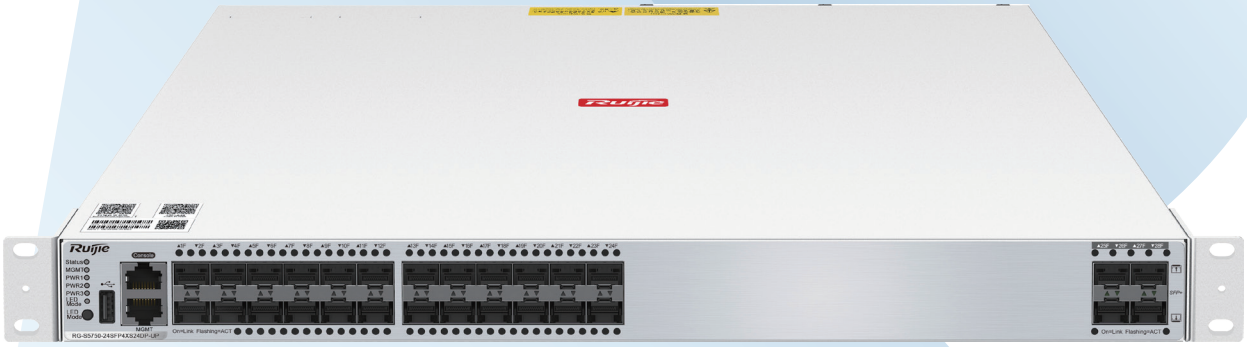


RG-S5750-DP Series

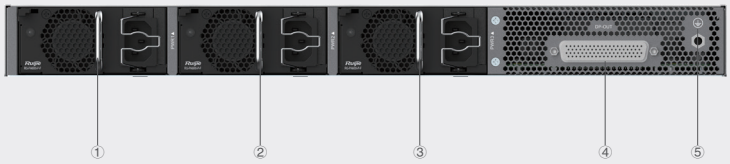
All-Optical Aggregation Switch (PoF Switch)

Scan QR Code
For More Enquiry

Product Pictures

RG-S5750-24SFP4XS24DP-UP

Front View of the RG-S5750-24SFP4XS24DP-UP



Rear View of the RG-S5750-24SFP4XS24DP-UP

Notes:
1. Power module slot 1 (A filler panel is required if the slot is vacant.)
2. Power module slot 2 (A filler panel is required if the slot is vacant.)
3. Power module slot 3 (A filler panel is required if the slot is vacant.)
4. DB78 port for powering external devices
5. Grounding stud

Product Overview

RG-S5750-DP series switches are next-generation high-performance, high-security, and multi-service Layer 3 Ethernet switches developed by Ruijie Networks. They are primarily deployed at the aggregation layer, providing line-rate multi-layer switching. This series can be configured with comprehensive QoS policies to manage service flows based on applications, ensuring the transmission of critical services without any latency.

The RG-S5750-DP is applied to the Power over the Fiber Cable (PoF) Solution. It utilizes the hybrid cable for powering end-point Simplified Optical Ethernet (SOE) switches and transmitting optical fiber signals. This enables integrated installation and operation of power supply and fiber signal transmission, ultimately reducing costs and improving efficiency in campus network construction.

The specifications for the RG-S5750-DP are as follows.

Model	1000M SFP Port	10GE SFP+ Port	MGMT Port	USB Port	Console Port	Pluggable Power Module	DP Port
RG-S5750-24SFP4XS24DP-UP	24	4	1	1	1	3	1

External ports of the RG-S5750-DP:

- Management port: is a 10/100/1000Base-T Ethernet port that uses an RJ-45 connector. This port can be connected to an Ethernet port of a PC to download programs. You can manage and maintain the switch remotely by connecting the MGMT port to the Ethernet port of a PC with an Ethernet cable.
- USB port: connects to your USB storage device to store logs, software versions, alarms, and other diagnostic information, which can be easily used for online upgrade of switch software and storage of log information.
- Console port: is an RS-232 port that uses an RJ45 connector. The console port is used to connect a PC directly to the management system for commissioning, configuration, maintenance, management, and program loading.
- DP port: is a DB78 port. Each DB78 port provides 24 low-voltage DC power outputs. The low-voltage DC power is output to external device through the hybrid cable.

Product Features

Power Supply/Fiber Transmission Integration

RG-S5750-DP series switches are primarily used in the PoF solution. The PoF solution distinguishes itself with its unique application scenario, utilizing hybrid cables in the traditional SOE solution. This innovative approach enables centralized power supply for endpoint devices from the core equipment room, hassle-free deployment of indoor switches without the need for high-power connections, power supply for remote network devices over ultra-long distance, seamless integration and management of network and power supply systems, simplified installation of SOE switches, and significant cost savings in project construction. It greatly saves CAPEX and OPEX during campus network construction.

Sound Security Protection Policies

Address Resolution Protocol (ARP) spoofing attacks are common network attacks. The RG-S5750-DP supports anti-ARP spoofing in multiple modes. Regardless of whether user hosts automatically obtain addresses from a DHCP server or use static IP addresses, the RG-S5750-DP records user hosts' IP and MAC addresses, and compares addresses in ARP packets with recorded IP and MAC addresses when receiving ARP packets from hosts. It forwards only ARP packets whose addresses match the recorded IP and MAC addresses and discards fake ARP packets. In this way, ARP spoofing packets are blocked from the network to protect network user hosts against ARP attacks.

The RG-S5750-DP can proactively defend against various Distributed Denial of Service (DDoS) attacks on networks. Computers may be attacked by viruses due to network openness or attackers may launch attacks on network devices and servers for various purposes, resulting in network unavailability. For example, ARP flood attacks cause the gateway to fail to respond to requests; Internet Control Message Protocol (ICMP) flood attacks result in device breakdown due to high CPU load; DHCP flood attacks exhaust addresses of a DHCP server, and authorized users cannot obtain IP addresses for network access.

The RG-S5750-DP series provides the unique CPU Protection Policy (CPP). It classifies data traffic sent to the CPU, processes the traffic by queue priority, and limits the bandwidth as required. This technology fully protects the CPU from being occupied by unauthorized traffic, and defends against malicious attacks and resource consumption, thereby ensuring security of the switch.

The RG-S5750-DP adopts the innovative Network

Foundation Protection Policy (NFPP) technology to limit the rate of ARP packets, ICMP Request packets, DHCP Request packets, and other packets. It discards packets whose rate exceeds the threshold, identifies attacks, and isolates user hosts launching attacks. In this way, it protects basic networks against network attacks, guaranteeing network stability.

DHCP snooping enables the switch to receive DHCP packets only from trusted interfaces, preventing spoofing from the unauthorized DHCP server. With DHCP snooping, the switch dynamically monitors ARP packets, checks user hosts' IP addresses, and discards unauthorized packets that do not match binding entries, thereby effectively preventing ARP spoofing and source IP address spoofing.

VSU

Virtual Switching Unit (VSU) enables multiple physical devices to be connected and virtualized into one logical device. The devices use the same IP address, Telnet process, and CLI for management, and support automatic version check and automatic configuration. In this context, a network administrator only manages one logical device, improving working efficiency and experience.

Simplified management: The network administrator can manage multiple switches uniformly without connecting to each switch for separate configuration and management.

Simplified network topology: A VSU serves as a switch on a network and connects to peripheral devices through aggregate links. Therefore, no Layer 2 loop occurs and MSTP configuration is not required. Various control protocols can run on the VSU.

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

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

Investment protection: Aggregate links used for connecting the VSU to peripheral devices provide link redundancy and implement load balancing. All network devices and bandwidth resources are fully leveraged. Any 10GE port can be used for constituting a VSU through any data transmission cable without additional cables or expansion cards, maximizing user investment.

High Reliability

The RG-S5750-DP supports the Spanning Tree Protocol (STP), Rapid Spanning Tree Protocol (RSTP), and Multiple Spanning Tree Protocol (MSTP), which achieves fast convergence, improves the fault tolerance capability, and ensures stable network operation and link load balancing. It efficiently utilizes network channels to improve the link usage.

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

With the Rapid Link Detection Protocol (RLDP), the RG-S5750-DP can quickly detect link connectivity and unidirectional optical fiber links. Through loop detection on a port, the switch can prevent network failures caused by the loops due to unauthorized connection between the port and hubs.

It supports the Ethernet Ring Protection Switching (ERPS) technology, which is a Layer 2 link redundancy protocol designed for the core Ethernet. Loop blocking and link recovery of ERPS are implemented on the control device, and non-control devices directly report their link status to the control device, without processing from other non-control devices. Therefore, loop disruption and recovery time of ERPS is faster than that of STP. Based on the preceding differences, ERPS supports link recovery within milliseconds.

When STP is disabled, the Rapid Ethernet Uplink Protection Protocol (REUP) can still provide basic link redundancy and millisecond-level fault elimination faster than STP.

BFD provides millisecond-level detection, enables quick detection of links, and associates with an upper routing protocol to achieve rapid convergence, ensuring service continuity.

SDN

The RG-S5750-DP supports OpenFlow 1.3, and can work with Ruijie Networks' Software-defined Networking (SDN) controller to build large-scale 2-layer or 3-layer networking. It also supports smooth upgrade of the entire network to an SDN network, which greatly simplifies network management while reducing maintenance costs.

Energy-Saving Design

Ruijie carries out an in-depth study on noise and energy consumption issues in conventional switches and integrates multiple energy-saving design ideas into the RG-S5750-DP. The switch fully gets rid of loud noise in offices and excessive energy consumption arising from mass deployment of access devices.

The RG-S5750-DP adopts the next-generation hardware architecture, and advanced energy-efficient circuit design and components, to reduce energy consumption and noise. The switch is equipped with variable-speed axial fan modules to intelligently control the fan speed based on the ambient temperature, which reduces power consumption and noise while ensuring stable operation of the switch.

In PoE networking, the RG-S5750-DP provides automatic and energy-saving modes.

Easy Network Maintenance

The RG-S5750-DP supports SNMP, RMON, Syslog, sFlow, and USB-based log and configuration backup for routine network diagnosis and maintenance. Administrators can use diversified management and maintenance methods, including the CLI, web-based NMS, Telnet, and CWMP (TR069) to facilitate device management.

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

It supports GRPC-based Telemetry to periodically collect CPU and memory information.

IPv4/IPv6 Dual-Stack Multi-Layer Switching

The hardware of the RG-S5750-DP supports IPv4/IPv6 dual stacks and multi-layer line-rate switching to differentiate and process IPv4 and IPv6 packets. The switch also provides flexible IPv6 network communication solutions for users to perform network planning or maintain the network status based on IPv6 network demands. The RG-S5750-DP supports a wide range of IPv4 routing protocols, covering IPv4 static routing, RIP, OSPFv2, IS-ISv4, and BGP4. You can select appropriate routing protocols to flexibly build networks based on various network environments. Meanwhile, the switch also supports abundant IPv6 routing protocols, including IPv6 static routing, RIPng, OSPFv3, IS-ISv6, and BGP4+. A routing protocol can be selected flexibly to upgrade the live network to an IPv6 network or establish a new IPv6 network.

Product Specifications

Hardware Specifications

Hardware Specifications	RG-S5750-24SFP4XS24DP-UP
Port	24 x 1000M SFP ports, 4 x 1G/10G SFP+ ports, and 24 x power output ports
Switching capacity	128 Gbps
Packet forwarding rate	96 Mps
Power module slot	3

Hardware Specifications	RG-S5750-24SFP4XS24DP-UP
Power module type	Available model: RG-PA600I-P-F AC input Rated voltage range: 200 V AC to 240 V AC Maximum voltage range: 176 V AC to 264 V AC Frequency: 50 Hz to 60 Hz Rated current per input: 8 A Available model: RG-PA1000I-P-F AC input Rated voltage range: 200 V AC to 240 V AC Maximum voltage range: 176 V AC to 264 V AC Frequency: 50 Hz to 60 Hz Rated current per input: 8 A
SFP port	1000Base-X 100Base-X
SFP+ port	10GBase-R 1000Base-X
RTC	Supported
Power consumption	< 85 W
Operating temperature	0°C to 45°C (32°F to 113°F) at the altitude of 0 m to 1,800 m (0 ft. to 5905.51 ft.) At the altitude ranging from 1800 m (5905.51 ft.) to 5000 m (16404.20 ft.), the temperature decreases by 1°C (1.8°F) each time the altitude increases by 220 m (721.79 ft.).
Storage temperature	–40°C to +70°C (–40°F to +158°F)
Operating humidity	10% to 90% RH
Operating altitude	0 m to 5000 m (0 ft. to 16404.20 ft.)
Storage humidity	5% to 95% RH
Fan module	Fan speed regulating and fault alarms
Temperature alarms	Supported
EMI	GB/T9254.1-2021 Class A
Safety standard	GB4943-2011
Dimensions (W x D x H)	442 mm x 420 mm x 43.6 mm (17.40 in. x 16.54 in. x 1.72 in.)
Weight (including power modules)	10 kg (22.05 lbs)

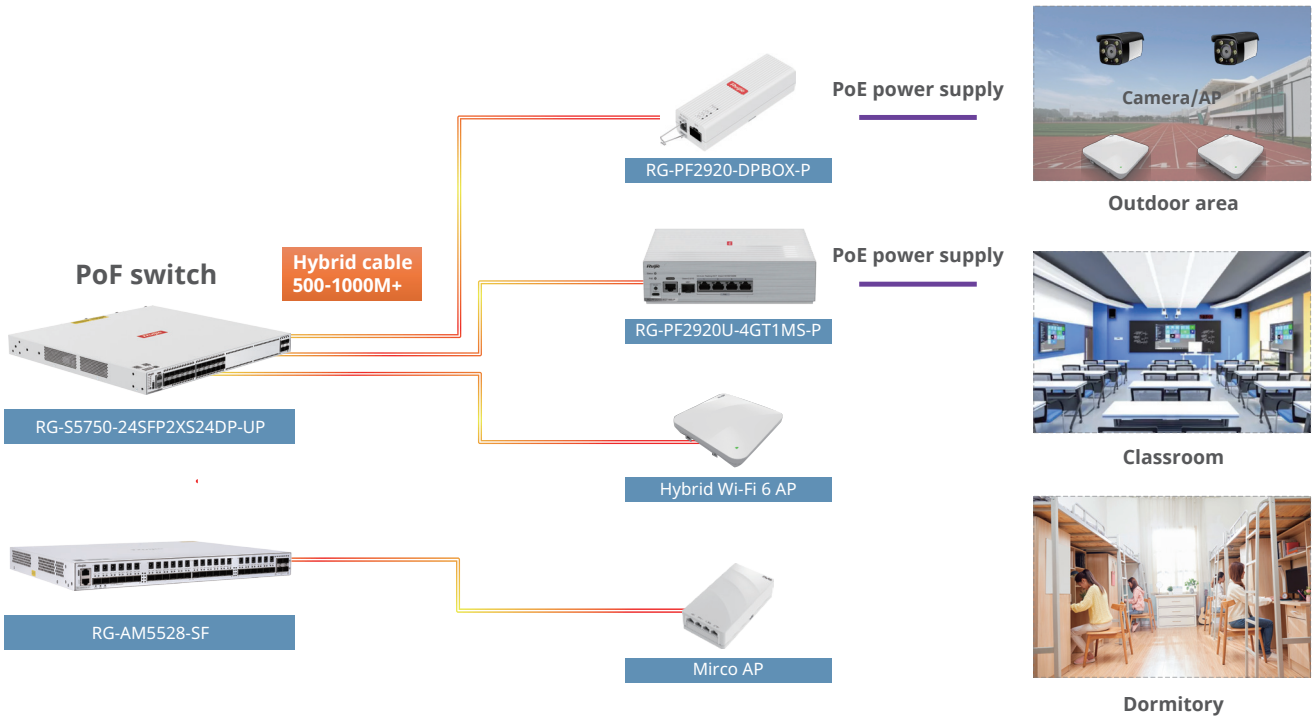
Software Specifications

Software Specifications	RG-S5750-24SFP4XS24DP-UP
802.1Q VLAN	4K 802.1Q VLAN Port-based VLAN MAC address-based VLAN Private VLAN Voice VLAN GVRP
QinQ	Basic QinQ Selective QinQ
ACL	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) Time range-based ACL 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) ACL80 IPv6 ACL Global ACL ACL redirection
QoS	Traffic identification on an interface Rate limiting on an interface Traffic classification based on 802.1p priorities, DSCP priorities, and IP precedences Eight queues on each interface SP, WRR, SP+WRR, and RED/WRED
Mirroring	1:1 mirroring, N:1 mirroring, and 1:N mirroring RSPAN Local and remote flow-based mirroring
DHCP	DHCP server DHCP client DHCP snooping DHCP relay DHCPv6 snooping DHCPv6 client DHCPv6 relay
Security	Binding of IPv4 addresses, MAC addresses, and interface numbers Binding of IPv6 addresses, MAC addresses, and interface numbers Filtering unauthorized MAC addresses Interface- and MAC address-based 802.1X authentication MAB Portal and Portal 2.0 authentication ARP check DAI ARP rate limiting

Software Specifications	RG-S5750-24SFP4XS24DP-UP
Security	ARP spoofing prevention Broadcast storm suppression Hierarchical management and password protection RADIUS and TACAS+ AAA (IPv4/IPv6) for device login management SSH and SSHv2.0 BPDU guard IP source guard CPP and NFPP Port security
Ring network protocol	ERPS (G.8032), compatibility with third-party ERPS-capable products
PoE	IEEE 802.3af and 802.3at Automatic and energy-efficient power supply management modes Warm start Scheduled power-on and power-off of PoE ports based on the time range Port priority
IP routing	IPv4/IPv6 static route RIP, RIPng, OSPFv2, OSPFv3, BGP, and IS-IS Routing Policy
Basic IPv6 protocols	IPv6 addressing, ND, ICMPv6, IPv6 ping, IPv6 tracert, and IPv6 multicast
SAVI	Defense against NS/NA/RS/RA packet attacks Preventing private IPv6 address allocation Unauthorized terminal information buffering
VSU	Local and remote stacking Link bundling across the chassis inside the VSU Virtualization through standard service interfaces
Zero Touch Provisioning (ZTP)	CWMP (TR069)
Management	SNMPv1/v2c/v3, CLI (Telnet/console), RMON (1, 2, 3, 9), SSH, Syslog, NTP/SNTP, web, debugging, FTP, TFTP, sFlow, and Ruijie Cloud

Applications

Hybrid Cable Scenario



Cable Specifications	PowerSupply Distance 15.4W 【802.3 af】	Power Supply Distance 30W【802.3 at】	Power Supply Distance 60W【802.3 bt】	Power Supply Distance 90W【802.3 bt】
Hybrid cable, 0.5 mm^2 【OEHC-0.5-1000M】	502 m	154 m	-	-
Hybrid cable, 1.5 mm^2 【OEHC-1.5-1000M】	1474 m	453 m	226 m	146 m 【If using the RG-PF2920-4GT1MS-P. The distance can be more than 260m】

Ordering Guide

Two models are available for the RG-S5750-DP series.

- Select the corresponding fixed all-optical switch (PoF switch), as well as corresponding power modules based on specific application scenarios, which are mandatory.
- The two models must be equipped with optical modules in uplink and downlink directions. Downlink 1000M/100M SFP ports are supported.
- The device must use the same power module type if multiple power modules are configured.

Models marked with asterisks (*) in the ordering information are available later.

Ordering Information

RG-S5750-DP

Chassis, Power Module, and Accessories

Model	Description
RG-S5750-24 SFP4XS24DP-UP	Aggregation all-optical switch (PoF switch) for buildings, 24-port fixed all-optical switch 24 x downlink combo ports (1GE SFP port and DB78 port) 4 x 1GE/10GE uplink SFP+ ports with auto-negotiation 24 power outputs over hybrid cables, with a maximum of 100 W per output, and up to 2,400 W per device Up to three power modules
RG-PA1000I-P-F	1000 W AC power module
RG-PA600I-P-F	600 W AC power module
RG-24DUP1DB48LC	Hybrid cable termination box, 24 power outputs per panel, configured based on the number of hybrid cables

Hybrid Cables

Model	Description
OEHC-0.5-1000M	Hybrid cable, cross sectional area of 0.5 mm^2, each bundle of 1,000 m (3,280.84 ft.), configured according to the solution
OEHC-1.5-1000M	Hybrid cable, cross sectional area of 1.5 mm^2, each bundle of 1,000 m (3,280.84 ft.), configured according to the solution

Ruijie Networks Co., Ltd.

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