

# RG-SF2920 Series Simplistic Optical Switch Datasheet



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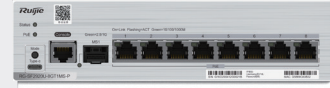
## Product Pictures



RG-SF2920U-4GT1MS-P



RG-SF2920U-8GT1MS



RG-SF2920U-8GT1MS-P



RG-SF2920-16GT2SFP



RG-SF2920-16GT2SFP-P



RG-SF2920-8GT2MG2XS



RG-SF2920-8GT2MG2XS-P



RG-SF2920-16GT2MG2XS



RG-SF2920-16GT2MG2XS-P

## Product Overview

RG-SF2920 series simplistic optical switches provide a new option for transmitting data to terminals through optical links in Ruijie Networks simplistic optical Ethernet solution. The series switches can be used in smart classrooms, multimedia classrooms, offices, clinic wards, mini branches, and other wiring-limited environments of the education, medical, enterprise-class and commercial customers. They provide nearby access and ultrahigh bandwidth for mass Internet of things (IoT) terminals and other IP information points such as wireless cameras, ultra HD digital video cameras, and intelligent electronic bedside screens.

The advantages of the RG-SF2920 series simplistic optical switches are as follows:

- Protecting the service environment: The full series adopt an architecture providing excellent heat dissipation performance (4/8/16-port devices adopt the fan-less design), which enable the devices to be as mute as a falling leaf. They will not cause noise interference to the teaching, office, and other service environments after they are installed indoors.
- The 1G/2.5G/5G/10G ports on 4/8/16-port devices support PoE/PoE+, providing convenient access for mass terminals.
- Featuring compact and supporting various installation methods: The devices can be flexibly and rapidly installed in various indoor scenarios.
- Adopting dual-network design on one device: The 4/8-port 1000M devices can be equipped with a dual-network expansion module, which can achieve unified deployment, installation, and management of two physically isolated networks on one device.
- Enterprise-class high reliability is the prerequisite for deep integration between devices and service scenarios. The innovative power grid fluctuation resisting design shields the interference of the municipal power grid in devices and services. In addition, the wide temperature design, built-in power supply, port 8KV lightning protection, and overall metal housing design ensure the stability and reliability of services in various indoor scenarios.
- The switches support Ruijie simplistic optical Ethernet solution. They inherit the Ethernet O&M mode and provide the quasi-cable optical fiber O&M and locating functions to implement seamless switching between the conventional Ethernet architecture and all-optical networking architecture in network center O&M. Moreover, the switches are capable of providing intelligent O&M features in the full lifecycle from plug and play at deployment to security control.

# Product Features

## Ruijie Simplistic Optical Ethernet Solution

Ruijie simplistic optical Ethernet solution is the next-generation network architecture released by Ruijie Networks for the education, travel, office, and other park application scenarios. By utilizing the new deployment mode of fiber to home together with Ethernet, simple architecture networking, and software-defined networking (SDN) technology, the solution provides high-bandwidth, low-latency, highly flexible, and simplistic O&M network bearer for park services in the era of Internet of Everything (IoE), to support service evolution in the next decade and guarantee the application experience and investment value.

(For details about Ruijie simplistic optical Ethernet solution, visit <http://www.ruijie.com.cn/fa/jh/20201216/>.)

As an end device of an optical link, the simplistic optical switch provides nearby access, service expansion, and high-bandwidth services for terminals in an indoor environment. To better support the all optical network and deep integration with the service environment, the simplistic optical switch provides the following features:

- As mute as a falling leaf
- Dual-network design on one device
- Green energy saving and sustainability
- Compact size + multiple installation methods = flexible and fast installation: low requirements for the installation environment
- Enterprise-class high availability
- Advanced security features: Sound security protection policies ensure that the device can be moved from the weak-current equipment room to an indoor environment
- Intelligent O&M: Device going online with zero configuration, zero replacement, and quasi-cable optical fiber O&M

## As Mute as a Falling Leaf

The RG-SF2920 series switches adopt a next-generation hardware architecture, which enables the devices to be as mute as a falling leaf (4/8/16-port devices use the fanless design). The generated noise is lower than 35 dB. In the perception of noise, 30 dB to 40 dB is an ideal sound level for a quiet environment. Ruijie products are tested in accordance with the national standard GB/T 18313-2001 and the noise is lower than 35 dB, which meets the standard of sleeping in the

living room at night.

Though no fans are used for cooling, the switches adopt the wide temperature design of heat reduction and efficient heat dissipation. This makes the switches capable of normally working in the open or confined space with an ambient temperature of 0–45°C, for example, they can be placed in a closed weak-current box embedded in a wall, podium multimedia box that accommodates other central control devices, and cabinets in equipment rooms and classrooms in the engineering training center.

## Dual-Network Design on One Device

Among the SF2920 series switches, the 4/8-port 1000M switches are equipped with dual-network expansion modules to manage two physically isolated networks on one device, such as office network and intelligent private network in education and Intranet and Intranet in the medical industry. In data transmission, two physical networks are respectively connected to the switch and the expansion module through independent physical channels (that is, optical fibers). In power supply management, the expansion module takes power from the switch and the power of the switch and expansion module is managed in a unified manner. In installation and deployment, there is no need to deploy two suits of devices and accessories indoors.

## Green Energy Saving and Sustainability

In response to China's call for green energy saving, Ruijie carries out an in-depth study on noise and energy consumption issues in conventional switches and integrates advanced energy consumption design into the RG-S2920 series switches. The switches fully get rid of loud noise produced by switches deployed in offices and excessive energy consumption arising from the mass deployment of access devices.

The RG-SF2920 series switches adopt advanced energy-saving circuit design, low power consumption design, and component selections to ensure deep energy saving. The ports meet the EEE standard and the power consumption of device components is reduced by 20%. In addition, the series switches comply with the Restriction of Hazardous Substances (RoHS) standard in materials and security.

## Compact Size + Multiple Installation Methods = Flexible and Fast Installation: Low Requirements for the Installation Environment

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Conventional switches are rack-mounted and can be installed only in standard cabinets in weak-current equipment rooms. If they need to be deployed indoors, there are strict installation requirements. The compact structure and elegant white appearance of the simplistic optical switches meet users' expectations for beauty in all kinds of indoor environments. The simplistic optical switches are delivered with mounting brackets, which allow you to install them in standard cabinets, custom cabinets (weak-current boxes), on the wall, in the podium multimedia boxes, or under the workbench.

## Enterprise-class High Availability

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All the simplistic optical switch series adopt the full metal housing and metal network port design. The metal housings can protect devices against external mechanical collisions and ensure normal operation of the devices.

Industrial-grade device selections make the devices capable of resisting a temperature 15°C higher than that resisted by common devices, and prolong the service life and MTBF by 50% by contrast with conventional devices.

In addition, the innovative power grid fluctuation resisting design and anti-surge design defend the simplistic optical switches against radio wave interference and 8 kV lightning on ports, thereby ensuring the device stability and reliability.

## Advanced Security Features: Sound security protection policies ensure that the device can be moved from the weak-current equipment room to an indoor environment.

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The RG-SF2920 series switches provide a unique hardware CPU protection mechanism: CPU Protect Policy (CPP). It classifies data traffic sent to the CPU, processes the traffic by queue priority, and limits the bandwidth rate as required. This protection mechanism fully protects the CPU against illegitimate traffic occupancy, malicious attacks, and resource

consumption, thereby ensuring the CPU security and protecting the switches.

The RG-SF2920 series switches adopt the innovative Network Foundation Protection Policy (NFPP) technology to limit the rate of ARP packets, ICMP requests, DHCP requests, and other packets sent to networks. They discard packets whose rate exceeds the threshold, identify attack behaviors, and isolate users launching attacks. In this way, the basic networks are protected against network attacks, and therefore the network stability is guaranteed.

DHCP snooping enables the RG-SF2920 series switches to receive DHCP responses only from trusted ports and prevent spoofing from unauthorized DHCP servers. With DHCP snooping, the switches dynamically monitor ARP packets, check users' IP addresses, and discard illegitimate packets that do not match bound entries, thereby effectively preventing ARP spoofing and source IP address spoofing.

## Intelligent O&M: Device going online with zero configuration, zero replacement, and quasi-cable optical fiber O&M

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The RG-SF2920 series switches support plug and play of devices during network deployment and at the O&M stage, allowing users to conduct O&M independently without professional after-sale intervention. When connecting to a network, the devices obtain IP addresses via DHCP, starts self-test to automatically obtain predefined configurations for specific areas, services, and devices to configure ports, including VLANs, security, and manageability. This minimizes required work and professional knowledge. When a device is faulty or needs to be replaced after its service life expires, the intelligent zero replacement technology automatically identifies and adapts to the model after replacement, and enables the new device to synchronize with the port configuration and services of the old device.

On a network built using all optical links, the optical module quantity and O&M complexity are greater than those on a network built using Ethernet cables. The simplistic optical Ethernet solution provides the optical module/optical link alarm and O&M prompt functions. Alarm locations can be visualized in the topology to facilitate fault locating and convenient management and O&M.

# Technical Specifications

Model	RG-SF2920U-4GT1MS-P	RG-SF2920U-8GT1MS	RG-SF2920U-8GT1MS-P
Fixed ports	4 × 10/100/1000M adaptive electrical ports, 1 × 1000M/2.5G SFP port, fixed single AC power supply; electrical ports 1–4 support PoE/PoE+; maximum PoE output power: 45 W	8 × 10/100/1000M adaptive electrical ports, 1 × 1000M/2.5G SFP optical port, fixed single AC power supply	8 × 10/100/1000M adaptive electrical ports, 1 × 1000M/2.5G SFP+ port, fixed single AC power supply; electrical ports 1–8 support PoE/PoE+; maximum PoE output power: 125 W
Switching capacity	13Gbps	21Gbps	21Gbps
Packet forwarding rate	9.7Mbps	16Mbps	16Mbps
PoE	In compliance with IEEE 802.3af (15.4 W) and IEEE 802.3at (30 W) Automatic and energy-efficient power supply management modes Warm start to implement uninterrupted power supply Port priority Scheduled power-on/off of PoE ports	Not supported	Electrical ports 1–8 support PoE/PoE+ and the maximum PoE output power is 125 W. Automatic and energy-efficient power supply management modes Warm start to implement uninterrupted power supply Port priority Scheduled power-on/off of PoE ports
MAC address table	Static MAC addresses MAC address filtering		
802.1Q VLAN	The following items are supported: 4094 IEEE 802.1Q VLANs Port-based VLAN		
DHCP	The following are supported: DHCP client DHCP snooping		
Security features	Filtering of invalid MAC addresses Broadcast storm suppression Password protection CPP Port protection		
EEE	APD port sleeping		
Management features	CLI-based configuration and management not required, visualized Web management IoT MQTT Syslog/Debug, NTP/SNTP		

Model	RG-SF2920U-4GT1MS-P	RG-SF2920U-8GT1MS	RG-SF2920U-8GT1MS-P
Size (W × D × H) (mm)	200 × 170 × 55	200 × 170 × 43.6	200 × 170 × 55
Power supply	AC input: Rated voltage range: 200 V to 240 V Maximum voltage range: 180 V to 264 V Frequency: 50 Hz to 60 Hz HVDC input:		
Fan	Fanless design, natural heat dissipation		
Temperature	Operating temperature: 0°C to 45°C Storage temperature: -40°C to 70°C		
Humidity	Operating humidity: 5% to 95% RH Storage humidity: 5% to 95% RH		

Model	RG-SF2920-8GT 2MG2XS	RG-SF2920-16GT 2MG2XS	RG-SF2920-16GT 2SFP	RG-SF2920-16GT 2SFP-P	RG-SF2920-8GT 2MG2XS-P	RG-SF2920-16GT 2MG2XS-P
Fixed ports	8 × 10/100 /1000M adaptive electrical ports, 2 × 1000M/2.5G adaptive ports, 2 × 1/10G SFP+ ports, fixed single AC power supply	16 × 10/100 /1000M adaptive electrical ports, 2 × 1000M/2.5G adaptive ports, 2 × 1/10G SFP+ ports, fixed single AC power supply	16 × 10/100 /1000M adaptive electrical ports, 2 × 1G SFP optical ports, fixed single AC power supply	16 × 10/100 /1000M adaptive electrical ports, 2 × 1G SFP ports, fixed single AC power supply; electrical ports 9–16 support PoE/PoE+; maximum PoE output power: 125 W	8 × 10/100 /1000M adaptive electrical ports, 2 × 1000M/2.5G/5G adaptive electrical ports, 2 × 1/10G SFP+ ports, fixed single AC power supply; electrical ports 3–10 support PoE/PoE+; maximum PoE output power: 125 W	16 × 10/100 /1000M adaptive electrical ports, 2 × 1000M/2.5G/5G adaptive electrical ports, 2 × 1/10G SFP+ ports, fixed single AC power supply; electrical ports 11–18 support PoE/PoE+; maximum PoE output power: 125 W
Switching capacity	66Gbps	82Gbps	36Gbps	36Gbps	76Gbps	92Gbps
Packet forwarding rate	49.1Mpps	61.0Mpps	26.8Mpps	26.8Mpps	56.5Mpps	68.44Mpps

Model	RG-SF2920-8GT 2MG2XS	RG-SF2920-16GT 2MG2XS	RG-SF2920-16GT 2SFP	RG-SF2920-16GT 2SFP-P	RG-SF2920-8GT 2MG2XS-P	RG-SF2920-16GT 2MG2XS-P
PoE	Not supported	Not supported	Not supported	Electrical ports 9–16 comply with IEEE 802.3af (15.4 W) and IEEE 802.3at (30 W). Automatic and energy-efficient power supply management modes Warm start to implement uninterrupted power supply Port priority Scheduled power-on/off of PoE ports	In compliance with IEEE 802.3af (15.4 W) and IEEE 802.3at (30 W). Automatic and energy-efficient power supply management modes Warm start to implement uninterrupted power supply Port priority Scheduled power-on/off of PoE ports	In compliance with IEEE 802.3af (15.4 W) and IEEE 802.3at (30 W). Automatic and energy-efficient power supply management modes Warm start to implement uninterrupted power supply Port priority Scheduled power-on/off of PoE ports
MAC address table	Static MAC addresses MAC address filtering					
802.1Q VLAN	The following items are supported: 4094 IEEE 802.1Q VLANs Port-based VLAN MAC-based VLAN Private VLAN Protocol-based VLAN GVRP Voice VLAN					
QinQ	Basic QinQ Flexible QinQ					
L2 ring network technology	In compliance with the G.8032 international standard ring network protocol ERPS, switching time ≤ 50 ms, well compatible with other products that support this protocol					
Link aggregation	Load balancing LACP dynamic aggregation The LACP priority, negotiation mode, and maximum number of ports that can be aggregated can be configured. Cross-VSU AP					
Mirroring	Common service ports and aggregate ports can be used as the source and destination ports of SPAN. Flow- and VLAN-based SPAN One-to-one mirroring, one-to-many mirroring, many-to-one mirroring, RSPAN, ERSPAN Cross-device traffic mirroring					

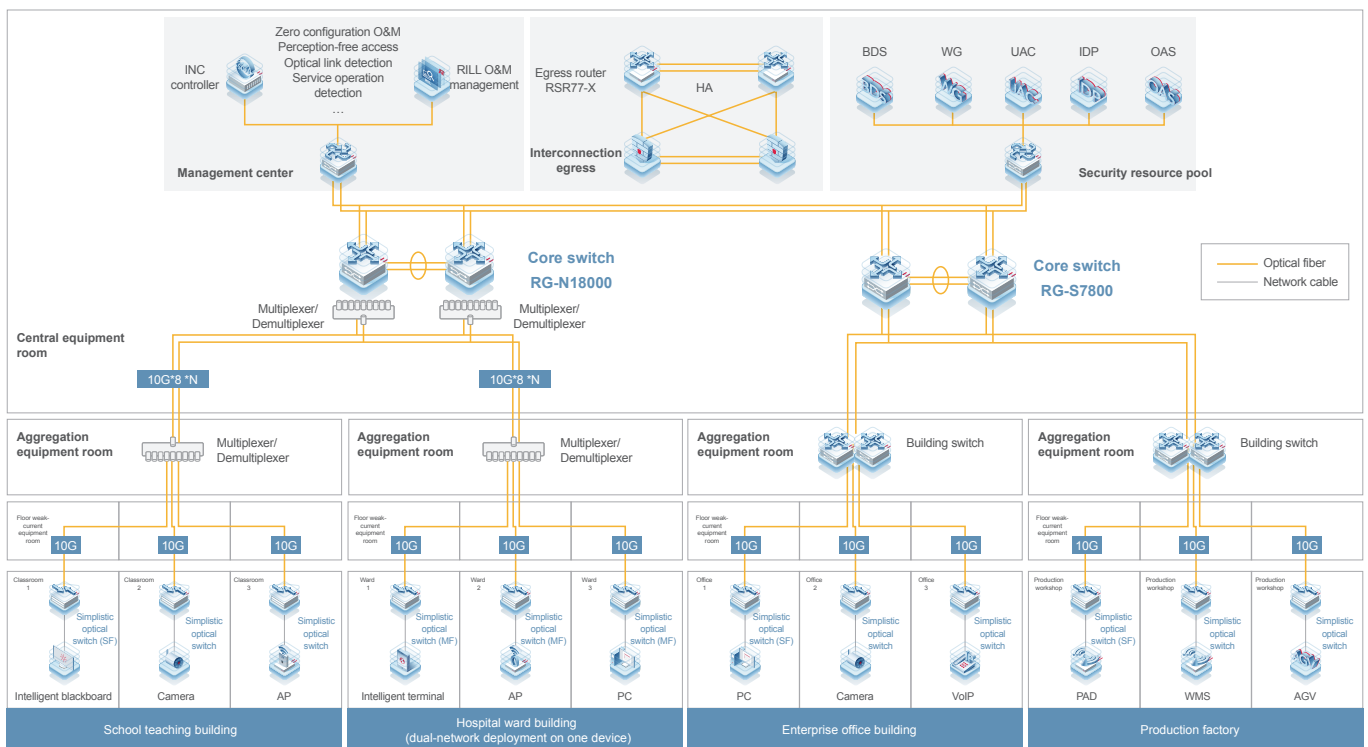
Model	RG-SF2920-8GT 2MG2XS	RG-SF2920-16GT 2MG2XS	RG-SF2920-16GT 2SFP	RG-SF2920-16GT 2SFP-P	RG-SF2920-8GT 2MG2XS-P	RG-SF2920-16GT 2MG2XS-P
DHCP	The following are supported: DHCP server DHCP client DHCP snooping DHCP relay					
IP routing	Static black hole routing, RIP, RIPng, OSPF, and OSPFv3					
ACL	Standard IP ACLs (IP-based hardware ACLs) Extended IP ACLs (hardware ACLs based on IP addresses or TCP/UDP port IDs) MAC-based extended ACLs (hardware ACLs based on source MAC addresses, destination MAC addresses, and optional Ethernet type) Time-based ACLs ACL 80 IPv6 ACLs Global ACLs ACL redirection					
QoS	The following are supported: Port traffic identification Port traffic rate limiting 802.1p/DSCP/ToS traffic classification Eight priority queues per port SP, WRR, DRR, SP+WFQ, SP+WRR, SP+DRR, RED/WRED queue scheduling mechanisms					
Security features	Filtering of invalid MAC addresses Broadcast storm suppression Hierarchical management of administrators and password protection RADIUS and TACACS+ SSH and SSH V2.0 BPDU guard CPP, NFPP Port protection					
EEE	EEE in compliance with IEEE 802.3az: When EEE is enabled, power consumption of ports is significantly reduced.					
Management features	SNMP, CLI (telnet/console), RMON, SSH, syslog/debug, NTP/SNTP, FTP, TFTP, Web, RLDLP					
Size (W × D × H) (mm)	210 × 235 × 55	210 × 235 × 55	210 × 235 × 55	210 × 235 × 55	210 × 250 × 55	210 × 250 × 55
Power supply	AC input: Rated voltage range: 200 V to 240 V Maximum voltage range: 180 V to 264 V Frequency: 50 Hz to 60 Hz HVDC input:					



Model	RG-SF2920-8GT 2MG2XS	RG-SF2920-16GT 2MG2XS	RG-SF2920-16GT 2SFP	RG-SF2920-16GT 2SFP-P	RG-SF2920-8GT 2MG2XS-P	RG-SF2920-16GT 2MG2XS-P
Fan	Fanless design, natural heat dissipation					
Temperature	Operating temperature: 0°C to 45°C Storage temperature: -40°C to 70°C					
Humidity	Operating humidity: 5% to 95% RH Storage humidity: 5% to 95% RH					

# Typical Applications

The RG-SF2920 series switches serve as indoor switches in the simplistic optical Ethernet solution. The following figure shows the typical application topology.



# Ordering Information

Model	Description
RG-SF2920U-4GT1MS-P	4 × 10/100/1000M adaptive electrical ports, 1 × 1G SFP port, fixed single AC power supply; electrical ports 1–4 support PoE/PoE+; maximum PoE output power: 45 W
RG-SF2920U-8GT1MS	8 × 10/100/1000M adaptive electrical ports, 1 × 1G SFP port, fixed single AC power supply
RG-SF2920-16GT2SFP	16 × 10/100/1000M adaptive electrical ports, 2 × 1G SFP ports, fixed single AC power supply
RG-SF2920-8GT2MG2XS	8 × 10/100/1000M adaptive electrical ports, 2 × 1000M/2.5G adaptive ports, 2 × 1/10G SFP+ ports, fixed single AC power supply
RG-SF2920-16GT2MG2XS	16 × 10/100/1000M adaptive electrical ports, 2 × 1000M/2.5G adaptive ports, 2 × 1/10G SFP+ ports, fixed single AC power supply
RG-SF2920U-8GT1MS-P	8 × 10/100/1000M adaptive electrical ports, 1 × 1G SFP port, fixed single AC power supply; electrical ports 1–8 support PoE/PoE+; maximum PoE output power: 125 W
RG-SF2920-16GT2SFP-P	16 × 10/100/1000M adaptive electrical ports, 2 × 1G SFP ports, fixed single AC power supply; electrical ports 9–16 support PoE/PoE+; maximum PoE output power: 125 W
RG-SF2920-8GT2MG2XS-P	8 × 10/100/1000M adaptive electrical ports, 2 × 1000M/2.5G/5G adaptive electrical ports, 2 × 1/10G SFP+ ports, fixed single AC power supply; electrical ports 3–10 support PoE/PoE+; maximum PoE output power: 125 W
RG-SF2920-16GT2MG2XS-P	16 × 10/100/1000M adaptive electrical ports, 2 × 1000M/2.5G/5G adaptive electrical ports, 2 × 1/10G SFP+ ports, fixed single AC power supply; electrical ports 11–18 support PoE/PoE+; maximum PoE output power: 125 W

"\*" indicates that it will be supported in the future.

***Ruijie***



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