RG-CNC312

High-Performance Access Controller for Campus and Multi-Site Networks



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Datasheet

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Product Overview

Introduction

The RG-CNC312 high-performance access controller (AC) is developed to support next-generation high-speed wireless networks. It can be deployed on either a Layer 2 or Layer 3 network without any architecture or hardware changes, implementing seamless and secure control over wireless networks. The RG-CNC312 can manage up to 32 wireless access points (APs) by default. With licenses for capacity expansion, it can manage up to 512 universal APs or 1,024 wall plate APs.

Through powerful centralized and visualized management and control over wireless networks, the RG-CNC312 can significantly simplify construction and deployment of wireless networks. The RG-CNC312 can be used with same brand APs and Cloud — a unified management platform for wired and wireless networks, to achieve flexible control of APs, optimize RF coverage and performance, implement cluster management, and reduce the workload of device deployment.

By adopting enhanced security and clustering technologies, the RG-CNC312 offers identity-based networking services. Multiple CNCs in a cluster can share a user database, allowing clients to seamlessly roam in different areas of a network. The cluster design guarantees security and session integrity during roaming and smooth interaction of data and voice over Wi-Fi applications.

Product Appearance

RG-CNC312



Product Highlights

High-Speed Forwarding

- Increased forwarding capacity with 10 Gbps connections
- Centralized/Distributed, integrated, and intelligent local forwarding, eliminating the traffic bottleneck of the wireless access controller

Intelligent Management

- Advanced wireless access controller technology for fast roaming
- Intelligent load balancing through band steering
- Dynamic QoS based on channel utilization, unleashing full wireless capacity
- Intelligent RF management, enabling flexible AP configuration and optimizing RF coverage and performance

Secure and Reliable Network Systems

- Advanced AC virtualization technology for high reliability as well as capacity and performance scaling
- Group-based AP management for isolating guest and business traffic
- Dynamic network policies for identity-based access control
- Authentication and encryption technologies, including WPA3, 802.1X, PSK, WEP, and AES, for enhanced data security

Product Features

Intelligent RF Management

The device enables APs to perform on-demand RF scanning of the wireless network. It can scan wireless frequency bands and channels, identify rogue APs and unauthorized wireless networks, and alert administrators, providing 24/7 protection in security-sensitive environments. Moreover, the device can control RF scanning on APs in real time to measure signal strength and interference. It can dynamically adjust traffic load, transmit power, RF coverage, and channel allocation using software tools to maximize coverage and capacity.

Local Authentication

The wireless controller has a built-in local user database and works with the built-in portal server to provide easy local authentication for wireless users through web-based authentication. Local authentication is designed to meet users' actual needs, eliminating the need for external portal and RADIUS servers. It simplifies the overall network architecture and significantly reduces network deployment costs, providing secure access for small and medium-sized wireless networks.

User Data Encryption and Security

The device supports comprehensive data security mechanisms, including Wired Equivalent Privacy (WEP), Temporal Key Integrity Protocol (TKIP), and Advanced Encryption Standard (AES), to ensure the security of data transmission over wireless networks.

Standard Communication Protocols

The device uses the international standard protocol CAPWAP to encrypt communications with APs, isolating the communications from the wired network while ensuring secure and real-time communication between the device and APs.

Attack Prevention

The device uses multiple built-in security mechanisms to effectively prevent network traffic attacks, prevent unauthorized network access, and ensure fair network access for authorized users. These mechanisms include IP/MAC/WLAN multi-element binding, hardware-based ACL control, and flow-based bandwidth limiting. They meet the needs of campuses, hospitals, enterprises, and other organizations to strengthen access control for guests and restrict communication by unauthorized users.

Secure User Access

The device supports web-based authentication, allowing users to complete the authentication process using a web browser.

The device also supports client-based authentication (802.1X), which not only enhances network security but also enables host security through the client. Unlike web-based authentication, 802.1X is suitable for areas where network security is strictly controlled. In addition, IP, MAC, WLAN, and other elements can still be bound after authentication, ensuring that only authorized users can access the network.

ARP Spoofing Protection

The ARP detection function effectively prevents common ARP gateway and host spoofing attacks, ensuring normal Internet access for users. Automatic IP-MAC binding is supported in both dynamic and static IP address allocation modes, significantly reducing manual configuration and management costs. Combined with ARP rate monitoring, the device controls the transmission rate of ARP packets to prevent malicious scanning tools from generating ARP floods that consume network bandwidth and cause network congestion.

Product Features

DHCP Security

The device supports DHCP snooping, allowing DHCP responses only from trusted ports. This prevents unauthorized DHCP servers from disrupting IP address allocation and management and affecting normal Internet access. In addition, based on DHCP snooping, the device dynamically monitors ARP packets and verifies source IP addresses to effectively prevent ARP host spoofing and source IP address spoofing in networks with dynamically assigned IP addresses.

Management Information Security

Secure Shell (SSH) and SNMPv3 secure management communications by encrypting management information, ensuring the security of device management information and protecting devices against unauthorized access and control. Source IP-based Telnet access control provides more granular management access control, ensuring that only IP addresses configured by administrators can be used to log in to the wireless controller, thereby enhancing the security of device management.

Product Specifications

Hardware Specifications

Port Specifications	RG-CNC312
Fixed service port	8 x 10/100/1000BASE-T ports 2 x 1GE SFP/RJ45 combo ports (Port 9/MGMT can be used as the management interface.) 2 x 10GE SFP+ ports
Fixed management port	1 x RJ45 console port 2 x USB 3.0 ports, compatible with USB 2.0
LED	1 x system LED 1 x power LED 8 x 10/100 Mbps RJ45 port LEDs 8 x 1000 Mbps RJ45 port LEDs 2 x 10/100 Mbps RJ45 combo port LEDs 2 x 1000 Mbps RJ45 combo port LEDs 2 x SFP combo port LEDs 2 x SFP+ port LEDs
Reset button	1

Dimensions and Weight	RG-CNC312
Unit dimensions (W x D x H)	440 mm x 200 mm x 43.6 mm (17.32 in. x 7.87 in. x 1.72 in., without rack-mount brackets) 486.2 mm x 205 mm x 43.6 mm (19.14 in. x 8.07 in. x 1.72 in., with rack-mount brackets)
Packaging dimensions (W x D x H)	565 mm x 475 mm x 393 mm (22.24 in. x 18.70 in. x 15.47 in.)
Rack height	1 RU
Unit weight	2.7 kg (5.95 lbs)
Packaging weight	3.5 kg (7.72 lbs)
Color	Gray

System Specifications	RG-CNC312
Flash memory	16 MB
RAM	4 GB DDR4

Power Supply and Consumption	RG-CNC312
Power input	● Rated input voltage: 100 V AC to 240 V AC, 50 Hz to 60 Hz ● Rated input current: 1.5 A
DC power supply	Fixed power supply
Maximum power consumption	30 W

Environment and Reliability	RG-CNC312
Altitude	Operating altitude: –500 m to +4,000 m (–1,640.42 ft. to +13,123.36 ft.) Storage altitude: –500 m to +5,000 m (–1,640.42 ft. to +16,404.20 ft.)
Mounting options	Rack-mount and desktop placement
MTBF	400,000 hours
Operating humidity	10% RH to 90% RH (non-condensing)
Operating temperature	0°C to 45°C (32°F to 113°F) Note: At altitudes ranging from 3,000 m (9,842.52 ft.) to 5000 m (16,404.20 ft.), the maximum temperature decreases by 1°C (1.8°F) for every 220 m (721.78 ft.) increase in elevation.
Storage humidity	5% RH to 95% RH (non-condensing)
Storage temperature	–40°C to +70°C (–40°F to +158°F) Note: At altitudes ranging from 3,000 m (9,842.52 ft.) to 5000 m (16,404.20 ft.), the maximum temperature decreases by 1°C (1.8°F) for every 220 m (721.78 ft.) increase in elevation.

Certification and Regulatory Compliance	RG-CNC312
Certification	CE, CB
EMC compliance	EN 55032 EN 55035 EN 61000-3-3 EN 300386 EN IEC 61000-3-2
Safety compliance	IEC 62368-1

Software Specifications

Bandwidth Features	RG-CNC312
Bandwidth control	AP-based bandwidth control Client-based bandwidth control Intelligent dynamic bandwidth control based on channel utilization Intelligent dynamic bandwidth control based on critical services SSID-based bandwidth control

Client Management	RG-CNC312
Client limit	Radio-based client limit SSID-based client limit
Dynamic blocklist/allowlist	Dynamic blocklist
Smart steering	AP load balancing Configuring load balancing based on client count Configuring load balancing based on client traffic
Static blocklist/allowlist	Static allowlist Static blocklist

Radio Management	RG-CNC312
SSID management basics	SSID hiding

Roaming Features	RG-CNC312
Layer 2 roaming	Layer 2 roaming Inter-AC Layer 2 roaming Intra-AC Layer 2 roaming
Layer 3 roaming	Layer 3 roaming Inter-AC Layer 3 roaming Intra-AC Layer 3 roaming

Security Features	RG-CNC312
Client security	Hotspot2.0 authentication WPA-802.1X authentication WPA-PSK authentication WPA-WPA2 authentication WPA2-802.1X authentication WPA2-PSK authentication WPA2-WPA3 authentication WPA3-Enterprise

Security Features	RG-CNC312
	WPA3-Enterprise (uses Suite-B 192-bit, GCMP-256) WPA3-Enterprise with AES-CCMP-128 WPA3-OWE authentication WPA3-Personal WEP authentication
802.1X	Dynamic ACL assignment
Client identification	Client identification
CPP	CPP
MAB	MAB
NFPP	NFPP
RADIUS	RADIUS
Web authentication	Web authentication Captive portal
RF security	WIDS AC-based client isolation AP-based client isolation

Layer 3 Features	RG-CNC312
IPv6	ICMPv6 IPv6 basic features Neighbor discovery Ping over IPv6
NAT	NAT

Management Features	RG-CNC312
SNMP	SNMPv1/v2c/v3 SNMP
Alerts	Alerts
Cloud-based management	Cloud-based management
SON	SON
SSH	SSH
Syslog	Syslog
Telnet	Telnet

Management Features	RG-CNC312
Web-based management	Web-based management

IP Services	RG-CNC312
DHCP	DHCPv4 client DHCPv6 client
NTP	NTP client NTP server

Networking Features	RG-CNC312
RIPT	RIPT
VAC	Hot swapping of member ACs Load balancing across multiple ACs Multiple ACs are virtualized into a logical system (VAC). N:M multi-AC hot standby RIPT for VAC services

Routing Features	RG-CNC312
IPv4 routing basics	Static routing
IPv6 routing basics	Static IPv6 routing

Application Protocol Features	RG-CNC312
TFTP	TFTP

Device Management	RG-CNC312
Device IP management	Obtaining an IP address through DHCP
Device IP Management	Static IPv4 address

Multicast Features	RG-CNC312
IGMP snooping	Multicast-to-unicast conversion

Centralized Management	RG-CNC312
Forwarding mode	Local forwarding Centralized forwarding

Performance Capacity

Layer 2 Features	RG-CNC312
Maximum number of created VLANs	4094

Layer 3 Features	RG-CNC312
Maximum number of ARP entries	32768

ACL and QoS	RG-CNC312
Software ACE capacity	65536

Client Management	RG-CNC312
Maximum number of managed clients per AC	3500

Centralized Management	RG-CNC312
Number of configurable APs	2048
Number of pre-installed AP licenses per AC	32
Maximum number of connected APs	1024
Maximum number of managed online APs	512
Number of managed CAPWAP tunnels	1024

IP Services	RG-CNC312
Number of DHCP address pools	2000

Security Features	RG-CNC312
Number of 802.1X authenticated clients	1300
Number of portal authenticated clients	1300

Cloud-based Management of Third-Party Devices	RG-CNC312
Number of third-party devices	128

Networking Features	RG-CNC312
Number of non-redundant managed CAPWAP tunnels	1536

Package Contents

Device	RG-CNC312
Main unit	1

Accessories	RG-CNC312
Grounding wire	1
Power cord	1
Rack-mount bracket	2 x rack-mount brackets (W x D x H: 43 mm x 41 mm x 21.3 mm / 1.69 in. x 1.61 in. x 0.84 in.)
Rubber pad	4
Screw	6 x M4 x 8 mm Phillips countersunk head screws
Console cable	1
Cable tie	2
Power cord retention clip	1

Manual	RG-CNC312
User Manual	1
Warranty Card	1

Ordering Information

Take the following ordering procedure:
Order an RG-CNC312.
The RG-CNC312 supports up to 32 APs by default. To increase the number of supported APs, purchase a corresponding license.

Main Unit

Model	Description
RG-CNC312	The RG-CNC312 is a network controller in the AI era, integrating features of various devices such as AC, network manager, and cloud-edge collaborative controller. It provides 8 x 10/100/1000BASE-T ports, 2 x 1G SFP/RJ45 combo ports, and 2 x 10G SFP+ ports. It supports 32 licenses by default. The maximum number of APs that can be managed is 512 universal APs or 1024 wall plate APs.

License

Model	Description
RG-LIC-CNC-16	The number of capacity expansion licenses for the RG-CNC series network controller can be expanded to 16. Each license supports one universal AP or two wall plate APs.
RG-LIC-CNC-32	The number of capacity expansion licenses for the RG-CNC series network controller can be expanded to 32. Each license supports one universal AP or two wall plate APs.
RG-LIC-CNC-128	The number of capacity expansion licenses for the RG-CNC series network controller can be expanded to 128. Each license supports one universal AP or two wall plate APs.

Optical Transceivers and Cables

1GE

Model	Description
GE-SFP-LH40-SM1310-BIDI	1000BASE-LH, SFP transceiver, Tx1310/Rx1550, BiDi LC, 40 km over SMF
GE-SFP-LH40-SM1550-BIDI	1000BASE-LH, SFP transceiver, Tx1550/Rx1310, BiDi LC, 40 km over SMF
MINI-GBIC-LH40-SM1310	1000BASE-LH, SFP transceiver, 1310 nm, Duplex LC, 40 km over SMF
MINI-GBIC-LX-SM1310	1000BASE-LX, SFP transceiver, 1310 nm, Duplex LC, 10 km over SMF
MINI-GBIC-SX-MM850	1000BASE-SX, SFP transceiver, 850 nm, Duplex LC, 550 m over MMF
MINI-GBIC-ZX80-SM1550	1000BASE-ZX, SFP transceiver, 1550 nm, Duplex LC, 80 km over SMF

2.5GE

Model	Description
2.5G-SFP-LX03-SM1310-BIDI-I	2.5GBASE-LX, SFP transceiver, Tx1310/Rx1550, BiDi LC, 3 km over SMF
2.5G-SFP-LX03-SM1550-BIDI-I	2.5GBASE-LX, SFP transceiver, Tx1550/Rx1310, BiDi LC, 3 km over SMF

10GE

Model	Description
XG-SFP-LR-SM1310	10GBASE-LR, SFP+ transceiver, 1310 nm, Duplex LC, 10 km over SMF
XG-SFP-SR-MM850	10GBASE-SR, SFP+ transceiver, 850 nm, Duplex LC, 300 m over MMF

Warranty

For more information about warranty terms and periods, contact your local sales agency.
Warranty terms: https://www.ruijie.com/en-global/support/servicepolicy
Warranty period: https://www.ruijie.com/en-global/support/servicepolicy/cybrey-product-warranty
Note: The warranty terms are subject to the requirements of different countries and distributors.

More Information

To learn more about the product, please visit our website or contact your local sales representative.

- 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@ruijienetworks.com


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