication methods, such as Web, 802.1x, MAC address, and local authentication for customers' choice. The AP also supports Ruijie's advanced Security Management Platform (SMP) BYOD Solution which complies with a standard access control system. The system has a set of control policies in terms of user access, authorization, host compliance check, network behavior monitoring, network attack defense, etc. All these control functions ensure that users are

authenticated before access and enjoy the network services securely.

- **Comprehensive wireless security protection**

  Together with RG-SNC and RG-WS wireless ACs, the AP provides a full range of wireless security features including Wireless Intrusion Detection System (WIDS), RF interference location, rogue AP countermeasures, anti-ARP spoofing, and DHCP. The AP offers a truly secure and reliable wireless network for various application scenarios.

- **Wireless IPv6 access**

  The AP supports all the IPv6 features and implements IPv6 forwarding on a wireless network. Both IPv4 and IPv6 users can automatically connect to the ACs over tunnels, enabling IPv6 applications to be borne on the wireless network.

Diverse Management Policies

- **Flexible switching between the FAT and FIT modes**

  The AP can flexibly switch between FAT and FIT modes. The FAT mode enables independent network construction. In the FIT mode, the APs can be centrally managed by the RG-WS wireless ACs to achieve unified control, security, traffic, QoS, and IP management. The smooth transition from one mode to anther offers clients with unparalleled investment protection.

- **Simple zero configuration installation**

  In FIT mode, no preconfiguration is required. On-site installation, maintenance and replacement also do not require reconfiguration. The AC can store the configurations and automatically upgrade the AP to reduce maintenance workload and costs.

- **End-to-end remote management**

  All operating parameters including channel number, power ranking, SSID setup, security management, and VLAN configuration can be remotely completed on RG-WS wireless ACs. It can minimize local management resources and improves security and management efficiency.

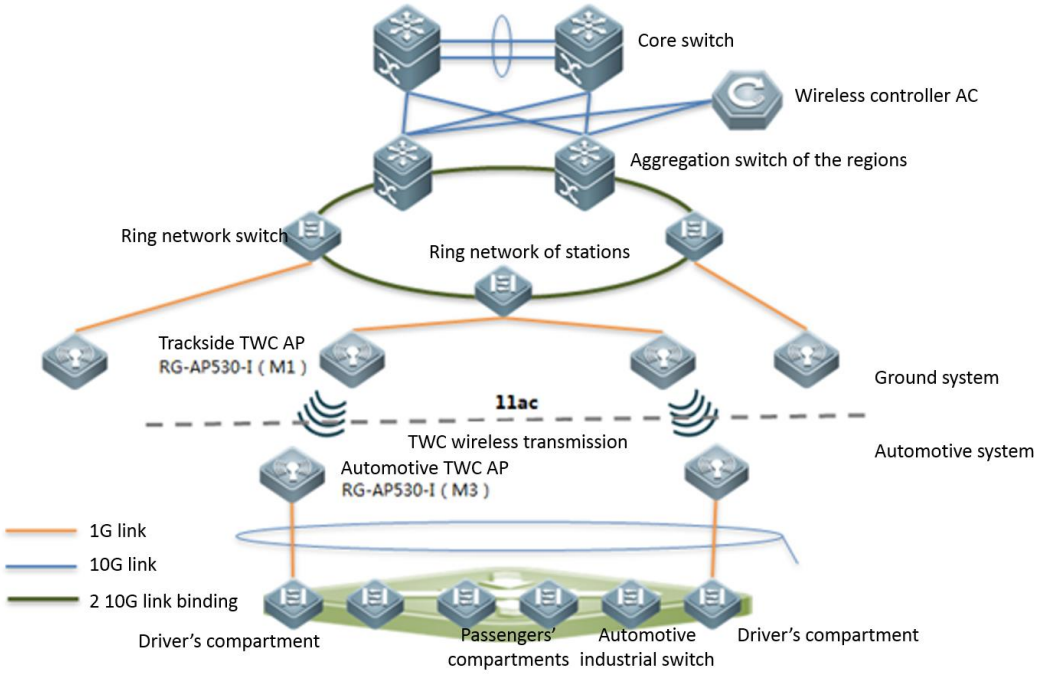
4 Technical Specifications

Model	RG-AP530-I (S3)	
Operating Bands	Support concurrent 2.4GHz and 5GHz 2.4G support 2.4000GHz to 2.4835GHz 5G support【5.150GHz to 5.350GHz, 5.47GHz to 5.725 GHz, 5.725GHz to 5.850GHz depending on the regional regulations】	
MIMO Standard	IEEE 802.11ac 3x3, 3 spatial streams	
Maximum Output Power	2.4G 20±1.5dBm, 5G 27±1.5dBm (The maximum power may be limited by the regional regulations)	
Mobile Throughput Performance (Integrate with the Trackside AP)	Single-link 80km/h	≥200Mbps, Packet loss rate ≤0.5%, (Average figure when the train continues to move for 1km, same below)
	Dual-link 80km/h	≥400Mbps, Packet loss rate ≤0.5%
	Dual-link 120km/h	≥300Mbps, Packet loss rate ≤1%
Network	Support 10/100/1000Mbps Ethernet port, M12 connector	
Power Supply	Support 802.3at PoE power supply Support DC 110V power supply (purchase power module seperately)	
LED Indicators	The LED indicates device power, operation status and network status	
Management Port	1 RJ45 console port	
RF Port	QMA female connector	
CON Interface	M12 interface, integrate with the ATS system, select the train-to-wayside communication link dynamically	
Power Consumption	≤25W	
Weight	≤1.5kg	
Dimensions (D x W x H)	180mm×100mm×40mm	
Installation Mode	Support automotive installation	
Protection Rating	Full metal cover plate, support IP54 protection	
Operating Temperature	-40℃ to 70℃	
Operating Humidity	5% to 95% (non-condensing)	
Storage Temperature	-40℃ to 85℃	
Fire Retardancy	BS6853, TB/T3138-2006	

EMC Standards	GB9254, EN301489, EN50155 (EN50121-4)
Reliability	EN50155 (EN50126)
Sefety Standards	GB4943, EN/IEC 60950-1
Wind Resistence	≥150km/h
Mechanical Oscillation	GB/T25119, EN50155 (EN61373)
RF Network	Wireless transmission equipment approval, EN300 328, EN301 893

5 Typical Applications

Network Topology of the Passenger Information System (PIS)



Application Features:

- Designed for the strong electromagnetic environment for the industry to meet the EN50121 electromagnetic compatibility design requirements
- Designed for automotive installation and meet the rack installation requirements, with aviation plug connector
- Full metal cover plate to meet the fire retardant safety requirements
- Operating temperature -40℃ to 70℃, operating humidity 5% to 95%, IP54 protection
- Automotive EN50155 certified
- Integrate with the ATS system of the train and achieve the dynamic adjustment of the trackside communication link to align with the train direction.

6 Ordering Information

Model	Description	Remarks
RG-AP530-I (S3)	RG-AP530-I (S3) Train-to-Trackside Communication AP	
RG-ANT-CZ-N3M	MIMO panel antenna, 3 N-type female connectors, support 5GHz, directional, with low air resistance exterior, support rack mounting	Optional
RG-QMA-N-50CM	QMA (internal thread and pin) to N-J (internal thread and pin) Cable length:0.5m Fire retardant performance meets the BS6853 standard	Optional
AP530-I(S3) wall-mounting components	Mounting ears, AP530-I (S3) train mounting bracket	Optional

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