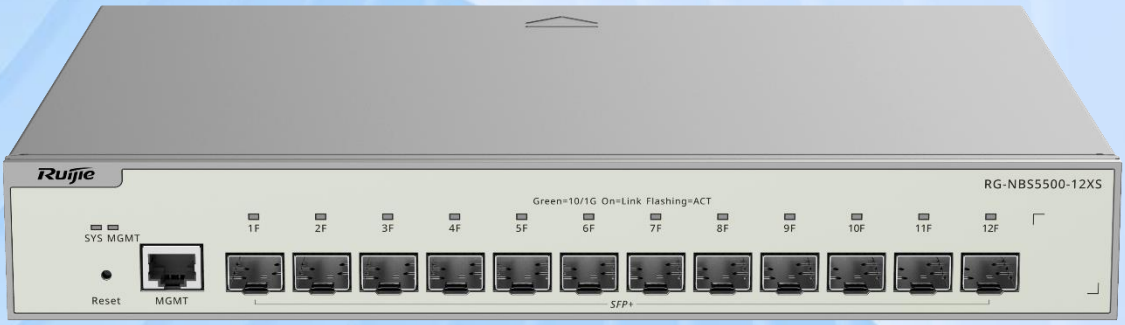
Ruijie

INNOVATION
Beyond Networks

RG-NBS5500-12XS

12-Port Full 10G SFP+ Layer 3 Cloud Managed Switch



Datasheet

01 Product Overview

The RG-NBS5500-12XS switch is a high-performance, high-capacity Ethernet switch launched by Ruijie Networks, featuring an enhanced MAC table size, faster hardware processing speeds, and a user-friendly experience.

With 12 x 10G SFP+ ports, this switch delivers high-density, high-performance connectivity suitable for both access and aggregation purposes.

The RG-NBS5500-12XS switch offers exceptional value for small to medium-sized networks, providing high performance and comprehensive end-to-end service quality for high-throughput Wi-Fi 7 access points (APs). Additionally, it features flexible security settings to meet the demands for speed, security, and intelligence.

This switch is ideal as the central network core for small to medium-sized enterprises in campus or office environments.

02 Product Appearance

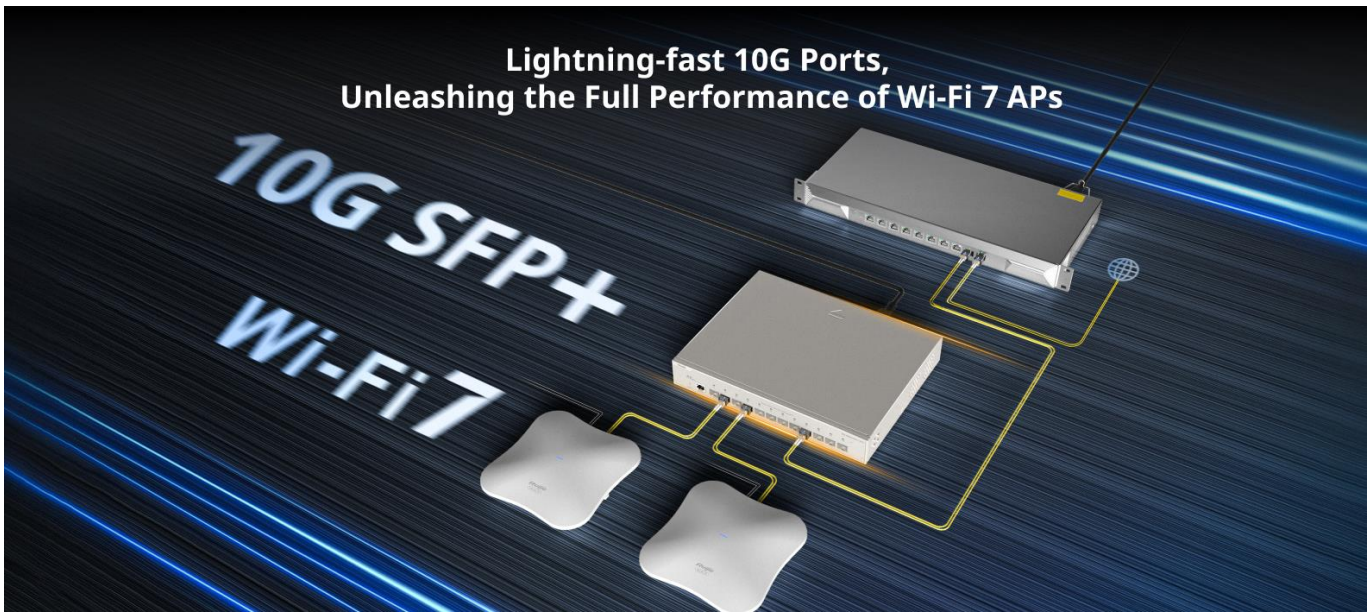
Front View of the RG-NBS5500-12XS

Left View of the RG-NBS5500-12XS

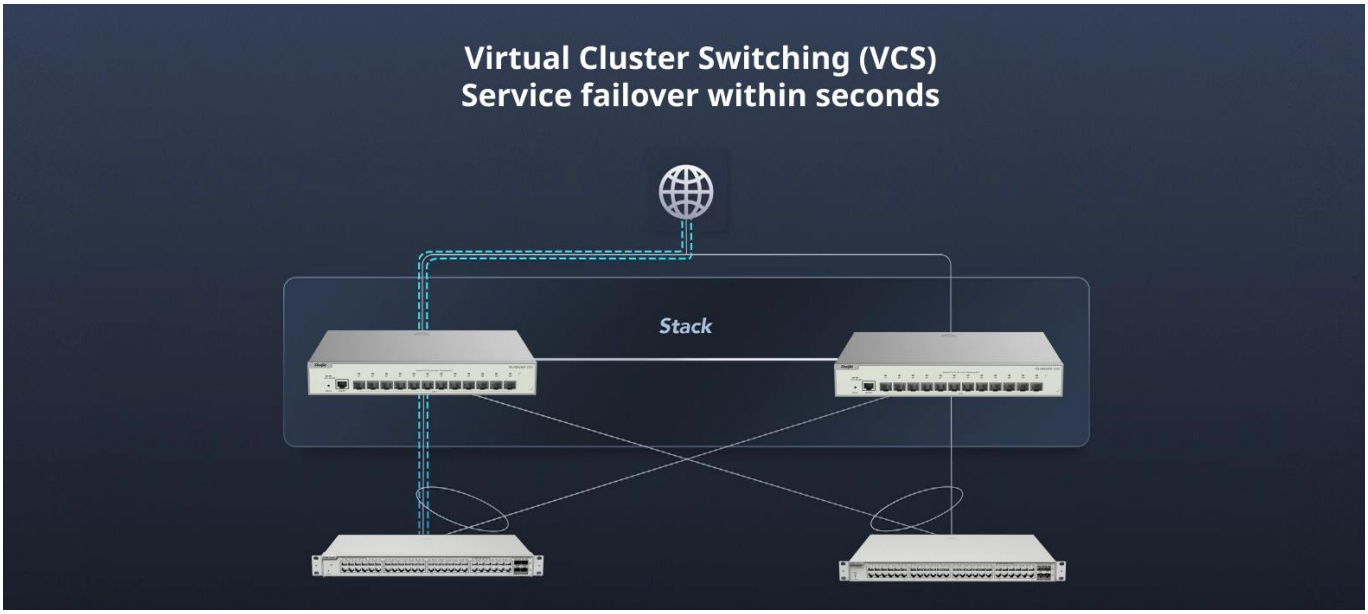
Right View of the RG-NBS5500-12XS

03 Product Highlights

- 12-port full-10G SPF+ Layer 3 managed switch
- Lightning-fast 10G ports, unleashing the full potential of Wi-Fi 7 APs
- Easy configuration with the MGMT port
- Rich Layer 3 features: VCS, static routing, RIP, OSPF, DHCP server, and so on
- Multiple security policies protect your network
- Easy cloud management anytime, anywhere



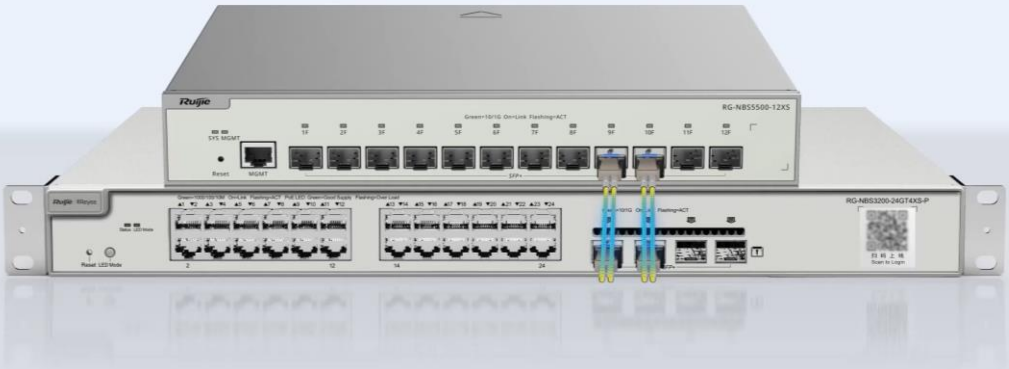

Easy Configuration with the
MGMT Port


Virtual Cluster Switching (VCS)
Service failover within seconds
Stack


CPP
CPP Protects the CPU from Attacks,
Ensuring CPU Performance and Stability
CPU
CPU Protection Policy

Enterprise-grade Quality Ensures High Performance

Link Aggregation IGMP Snooping VLAN



04 Product Features

Easy Configuration with the MGMT Port

The MGMT port is dedicated for switch management. Network administrators can configure, monitor, and troubleshoot the switch through the MGMT port.

Rich Layer 3 Features

Static routing:

Static routing involves the manual configuration of routes by network administrators, who enter each routing entry into the router to establish the data packet forwarding path.

Routing Information Protocol (RIP):

RIP is a distance-vector routing protocol used to dynamically exchange routing information on small and medium-sized networks.

RIP Next Generation (RIPng):

RIPng is an extension of RIP, and is designed to support IPv6 networks.

Open Shortest Path First Version 2 (OSPFv2):

OSPFv2 is a link-state routing protocol for IPv4 networks.

OSPFv3 expands on OSPF to support IPv6 networks.

DHCP server:

A DHCP server is a network service that dynamically assigns IP addresses and other network configuration parameters to devices on a network.

VCS

Virtual Cluster Switching (VCS) is an advanced network architecture designed to achieve cluster management of multiple physical switches through virtualization technology, providing an efficient, flexible, and reliable networking solution.

Cluster management:

Multiple physical switches are integrated into one logical unit, simplifying network management and configuration.

High availability:

Redundancy and failover are incorporated to ensure continuous network availability in case of a failure.

Flexible scalability:

Users can quickly add or remove switches as needed, enabling quick adaptation to changes in network size.

Load balancing:

Network traffic are automatically distributed to enhance resource utilization and optimize overall performance.

Enterprise-grade Quality Ensures High Performance

Spanning Tree Protocol (STP):

STP prevents broadcast storms caused by loops and provides link redundancy, aiming to eliminate loops on Ethernet networks. It establishes a loop-free logical topology by selecting a primary path while blocking redundant paths.

Rapid Spanning Tree Protocol (RSTP):

RSTP, as an enhanced version of STP, enables faster convergence to meet the demands of modern networks.

Rapid Link Detection Protocol (RLDP):

RLDP is designed to detect link failures and report Ethernet link issues.

Internet Group Management Protocol (IGMP):

IGMP manages the membership between hosts and multicast groups, allowing hosts to join or leave a multicast group.

IGMP snooping:

IGMP snooping is a feature of network switches that allows them to monitor IGMP traffic, optimizing the forwarding of multicast traffic.

Voice VLAN:

Voice VLAN is a dedicated virtual local area network (VLAN) designed for voice traffic. It separates voice data from regular data traffic, prioritizes voice transmission, and enhances the quality of voice calls.

Multiple Security Policies Protect Your Network

DHCP snooping:

DHCP snooping is a network security feature that protects against Dynamic Host Configuration Protocol (DHCP) attacks by ensuring that only trusted DHCP servers can assign IP addresses to devices on the network. In large enterprise environments, DHCP Snooping effectively prevents internal attacks and enhances network stability and security.

Access Control List (ACL):

An ACL controls data traffic passing through a switch. It filters data packets based on user configurations, thereby enhancing both network security and performance.

IEEE 802.1X:

IEEE 802.1X is a network access control standard used for identity authentication on both wired and wireless networks. It uses port-based access control to ensure that only authenticated devices can access the network.

IP-MAC binding:

IP-MAC binding is a security technology that associates a specified source IP address and source MAC address with a switch port to prevent IP address spoofing and MAC address forgery. Packets can pass through the port only when they match the bound source IP address and MAC address.

ARP anti-spoofing:

ARP anti-spoofing is used to prevent ARP spoofing attacks. ARP spoofing occurs when an attacker sends forged ARP messages to intercept, modify, or disrupt network traffic. ARP anti-spoofing methods include: (1) Static ARP entries: ARP entries are manually configured to prevent dynamic updates and ensure consistency; and (2) ARP monitoring tools: Tools are used to monitor ARP traffic in real time, enabling the detection of abnormal activities.

IP source guard:

IP source guard is a security feature that prevents IP address spoofing attacks. It checks the source IP address of a data packet against the bound source MAC address and port to ensure that only valid IP addresses can send data packets through the switch. If the IP address does not match, the switch discards the data packet.

CPU Protection Policy (CPP):

In a network environment, many malicious attacks are often carried out by forging numerous management and protocol packets. When a switch becomes overwhelmed with attack packets, it is unable to process normal management and protocol packets. This can significantly impact the switch's security and the overall stability of the network.

The CPP function of Ruijie switches offer effective protection against malicious network attacks by identifying and filtering out attack packets, mitigating the impact of attack packets on the switch, and ensuring that packets in different priority queues are handled properly. Additionally, the CPP offers flexible packet policy configuration, allowing network administrators to optimize settings for specific network environments, thereby enhancing both switch security and network stability.

Easy Management

Self-Organizing Network (SON):

SON is an automated network management technology designed to simplify and optimize the deployment, configuration, management, and maintenance of wireless communication networks. SON allows networks to dynamically adapt to actual demands through automated configuration and self-optimization, enhancing both efficiency and user experience.

Management via web interface:

Network devices and services can be configured, monitored, and managed conveniently on a web user interface (UI). It allows network administrators to easily access and manage network resources, whether on a LAN or over the Internet.

Easy cloud management anytime, anywhere

Management via Ruijie Reyee App

SNMP:

Simple Network Management Protocol (SNMP) is a protocol used for managing network devices. It operates on a client/server model that allows for remote monitoring and control of these devices.

SNMP consists of a management station and agents. The management station communicates with the agents using the SNMP protocol to retrieve information such as device status, configuration, and performance data. It can also configure and manage the devices.

SNMP can be used to manage a variety of network devices, including routers, switches, servers, and firewalls. Users can manage user accounts through the SNMP configuration interface and monitor and control devices using third-party software.

Specifications

Specifications		RG-NBS5500-12XS
Hardware Specifications		
Product Information	Warranty	5 years
	Product category	Layer 3
Port Specifications	Total number of optical ports	12
	Number of 10GE SFP+ ports	12
Interface Specifications	Reset button	1
Certification and Regulatory Compliance	EMC	EN 55032 EN 61000-3-2 EN 61000-3-3 EN 55035 EN 300 386
	Safety compliance	IEC 62368-1
	Certification	CE, FCC, IC, cTUVus
Power Supply and Consumption	Power input	220 V AC power supply: ● Rated input voltage: 100 V AC to 240 V AC, 50/60 Hz ● Maximum input voltage: 90 V AC to 264 V AC, 47 Hz to 63 Hz ● Maximum input current: 2 A
	Maximum power consumption	44 W
	Power supply	Fixed power supply
Dimensions and Weight	Casing	Metal
	Product dimensions (W x D x H)	300 mm x 232 mm x 44 mm (11.81 in. x 9.13 in. x 1.73 in.)
	Weight	2.26 kg (4.98 lbs) (without packaging materials)
	Shipping weight	3.04 kg (6.7 lbs)

Specifications		RG-NBS5500-12XS
System Specifications	CPU	Switching chip, single-core processor, 1 GHz clock frequency
	RAM	1 GB
	Flash memory	256 MB
	Forwarding rate	178.56 Mpps
	Switching capacity	240 Gbps(bit/s)
Environment and Reliability	Fan	2 x fixed fans
	Cooling	Air cooling, left-to-right airflow
	Acoustic noise	25°C (77°F): 40 dB
	Mounting options	Rack
	Hot swapping of cables	Service ports support hot swapping of cables.
	MTBF	400,000 hours
	Operating temperature	0°C to +50°C (32°F to 122°F)
	Storage temperature	–40°C to +70°C (–40°F to +158°F)
	Operating humidity	10% RH to 90% RH (non-condensing)
	Storage humidity	5% RH to 95% RH (non-condensing)
	Altitude	Operating altitude: –500 m to +5,000 m (–1,640.42 ft. to +16,404.20 ft.) Storage altitude: –500 m to +5,000 m (–1,640.42 ft. to +16,404.20 ft.)
	ESD protection	Contact discharge: 6 kV Air discharge: 8 kV
	Surge protection	Service port: ±6 kV for common mode Power connector: ±6 kV for both common mode and differential mode
Software Specifications		
Basic Configurations	Online upgrade	Yes

Specifications		RG-NBS5500-12XS
System Performance Capacity	Recommended camera limit	200 W H265: 400 400 W H265: 200
Interface	Jumbo frame length (MTU)	9216 bytes (interface configuration mode)
	EEE	Yes
	Cable test	Yes
Reliability	Number of VCS members	2
	System dual backup	Yes (Only supported on devices with a factory-installed software version of ReyeeOS 2.320 or later)
	Enabling dual backup for the partition Uboot (based on a single flash memory)	Yes
Authentication	RADIUS	Yes
	802.1X authentication	Yes
	Port-based 802.1X authentication	Yes
	MAC address-based 802.1X authentication	Yes
	Guest VLAN	Yes
Multicast	IGMPv1 snooping	Yes
	IGMPv2 snooping	Yes
	Basic IGMPv3 snooping	Yes
	Full IGMPv3 snooping	Yes
	IGMP filtering	Yes
	IGMPv1, v2, and v3	Yes

Specifications		RG-NBS5500-12XS
Gateway Features	802.1p priority-based traffic classification	Yes
	DSCP priority-based traffic classification	Yes
	Egress queues based on 802.1p and DSCP priorities	Yes
	SP	Yes
	WRR	Yes
	SP+WRR	Yes
	Global QoS	Yes
IP Routing	Maximum number of IPv4 static routes	500
	IPv6 routing table size (network route)	500
	Maximum number of IPv6 static routes	500
	IPv4 static route	Yes
	IPv6 static route	Yes
	OSPFv2	Yes
	OSPFv3	Yes
IP Service	Maximum number of ARP entries	2000
	IPv4 routing table size (host route)	12000
	ARP	Yes
	IPv4 ping	Yes
	IPv4 traceroute	Yes
	ICMPv6	Yes
	IPv6 ping	Yes
	IPv6 traceroute	Yes
	DNS client	Yes
	DNSv6 client	Yes
	DHCP relay	Yes

Specifications		RG-NBS5500-12XS
	DHCP server	Yes
	DHCP client	Yes
Security	Maximum number of ACEs	Number of ACEs in the inbound direction of an interface: 1900 Number of ACEs in the outbound direction of an interface: 0
	Port isolation	Yes
	Broadcast storm control	Yes
	Multicast storm control	Yes
	Unknown unicast storm control	Yes
	DHCP snooping	Yes
	Standard ACL	Yes
	Extended MAC ACL	Yes
	Extended IP ACL	Yes
	IPv6 ACL	Yes
	IP-MAC-port binding	Yes
	ARP anti-spoofing	Yes
	IP source guard	Yes
	CPU Protection Policy	Yes
Ethernet Switching	Maximum number of VLANs	4094
	Maximum number of MAC address entries	32000
	Interface flow control	Yes
	IEEE 802.1Q VLAN	Yes
	VLAN configuration supported on LAN ports	Yes
	Voice VLAN	Yes
	STP (IEEE 802.1d)	Yes

Specifications		RG-NBS5500-12XS
	RSTP (IEEE 802.1w)	Yes
	MSTP (IEEE 802.1s)	Yes
	LLDP	Yes
	LLDP-MED	Yes
	Static MAC address	Yes
	MAC address filtering	Yes
	Static aggregation	Yes
	LACP	Yes
	Inbound or outbound rate limiting based on interface traffic	Yes
Network Management and Monitoring	Fan speed adjustment	Automatic speed adjustment
	Port mirroring	Yes
	Mirroring	Yes
	HTTP login	Yes
	HTTPS login	Yes
	RLOG	Yes
	SON	Yes
	Syslog	Yes
	Client auto-discovery	Yes
	Camera detection	Yes
	Loop alarm	Yes
	MAC address entries	Yes
	IP address pool conflicts	Yes
	Full ARP table	Yes
	eWeb management	Yes
	Ruijie Cloud management	Yes

Specifications		RG-NBS5500-12XS
	Ruijie Reyee App management	Yes
	SNMPv1, v2c, and v3	Yes
Package Contents		
Device	Device	1
Manual	User Manual	1
	Warranty Card	1
Accessories	Rack-mount bracket	2
	Rubber pad	4
	Power cord retention clip	1
	Screw	8 M3 x 6 mm cross recessed countersunk head screws
	Grounding cable	1 x 1 m (3.28 ft.)
	Power cord	1 x 1.5 m (4.92 ft.)

Ruijie Networks Co., Ltd.

For more information, visit www.ruijie.com or call 86-400-620-8818.