



RG-S5310-E Series Switches



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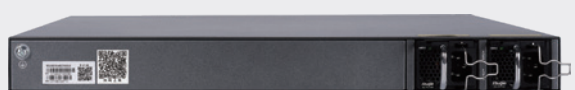
Product Pictures



RG-S5310-24GT4XS-E



RG-S5310-24GT4XS-P-E



RG-S5310-48GT4XS-E



RG-S5310-48GT4XS-P-E



RG-S5310-24SFP4XS-E



RG-S5310-48SFP4XS-E

Product Overview

RG-S5310-E series switches are next-generation gigabit Ethernet switches launched by Ruijie Networks according to its design of security, high efficiency, energy saving, and independent innovation. This series can provide full gigabit access and flexibly extensible 10GE uplink data exchange. With a new hardware architecture and Ruijie's latest RGOS12.X modular OS, the RG-S5310-E provides more resource entries, faster hardware processing, and better user experience.

Product Highlights

- Provides various interface types and 10GE uplink, satisfying high-bandwidth requirements.
- Supports VSU, delivering flexible networking.
- Is a Layer 3 access switch that supports Layer 3 protocols, VXLAN, and SDN.
- Provides multiple network management methods, achieving simple and easy network maintenance.
- Uses RGOS modular operating system to provide more entries, faster hardware processing, and better operation experience.
- Provides open and programmable RGOS modular operating system. Basic functions are incorporated into the main version, and custom functions are released in app mode, ensuring stability of the basic functions.
- Supports the x86 platform, which supports containers, allows third-party management applications to be installed, and makes it easy for customizing functions.
- Rectifies faults related to processes online in seconds, without interrupting network operation.
- Supports Python that allows applications across platforms.
- Supports high-speed access to northbound interfaces, with the performance of up to thousands of operations. It can associate with the controller to upgrade the man-machine interface to machine-machine interface.
- Upgrades and extends functions online to ensure nonstop services.

Product Features

Sound Security Protection Policies

The RG-S5310-E supports Address Resolution Protocol (ARP) spoofing prevention in multiple modes. The RG-S5310-E offers protection against ARP attacks by recording clients' authenticated IP and MAC addresses, regardless of whether they obtain addresses automatically from the DHCP server or use static IP addresses. When it receives ARP packets from hosts, it compares the addresses in the packet with the recorded IP and MAC addresses and forwards only those packets whose addresses match, while discarding any forged ones. This ensures that ARP spoofing is prevented outside the network and that network users are protected.

Additionally, the RG-S5310-E proactively defends against various Distributed Denial of Service (DDoS) attacks that can affect a network's availability. Virus attacks on computers due to network openness can occur, and attackers may also launch attacks on network devices and servers for different purposes. In common ARP flooding attacks, the gateway can fail to respond to request packets, while ICMP flooding attacks can cause network devices to crash due to high CPU load. DHCP request flooding attacks can exhaust the addresses of the DHCP server and result in failures to allocate IP addresses to authenticated users. The RG-S5310-E provides an advanced hardware CPU

protection mechanism: CPU protect policy (CPP). It classifies data traffic sent to the CPU, processes the traffic by queue priority, and rate-limits the bandwidth as required. This protection mechanism also fully protects the CPU from being occupied by unauthorized traffic, defends against malicious attacks, and prevents resource consumption, thereby ensuring the security of the CPU and switch itself.

The RG-S5310-E adopts the Network Foundation Protection Policy (NFPP) technology to rate-limit ARP packets, ICMP request packets, DHCP Request messages, and other packets sent from users to networks. It discards packets of which the rate exceeds the threshold, identifies attack behaviors, and isolates users who launch attacks. This ensures network stability.

DHCP snooping enables the RG-S5310-E to receive DHCP Response messages only from trusted ports and prevent spoofing from unauthorized DHCP servers. With DHCP snooping, it dynamically monitors ARP packets, checks users' IP addresses, and discards invalid packets that do not match binding entries, thereby effectively preventing ARP spoofing and source IP address spoofing.

VSU

The RG-S5310-E supports Virtual Switching Unit (VSU). VSU

enables multiple physical devices to be connected through aggregate links and virtualized into one logical device. By using the same IP address, Telnet process, and CLI for management, along with automatic version check and configuration, network administrators can manage just one logical device, thereby enhancing work efficiency.

Simplified management: The network administrator can manage multiple switches uniformly because there is no need to connect separately to each switch for configuring and managing them.

Simplified network topology: A VSU serves as a switch within a network and eliminates Layer 2 loops and MSTP configurations by connecting peripheral devices through aggregate links.

Various control protocols can run on the VSU.

Fault rectification within milliseconds: A VSU connects to peripheral devices through aggregate links. If a fault occurs on one device or member link in the VSU, data and services can be switched to another member link within 50 ms to 200 ms.

High scalability: User devices can be added to or removed from a virtualized network, without affecting normal operation of other devices.

Increase in return on investment (ROI): Aggregate links used for connecting the VSU to peripheral devices realize link redundancy and load balancing, fully leveraging all network devices and bandwidth resources. Any 10G port can be used to build a VSU through data transmission cables, without additional cabling and expansion cards. Moreover, the types of ports and cables are not limited. All this protects the ROI.

High Reliability

The RG-S5310-E supports STP (IEEE 802.1D), RSTP (IEEE 802.1w), and MSTP (IEEE 802.1s) to achieve fast convergence, improve the fault tolerance capability, and ensure stable network operation and link load balancing. It effectively utilizes network channels to improve utilization of redundant links.

The Virtual Router Redundancy Protocol (VRRP) ensures network stability for the switch.

The Rapid Link Detection Protocol (RLDP) enables the RG-S5310-E to quickly detect link connectivity and unidirectional optical links. The port loop detection function helps the RG-S5310-E to prevent network failures caused by loops due to unauthorized port connections with hubs.

The RG-S5310-E supports the Ethernet Ring Protection Switching (ERPS) technology, which is a Layer 2 link redundancy protocol designed for the core Ethernet. The

control device blocks loops and restores links, and non-control devices directly report their link status to the control device, without processing from other non-control devices. Therefore, loop elimination and service recovery time of ERPS is faster than that of STP. ERPS implements link restoration within milliseconds.

When STP is disabled, the Rapid Link Protection Protocol (RLDP) can still provide basic link redundancy and millisecond-level fault rectification faster than STP.

With the Bidirectional Forwarding Detection (BFD), the switches are able to detect links within milliseconds, and quickly converge routing and other services through the correlation with upper-layer routing protocols, ensuring the continuity of services.

SDN

The RG-S5310-E supports OpenFlow 1.3, and can collaborate with Ruijie's Software-Defined Networking (SDN) controller to easily build a large-scale Layer 2 or Layer 3 network. It allows the network to be smoothly upgraded to an SDN network and provides access control, visualized O&M, and other SDN features. It greatly reduces network O&M costs while significantly simplifying network management.

Energy Efficiency

Ruijie integrates multiple energy-saving designs into the RG-S5310-E. The RG-S5310-E reduces loud noise produced by deployment in offices and solves excessive energy consumption resulted from the large-scale deployment of access devices.

In addition, the RG-S5310-E adopts the next-generation hardware architecture as well as advanced energy-efficient circuit design and components, to significantly save energy and lower noise. It is equipped with variable-speed axial fans to intelligently control the fan speed based on the ambient temperature, which reduces the power consumption and noise while ensuring stable device operation.

The RG-S5310-E provides automatic and energy-saving PoE modes.

Easy Network Maintenance

The RG-S5310-E supports routine network diagnosis and maintenance based on SNMP, RMON, Syslog, and USB-based backup log and configuration. A network

administrator can use various management and maintenance modes such as command line interface (CLI), web network management, Telnet, and CWMP-based zero-touch configuration to facilitate device management.

An LED mode button is available on the panel of the switch. You can press this button to check the current communication status and PoE status of all ports on the switch.

gRPC-based telemetry enables the RG-S5310-E to periodically collect information such as the CPU and memory.

VXLAN

The RG-S5310-E supports the Virtual Extensible LAN (VXLAN) that allows users to build a logical Layer 2 network on a Layer 3 network through software

upgrade.

IPv4/IPv6 Dual-stack Multi-layer Switching

The RG-S5310-E hardware supports both IPv4 and IPv6 dual stacks, as well as multi-layer line-rate switching in order to differentiate and process packets of each protocol effectively. With flexible IPv6 network communication solutions, the RG-S5310-E can meet various IPv6 network demands such as planning or maintenance. The RG-S5310-E supports a wide range of IPv4 routing protocols, covering IPv4 static routing, RIP, OSPFv2, IS-ISv4, and BGP4. Fitting for different network environments, one can select appropriate routing protocols for flexible network building. Additionally, the RG-S5310-E also supports abundant IPv6 routing protocols such as IPv6 static routing, RIPng, OSPFv3, IS-ISv6, and BGP4+. These protocols can be flexibly selected to either upgrade an existing network to IPv6 or establish a new one.

Specifications

Hardware Specifications

Port specifications

| Port specifications | RG-S5310-24GT4XS-E | RG-S5310-48GT4XS-E | RG-S5310-24SFP4XS-E | RG-S5310-48SFP4XS-E | RG-S5310-24GT4XS-P-E | RG-S5310-48GT4XS-P-E |
|-----------------------|---|---|---|---|--|--|
| Fixed service port | 24 x 10/100/1000BASE-T ports 4 x 1GE/10GE SFP+ ports | 48 x 10/100/1000BASE-T ports 4 x 1GE/10GE SFP+ ports | 24 x 1GE SPF ports 4 x 1GE/10GE SFP+ ports | 48 x 1GE SPF ports 4 x 1GE/10GE SFP+ ports | 24 x 10/100/1000BASE-T ports, supporting PoE/PoE+ 4 x 1GE/10GE SFP+ ports | 48 x 10/100/1000BASE-T ports, supporting PoE/PoE+ 4 x 1GE/10GE SFP+ ports |
| Module slot | 2 x power module slots | | | | | |
| Power module | RG-PA150IB-F RG-PD150IB-F RG-PA70IB | RG-PA150IB-F RG-PD150IB-F RG-PA70IB | RG-PA150IB-F RG-PD150IB-F RG-PA70IB | RG-PA150IB-F RG-PD150IB-F | RG-PA600I-P-F RG-PA1000I-P-F | RG-PA600I-P-F RG-PA1000I-P-F |
| Fixed management port | 1 x RJ45 console port 1 x RJ45 MGMT port | | | | | |
| USB | 1 x USB 2.0 port | | | | | |

System Specifications

| System Specifications | RG-S5310-24GT4XS-E | RG-S5310-48GT4XS-E | RG-S5310-24SFP4XS-E | RG-S5310-48SFP4XS-E | RG-S5310-24GT4XS-P-E | RG-S5310-48GT4XS-P-E |
|----------------------------------|--|--------------------|---------------------|---------------------|----------------------|----------------------|
| System packet forwarding rate *1 | 115 Mpps | 158 Mpps | 115 Mpps | 158 Mpps | 115 Mpps | 158 Mpps |
| System switching capacity *2 | 154 Gbps | 211 Gbps | 154 Gbps | 211 Gbps | 154 Gbps | 211 Gbps |
| CPU | Dual-core CPU, each core with the clock speed of 1.2 GHz | | | | | |
| Real-time clock (RTC) | Supported | | | | | |
| BootROM | 16 MB | | | | | |
| Flash memory | 2 GB | | | | | |
| Memory | 1 GB | | | | | |
| Switch buffer | 3 MB | | | | | |
| Number of MAC addresses | 32,000 | | | | | |
| ARP table size | 4,000/16,000 (authorized) | | | | | |
| ND table size | 2,000/8,000 (authorized) | | | | | |
| Number of IPv4 unicast routes | 8,000/12,000 (authorized) | | | | | |
| Number of IPv4 multicast routes | 2,500 | | | | | |
| Number of IPv6 unicast routes | 4,000 | | | | | |
| Number of IPv6 multicast routes | 1,200 | | | | | |
| Number of ACEs | Ingress: 3,500 Egress: 1,500 | | | | | |
| Number of IGMP groups | 2,500 | | | | | |
| Number of MLD groups | 1,000 | | | | | |
| Number of VSU members | 4 | | | | | |

*1 means the system's packet forwarding rate.

*2 means the system's switching capacity.

Dimensions and Weight

| Dimensions and Weight | RG-S5310-24GT4XS-E | RG-S5310-48GT4XS-E | RG-S5310-24SFP4XS-E | RG-S5310-48SFP4XS-E | RG-S5310-24GT4XS-P-E | RG-S5310-48GT4XS-P-E |
|---------------------------------|---|------------------------|------------------------|------------------------|------------------------|------------------------|
| Unit dimensions (W x D x H) | 442.0 mm x 420.0 mm x 43.6 mm (17.40 in. x 16.54 in. x 1.72 in.) | | | | | |
| Shipping dimensions (W x D x H) | 570.0 mm x 565.0 mm x 172.0 mm (22.44 in. x 22.24 in. x 6.77 in.) | | | | | |
| Rack height | 1 RU | | | | | |
| Unit weight | 4.0 kg (8.82 lbs) | 4.3 kg (9.48 lbs) | 4.2 kg (9.26 lbs) | 4.5 kg (9.92 lbs) | 4.3 kg (9.48 lbs) | 4.6 kg (10.14 lbs) |
| Shipping weight | 6.20 kg (13.67 lbs) | 6.50 kg (14.33 lbs) | 6.38 kg (14.07 lbs) | 6.58 kg (14.51 lbs) | 6.78 kg (14.95 lbs) | 6.69 kg (14.75 lbs) |

Power Supply and Consumption

| Power Supply and Consumption | RG-S5310-24GT4XS-E | RG-S5310-48GT4XS-E | RG-S5310-24SFP4XS-E | RG-S5310-48SFP4XS-E |
|------------------------------|---|--------------------|---------------------|--|
| Power supply | 2 x pluggable power modules | | | |
| Power input | RG-PA150IB-F (AC input) <ul style="list-style-type: none"> Rated input voltage: 100 V AC to 240 V AC, 50/60 Hz Maximum input voltage: 90 V AV to 264 V AC, 47 Hz to 63 Hz Maximum input current: 3 A RG-PD150IB-F (DC input): <ul style="list-style-type: none"> Rated input voltage: -48 V DC to -60 V DC Maximum input voltage: -36 V DC to -75 V DC Maximum input current: 5 A | | | |
| | RG-PA70IB (AC input): <ul style="list-style-type: none"> 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 output power | RG-PA70IB: 70 W RG-PA150IB-F: 150 W RG-PD150IB-F: 150 W | | | RG-PA150IB-F: 150 W RG-PD150IB-F: 150 W |
| Maximum power consumption | 40 W | 55 W | 85 W | 108 W |

Power supply and consumption

| Power supply and consumption | RG-S5310-24GT4XS-P-E | RG-S5310-48GT4XS-P-E |
|------------------------------|---|---|
| Power supply | 2 x pluggable power modules | |
| Power input | RG-PA600I-P-F (AC input): <ul style="list-style-type: none"> 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: 8 A RG-PA1000I-P-F (AC input 1): <ul style="list-style-type: none"> Rated input voltage: 100 V AC to 130 V AC, 50/60 Hz Maximum input voltage: 90 V AC to 143 V AC, 47 Hz to 63 Hz Maximum input current: 12 A RG-PA1000I-P-F (AC input 2): <ul style="list-style-type: none"> Rated input voltage: 200 V AC to 240 V AC, 50/60 Hz Maximum input voltage: 180 V AC to 264 V AC, 47 Hz to 63 Hz Maximum input current: 8 A | |
| Maximum output power | RG-PA600I-P-F: 600 W RG-PA1000I-P-F: <ul style="list-style-type: none"> 100 V AC to 130 V AC: 930 W 200 V AC to 240 V AC: 1000 W | |
| PoE port | Ports 1 to 24 support PoE/PoE+ (IEEE802.3af/at) power supply | Ports 1 to 48 support PoE/PoE+ (IEEE802.3af/at) power supply |
| PoE power cable pairs | Mode A (1-2, 3-6 pairs) | |
| PoE output power | Each PoE port provides up to 30 W of power. The maximum power depends on the configured power supply. <ul style="list-style-type: none"> 1 x RG-PA600I-P-F: 370 W 2 x RG-PA600I-P-F: 740 W; 1 x RG-PA1000I-P-F: 740 W; 2 x RG-PA1000I-P-F: 1480 W; a maximum output of 720 W over 24 ports (30 W x 24) | Each PoE port provides up to 30 W of power. The maximum power depends on the configured power supply. <ul style="list-style-type: none"> 1 x RG-PA600I-P-F: 370 W 2 x RG-PA600I-P-F: 740 W 1 x RG-PA1000I-P-F: 740 W 2 x RG-PA1000I-P-F: 1480 W; a maximum output of 1440 W over 48 ports (30 W x 48) |
| Maximum power consumption | 65 W (without PoE load) 810 W (full PoE load) | 75 W (without PoE load) 1,570 W (full PoE load) |

Note: The maximum number of powered devices supported by the switch is determined by the available power of the switch and the actual power consumption of each device.

Environment and reliability

| Environment and reliability | RG-S5310-24GT4XS-E | RG-S5310-48GT4XS-E | RG-S5310-24SFP4XS-E | RG-S5310-48SFP4XS-E | RG-S5310-24GT4XS-P-E | RG-S5310-48GT4XS-P-E |
|-----------------------------|--|--------------------|---------------------|---------------------|----------------------|----------------------|
| Temperature | Operating temperature: 0°C to 45°C (32°F to 113°F) Storage temperature: -40°C to +70°C (-40°F to +158°F) Note: At an altitude between 1,800 m (5,905.51 ft.) and 5,000 m (16,404.20 ft.), every time the altitude increases by 220 m (721.78 ft.), the maximum temperature decreases by 1°C (1.8°F). | | | | | |
| Humidity | Operating humidity: 10% to 90% RH (non-condensing) Storage humidity: 5% to 95% RH (non-condensing) | | | | | |

| Environment and reliability | RG-S5310-24GT4XS-E | RG-S5310-48GT4XS-E | RG-S5310-24SFP4XS-E | RG-S5310-48SFP4XS-E | RG-S5310-24GT4XS-P-E | RG-S5310-48GT4XS-P-E |
|----------------------------------|--|---|---|---|--|---|
| 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.) | | | | | |
| Mean time between failure (MTBF) | 385,440 hours (about 44 years, dual power modules) 210,240 hours (about 24 years, single power module) | 350,400 hours (about 40 years, dual power modules) 201,480 hours (about 23 years, single power module) | 306,600 hours (about 35 years, dual power modules) 183,960 hours (about 21 years, single power module) | 289,080 hours (about 33 years, dual power modules) 175,200 hours (about 20 years, single power module) | 350,400 hours (about 40 years, dual power modules) 201,480 hours (about 23 years, single power module) | 306,600 hours (about 35 years, dual power modules) 183,960 hours (about 21 years, single power module) |
| Fan | 1 x fixed fan module | | 2 x fixed fan modules | | 1 x fixed fan module | |
| Heat dissipation | Fan cooling, left-to-right and front-to-right airflow | | | | | |
| Acoustic noise | 27°C (80.6°F): 34.3 dB 45°C (113°F): 56.5 dB | 27°C (80.6°F): 40.8 dB 45°C (113°F): 52.4 dB | 27°C (80.6°F): 38.9 dB 45°C (113°F): 53.7 dB | 27°C (80.6°F): 38.9 dB 45°C (113°F): 53.7 dB | 27°C (80.6°F): 51.6 dB 45°C (113°F): 57.4 dB | 27°C (80.6°F): 51.6 dB 45°C (113°F): 58.3 dB |
| Power module redundancy | 1+1 redundancy | | | | Only when the PoE load of the whole device is less than PoE output power of single power supply and dual power supplies are used, redundancy is supported. | |
| Power module hot swapping | Supported | | | | | |
| USB hot swapping | Supported | | | | | |
| Cable hot swapping | Supported by all ports | | | | | |
| Power supply monitoring | Monitoring of power supply model and status Power supply failure alarming | | | | | |
| Fan monitoring | Fan speed adjustment: 3 levels Fan failure alarming | | | | | |
| Temperature monitoring | Temperature monitoring, over-temperature alarming If the ambient temperature exceeds a certain value, the device will be reset. | | | | | |
| ESD | Air discharge: 8 kV Contact discharge: 6 kV | | | | | |
| Surge protection | MGMT port: 4 kV Service port: 10 kV Power port: common mode 6 kV, differential mode 6 kV | | | | | |

Certifications and Regulatory Compliance

| Certifications and Regulatory Compliance | RG-S5310-24GT4XS-E | RG-S5310-48GT4XS-E | RG-S5310-24SFP4XS-E | RG-S5310-48SFP4XS-E | RG-S5310-24GT4XS-P-E | RG-S5310-48GT4XS-P-E |
|--|--|--------------------|---------------------|---------------------|----------------------|----------------------|
| Safety regulation | IEC 62368-1 | | | | | |
| EMC regulation | EN 300386, EN 55032 Class A, EN 55035, EN IEC 61000-3-2, EN 61000-3-3, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-11 | | | | | |
| RoHS | European RoHS Directive 2011/65/EU & Amendment(EU) 2015/863 | | | | | |

Software Specifications

| Feature | RG-S5310-E Series |
|--------------------|--|
| Ethernet Switching | IEEE 802.1Q (supporting 4K VLANs) |
| | Jumbo frame (maximum length: 9,216 bytes) |
| | Maximum number of VLANs that can be created: 4,094 |
| | Voice VLAN |
| | Super VLAN and private VLAN |
| | MAC address-based, port-based, protocol-based, and IP subnet-based VLAN assignment |
| | GVRP |
| | Basic QinQ and selective QinQ |
| | STP (IEEE 802.1.d), RSTP (IEEE 802.1w), and MSTP (IEEE 802.1s) |
| | Auto errdisable recovery BPDU filter BPDU guard Port fast Root guard |
| | ERPS (G.8032) |
| | LLDP/LLDP-MED, LLDP IPv6, and LLDP-POE |

| Feature | RG-S5310-E Series |
|------------|--|
| IP Service | Static and dynamic ARP, ARP proxy, and ARP entry timeout |
| | DHCP client, DHCP relay, DHCP server, and DHCP snooping |
| | DHCPv6 client, DHCPv6 relay, DHCPv6 server, and DHCPv6 snooping |
| | DNS client, DNS proxy, and DNSv6 client |
| | MAC address filtering Setting the MAC address aging time |
| | Neighbor Discovery (ND), ND proxy, and ND snooping |
| | GRE tunnel |
| IP Routing | IPv4 and IPv6 static routing |
| | RIP and RIPng |
| | OSPFv2, OSPFv3, and GR |
| | IS-ISv4 and IS-ISv6 |
| | BGP4 and BGP4+ |
| | IPv4/IPv6 VRF |
| | IPv4/IPv6 PBR |
| Multicast | IGMPv1/v2/v3 |
| | IGMPv1/v2 snooping |
| | IGMP fast leave |
| | PIM-DM, PIM-SM, PIM-SSM, PIM SMv6, and PIM-SSMv6 |
| | MSDP for inter-domain multicast |
| | MLDv1/v2 and MLD proxy |
| | MLDv1/v2 snooping |
| | PIM-SMv6 |
| | Multicast source IP address check Multicast source port check |
| | Multicast querier |

| Feature | RG-S5310-E Series |
|-------------|---|
| ACL and QoS | Standard IP ACLs (hardware ACLs based on IP addresses) |
| | Extended IP ACLs (hardware ACLs based on IP addresses or TCP/UDP port numbers) |
| | Extended MAC ACLs (hardware ACLs based on source MAC addresses, destination MAC addresses, and optional Ethernet type) |
| | Expert-level ACLs (hardware ACLs based on flexible combinations of the VLAN ID, Ethernet type, MAC address, IP address, TCP/UDP port number, protocol type, and time range) |
| | Time based ACLs, ACL 80, and IPv6 ACL |
| | Global ACLs |
| | ACL redirection |
| | Port traffic identification |
| | Port traffic rate limiting |
| | 802.1p/DSCP/ToS traffic classification |
| | Congestion management: SP, WRR, DRR, WFQ, SP+WFQ, SP+WRR, SP+DRR, and SP+WFQ |
| | Congestion avoidance: tail drop, RED, and WRED |
| | Eight priority queues per port |
| | Rate limiting in each queue |
| Security | Multiple AAA modes |
| | RADIUS authentication and authorization |
| | RADIUS and TACACS+ |
| | IEEE802.1X authentication, MAC address bypass (MAB) authentication, and port-based and MAC address-based 802.1X authentication |
| | Web authentication |
| | Hypertext Transfer Protocol Secure (HTTPS) |
| | SSHv1 and SSHv2 |
| | Global IP-MAC binding |
| | ICMPv6 |
| | Port security |

| Feature | RG-S5310-E Series |
|-----------------------|---|
| Security | IP source guard |
| | SAVI |
| | ARP spoofing prevention |
| | CPP and NFPP |
| | Multiple attack defense functions |
| | 3-tuple binding (IP address, MAC address, and port) |
| | 3-tuple binding (IPv6 address, MAC address, and port) |
| | Filtering of invalid MAC addresses |
| | Port- and MAC address-based 802.1x authentication |
| | MAB authentication |
| Reliability | REUP |
| | RLDP |
| | RLDP, Layer 2 link connectivity detection, and unidirectional link detection |
| | DLDP |
| | IPv4 VRRP v2/v3, IPv6 VRRP, and super-VLAN for VRRP |
| | BFD, RAS, NSR, VRRR, VRRP+, and SDN loop detection |
| | Basic LACP Inter-VSU AP |
| | Link monitoring, fault notification, and remote loopback based on 802.3ah (EFM) |
| | Hot swapping of power modules |
| Device virtualization | VSU Local and remote stacking Inter-chassis link binding in a stack Virtualization through standard service interfaces |

| Feature | RG-S5310-E Series |
|---------------------|---|
| NMS and maintenance | SPAN, RSPAN and ERSPAN 1:1 mirroring, N:1 mirroring, 1:N mirroring Flow-based local and remote mirroring |
| | sFlow |
| | NTP client, NTP server, NTPv6 client, and NTPv6 server |
| | SNTP |
| | CLI (Telnet/Console) |
| | FTP client, FTP server, FTPv6 client, and FTPv6 server |
| | TFTP client, TFTP server, TFTPv6 client, and TFTPv6 server |
| | FTP and TFTP |
| | SNMP v1/v2/c3 |
| | Web |
| | Syslog/Debug |
| | RMON (1, 2, 3, 9) Various types of RMON groups, including event groups, alarm groups, history groups, and statistics groups, as well as private alarm extension groups RMON used to implement Ethernet statistics, historical statistics, and alarm functions |
| | NETCONF |
| | MACC |
| | VXLAN |

| Feature | RG-S5310-E Series |
|---------|---|
| PoE | RG-S5310-24GT4XS-P-E and RG-S5310-48GTXS-P-E: IEEE 802.3af and 802.3at power supply standards Automatic and energy-saving power supply management modes Uninterrupted power supply in hot start mode Scheduled power-on or power-off of PoE ports based on the time policy Port priority |

Protocol Compliance

| Organization | Standards and Protocol |
|--------------|--|
| IETF | RFC 1058 Routing Information Protocol (RIP) RFC 1157 A Simple Network Management Protocol (SNMP) RFC 1305 Network Time Protocol Version 3 (NTP) RFC 1349 Internet Protocol (IP) RFC 1350 TFTP Protocol (revision 2) RFC 1519 CIDR RFC 1583 OSPF Version 2 RFC 1591 Domain Name System Structure and Delegation RFC 1643 Ethernet Interface MIB RFC 1757 Remote Network Monitoring (RMON) RFC 1812 Requirements for IP Version 4 Router RFC 1901 Introduction to Community-based SNMPv2 RFC 1902-1907 SNMP v2 RFC 1918 Address Allocation for Private Internet RFC 1981 Path MTU Discovery for IP version 6 RFC 1997 BGP Communities Attribute RFC 2131 Dynamic Host Configuration Protocol (DHCP) RFC 2132 DHCP Options and BOOTP Vendor Extensions RFC 2236 IGMP RFC 2328 OSPF Version 2 RFC 2385 Protection of BGP Sessions via the TCP MD5 Signature Option RFC 2439 BGP Route Flap Damping RFC 2460 Internet Protocol, Version 6 (IPv6) RFC 2461 Neighbor Discovery for IP Version 6 (IPv6) RFC 2462 IPv6 Stateless Address Auto configuration RFC 2463 Internet Control Message Protocol for IPv6 (ICMPv6) RFC 2545 Use of BGP 4 Multiprotocol Extensions for IPv6 Inter Domain Routing RFC 2571 SNMP Management Frameworks RFC 2711 IPv6 Router Alert Option RFC 2787 Definitions of Managed Objects for the Virtual Router Redundancy Protocol RFC 2863 The Interfaces Group MIB RFC 2865 Remote Authentication Dial In User Service (RADIUS) RFC 2918 Route Refresh Capability for BGP 4 RFC 2925 Definitions of Managed Objects for Remote Ping, Traceroute, and Lookup Operations (Ping only) RFC 2934 Protocol Independent Multicast MIB for IPv4 |

| Organization | Standards and Protocol |
|--------------|---|
| IETF | <p>RFC 3046 DHCP Option82 RFC 3065 Autonomous System Confederation for BGP RFC 3101 OSPF Not so stubby area option RFC 3137 OSPF Stub Router Advertisement sFlow RFC 3417 (SNMP Transport Mappings) RFC 3418 Management Information Base (MIB) for the Simple Network Management Protocol (SNMP) RFC 3509 Alternative Implementations of OSPF Area Border Routers RFC 3513 IP Version 6 Addressing Architecture RFC 3575 IANA Considerations for RADIUS RFC 3579 RADIUS Support For EAP RFC 3623 Graceful OSPF Restart RFC 3768 VRRP RFC 3810 Multicast Listener Discovery Version 2 (MLDv2) for IPv6 RFC 3973 PIM Dense Mode RFC 4022 MIB for TCP RFC 4271 A Border Gateway Protocol 4 (BGP 4) RFC 4273 Definitions of Managed Objects for BGP 4 RFC 4360 BGP Extended Communities Attribute RFC 4456 BGP Route Reflection: An Alternative to Full Mesh Internal BGP (IBGP) RFC 4486 Subcodes for BGP Cease Notification Message RFC 4552 Authentication/Confidentiality for OSPFv3 RFC 4724 Graceful Restart Mechanism for BGP RFC 4750 OSPFv2 MIB partial support no SetMIB RFC 4760 Multiprotocol Extensions for BGP 4 RFC 4940 IANA Considerations for OSPF RFC 5065 Autonomous System Confederation for BGP RFC 5187 OSPFv3 Graceful Restart RFC 5340 OSPFv3 for IPv6 RFC 5492 Capabilities Advertisement with BGP 4 RFC 6620 FCFS SAVI RFC 768 User Datagram Protocol (UDP) RFC 783 TFTP Protocol (revision 2) RFC 792 Internet Control Message Protocol (ICMP) RFC 793 Transmission Control Protocol (TCP) RFC 813 Window and Acknowledgement Strategy in TCP RFC 815 IP datagram reassembly algorithms RFC 826 Ethernet Address Resolution Protocol (ARP) RFC 854 Telnet Protocol RFC 959 File Transfer Protocol (FTP)</p> |
| IEEE | <p>IEEE 802.2 Logical Link Control IEEE 802.1ab Link Layer Discovery Protocol IEEE 802.1ad Provider Bridges IEEE 802.1ax/IEEE802.3ad Link Aggregation IEEE 802.1D Media Access Control (MAC) Bridges IEEE 802.1D Spanning Tree Protocol IEEE 802.1Q Virtual Bridged Local Area Networks (VLAN) IEEE 802.1s Multiple Spanning Tree Protocol IEEE 802.1w Rapid Spanning Tree Protocol IEEE 802.3ad Link Aggregation Control Protocol (LACP) IEEE Std 802.3x Full Duplex and flow control *IEEE 802.3az Energy Efficient Ethernet</p> |

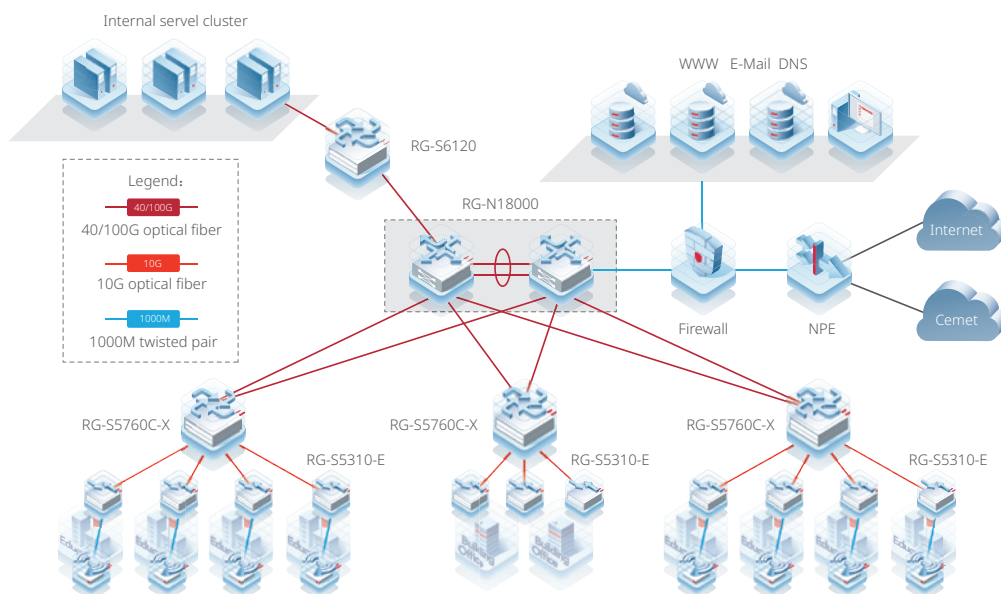
Typical Applications

With high security, high efficiency, intelligence, and energy saving, the RG-S5310-E series can fully meet networking requirements in the following scenarios:

- Full gigabit access to LANs of large enterprises, institutions, and campuses, such as the LANs in government buildings, universities, and large manufacturing/energy/metallurgy/other organizations
- Gigabit access to business systems related to medical care, libraries, exhibition centers, and websites
- Access to IP phones, WLAN access points (APs), and HD cameras
- Gigabit access to server clusters and uplink access over 10 Gbps bandwidth
- Requirements for flexible and diversified security control policies to prevent and defend against network viruses and network attacks, and to provide secure access for users

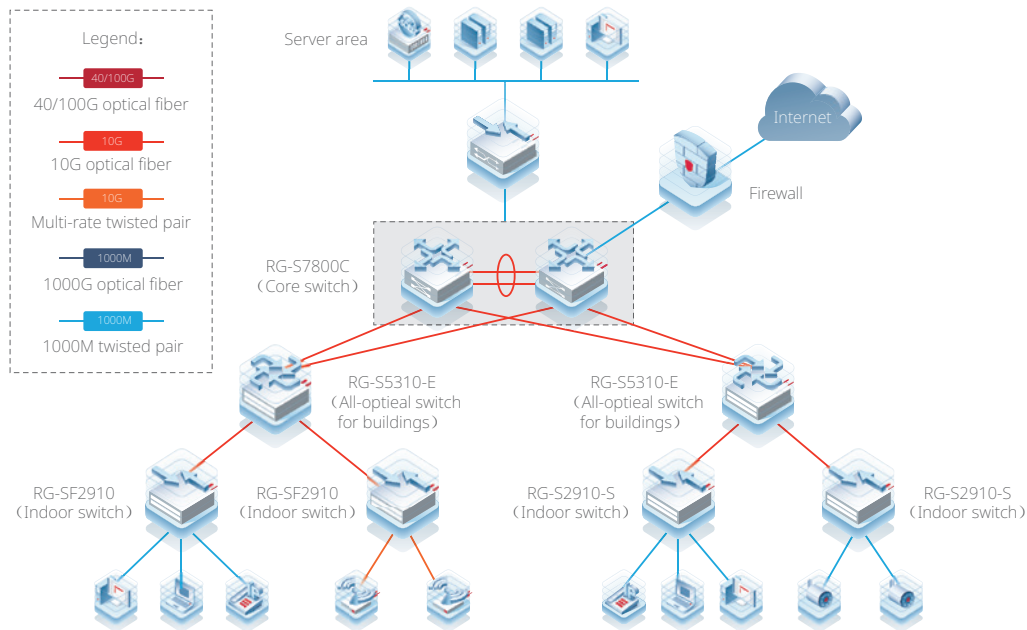
Scenario 1

The RG-S5310-E series serve as access switches. They connect to aggregation switches (RG-S5760C-X series) deployed for buildings and core switches (RG-N18000 series) deployed for campus networks to provide high-performance 1000M links to the desktop and 10G links from the aggregation layer to the core layer, so as to cope with the increasing information of access users. In SDN solutions, the RG-S5310-E series provide access control, visualized O&M, and other intelligent functions.



Scenario 2

The RG-S5310-E series serve as aggregation switches. They connect to indoor access switches (RG-SF29 series) and core switches (RG-S7800C series) to build a cost-effective, high-performance, and high-bandwidth network. This network provides 1000M links to the desktop and 10G links from the aggregation layer to the core layer, so as to cope with the increasing information of access users.



Ordering Information

Switches

| Model | Description |
|----------------------|---|
| RG-S5310-24GT4XS-E | 24 x 10/100/1000BASE-T ports, 4 x 1GE/10GE SFP+ ports, 2 modular power supply slots (at least one power module needs to be configured) |
| RG-S5310-48GT4XS-E | 48 x 10/100/1000BASE-T ports, 4 x 1GE/10GE SFP+ ports, 2 modular power supply slots (at least one power module needs to be configured) |
| RG-S5310-24SFP4XS-E | 24 x 1GE SFP ports, 4 x 1GE/10GE SFP+ ports, 2 modular power supply slots (at least one power module needs to be configured) |
| RG-S5310-48SFP4XS-E | 48 x 1GE SFP ports, 4 x 1GE/10GE SFP+ ports, 2 modular power supply slots (at least one power module needs to be configured) |
| RG-S5310-24GT4XS-P-E | 24 x 10/100/1000BASE-T ports, supporting PoE/PoE+ and the maximum PoE output power of 740 W, 4 x 1GE/10GE SFP+ ports, 2 modular power supply slots (at least one power module needs to be configured, only when the PoE load of the whole device is less than PoE output power of single power supply and dual power supplies are used, redundancy is supported) |
| RG-S5310-48GT4XS-P-E | 48 x 10/100/1000BASE-T ports, supporting PoE/PoE+ and the maximum PoE output power of 1440 W, 4 x 1GE/10GE SFP+ ports, 2 modular power supply slots (at least one power module needs to be configured, only when the PoE load of the whole device is less than PoE output power of single power supply and dual power supplies are used, redundancy is supported) |

Note:

- 4 x 1GE/10GE SFP+ ports support 1GE SFP transceivers and 10GE SFP+ transceivers.

Power Module

| Model | Description |
|----------------|---|
| RG-PA70IB | 70 W AC power module |
| RG-PA150IB-F | 150 W AC power module |
| RG-PD150IB-F | 150W DC power module |
| RG-PA600I-P-F | 600 W AC power module, PoE power module |
| RG-PA1000I-P-F | 1,000 W AC power module, PoE power module |

License

| Model | Description |
|-------------------------|---|
| RG-VXLAN-MPLS-ENTRY-LIC | S5310E series, software license for VXLAN, MPLS, routing table, and ARP table |

Optical Transceivers

1GE

| Model | Description |
|-------------------------|---|
| Mini-GBIC-GT | 1000BASE-X to 1000BASE-T, copper SFP transceiver, RJ45, 100 m over Cat 5e/6/6a The port needs to be configured with auto-negotiation |
| MINI-GBIC-SX-MM850 | 1000BASE-SX, SFP transceiver, 850 nm, Duplex LC, 500 m over MMF |
| MINI-GBIC-LX-SM1310 | 1000BASE-LX, SFP transceiver, 1310 nm, Duplex LC, 10 km over SMF |
| MINI-GBIC-LH40-SM1310 | 1000BASE-LH, SFP transceiver, 1310 nm, Duplex LC, 40 km over SMF |
| MINI-GBIC-ZX80-SM1550 | 1000BASE-ZX, SFP transceiver, 1550 nm, Duplex LC, 80 km over SMF |
| GE-SFP-LX20-SM1310-BIDI | 1000BASE-LX, SFP transceiver, TX1310/RX1550, BiDi LC, 20 km over SMF |
| GE-SFP-LX20-SM1550-BIDI | 1000BASE-LX, SFP transceiver, TX1550/RX1310, BiDi LC, 20 km over SMF |
| 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 |

| Model | Description |
|---------------------------|---|
| GE-SFP-LX03-SM1310-BIDI-I | 1000BASE-LX, SFP transceiver, TX1310/RX1550, BiDi LC, 3 km over SMF |
| GE-SFP-LX03-SM1550-BIDI-I | 1000BASE-LX, SFP transceiver, TX1550/RX1310, BiDi LC, 3 km over SMF |

Note: BiDi transceivers must be used in pairs. If one end uses GE-SFP-LX20-SM1310-BIDI, the other end must use GE-SFP-LX20-SM1550-BIDI.

10GE

| Model | Description |
|---------------------------|---|
| XG-SFP-SR-MM850 | 10GBASE-SR, SFP+ transceiver, 850nm, Duplex LC, 300 m over MMF |
| XG-SFP-LR-SM1310 | 10GBASE-LR, SFP+ transceiver, 1310nm, Duplex LC, 10 km over SMF |
| XG-SFP-ER-SM1550 | 10GBASE-ER, SFP+ transceiver, 1550nm, Duplex LC, 40 km over SMF |
| XG-SFP-ZR-SM1550 | 10GBASE-ZR, SFP+ transceiver, 1550nm, Duplex LC, 80 km over SMF |
| XG-SFP-LR10-SM1270-BIDI-I | 10GBASE-LR, SFP+ transceiver, TX1270/RX1330, BiDi LC, 10 km over SMF |
| XG-SFP-LR10-SM1330-BIDI-I | 10GBASE-LR, SFP+ transceiver, TX1330/RX1270, BiDi LC, 10 km over SMF |
| XG-SFP-AOC1M | 10GBASE, SFP+ active optical cable (AOC), 1 m, including one cable and two optical transceivers |
| XG-SFP-AOC3M | 10GBASE, SFP+ active optical cable (AOC), 3 m, including one cable and two optical transceivers |
| XG-SFP-AOC5M | 10GBASE, SFP+ active optical cable (AOC), 5 m, including one cable and two optical transceivers |

Package Contents

| Item | RG-S5310-E Series |
|--|-------------------|
| Chassis | 1 |
| Grounding wire | 1 |
| Mounting bracket | 2 |
| Rubber pad | 4 |
| M4x8 cross recessed countersunk head screw, GB819-85 | 8 |
| <i>Mounting Bracket Installation Guide</i> | 1 |
| <i>Network Product Warranty Manual and Hazardous Substance Statement</i> | 1 |
| Ruijie Networks Access Product Management Software | 1 (pre-installed) |

Warranty

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

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

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

More Information

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

- Ruijie Networks official website: <https://www.ruijienetworks.com/>
- Online support: <https://www.ruijienetworks.com/support>
- Hotline support: <https://www.ruijienetworks.com/support/hotline>
- Email support: service_rj@ruijienetworks.com

Ruijie



Ruijie Networks Co., Ltd.

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