# Ruijie RG-S2900G-E/P
Switch Series Datasheet

Ruijie RG-S2900G-E/P Series is a line of multilayer intelligent Ethernet switches that provide high availability, scalability and security for Gigabit access of large campus networks and intranet environment. The RG-S2900G-E/P series provides 24 or 48 10/100/1000BASE-T ports for downlink and 4 Gigabit SFP ports (non-combo) for uplink. Static routing is also supported to achieve basic routing functions. With a wide range of security policies, the switches can prevent malicious attacks efficiently. The series also delivers various intelligent traffic control features to enable easy management.

HIGHLIGHTS

- Dynamic Network Protection (CPP and NFPP)
- IPv6 Support
- Static Routing Protocol
- Energy Saving and Emission Reduction
- Flexible Model Options: 12/24/48-Port Gigabit PoE and non-PoE Configurations

RG-S2928G-E   RG-S2952G-E   RG-S2928G-12P   RG-S2928G-24P
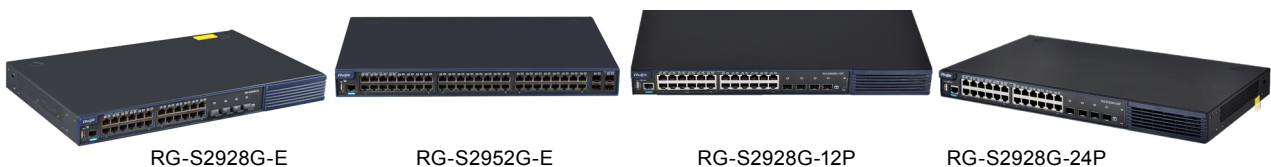
PRODUCT FEATURES

Comprehensive Security Features

CPU Protection Technology

The CPP (CPU Protect Policy) is an industry-leading hardware CPU protection technology. The CPP technology automatically differentiates traffic of multi-layer protocol packets such as IPv4/IPv6 destined for the CPU and limits the traffic speed to prevent abnormal packets from attacking the CPU and consuming resources. In this way, it can ensure the stability of CPUs of core devices in IPv4/IPv6 L3 network and L2 network environments.

Anti-ARP Mechanisms

The RG-S2900G-E/P switch series supports hardware-based anti-ARP (Address Resolution Protocol) spoofing, flexible IP-MAC-port binding and multiple security mechanisms including the static and dynamic port binding, port isolation and traffic-based rate limiting. It supports multi-element binding to ensure secure user access.

Defense Against Unauthorized DHCP Servers

With the wide adaption of mobile end devices, many users deploy SOHO wireless routers in their networks for easy Wi-Fi access. Such routers are usually built-in with a DHCP server. It the device is misconnected, the DHCP server will exist in the wired network as an unauthorized server. Many end devices will obtain incorrect IP addresses from the rogue DHCP server and hence are rejected form network access. To solve the problems, the RG-S2900G-E/P only forwards address request packets from authorized DCHP servers. This ensures end devices to obtain IP addresses from authorized DHCP servers only, and avoids network access failure.

Protection Against DoS Attacks

Network openness leaves end devices vulnerable to virus infection and hacker attack, hampering normal network access. Commonly found attacks such as ARP flooding results in request response failure at the gateway; ICMP flooding would lead to CPU overload; DHCP request flooding attack can exhaust IP addresses in the DHCP server and users cannot obtain IP addresses and are unable to access the network.

The RG-S2900G-E/P series provides the NFPP (Network Foundation Protection Policy) classifies packets (management, forwarding, and protocol), restricts their rates, and monitors their attacks to support double protection of the CPU and channel bandwidth against attacks. In this manner, the switches can ensure the normal forwarding of packets and the normal status of protocols, ensuring network stability.

Network Stability Guaranteed

Network loop is another main culprit responsible for system instability. The RG-S2900G-E/P series provides STP, RSTP, and MSTP to eliminate misconnection to ensure network stability.

Advanced QoS Features

By implementing 802.1p, IP ToS (Type of Service), Layer 2 to Layer 7 filtering, SP (Strict Priority) and WRR (Weighted Round Robin), the RG-S2900G-E/P series provides flexible and intensive stream policies such as bandwidth control and priority-based forwarding, thereby delivering multiservice effectively.

High Reliability

The RG-S2900G-E/P series provides rich network resiliency features including 802.1d, 802.1w, 802.1s and RLDP (Rapid Link Detection Protocol), which are designed for loop detection, ensures network reliability, and improves fault tolerance capabilities.

Flexible Access Control

The RG-S2900G-E/P series works with Ruijie's SMP solution to provide flexible authentication policies, which can satisfy the authentication requirements of different users and environments.

The RG-S2900G-E/P switches can support 802.1X and web authentication modes at the same time. The 802.1X mode enforces strict security control while the web authentication offers more desirable user experiences. Both together fulfill requirements of various application scenarios.

The 802.1X requires a client for deployment. When facing a large number of end users, client installation will become a very time-consuming and tedious job. The RG-S2900G-E/P series provides automatic client assignment that greatly simplifies 802.1X deployment. When users connect to the network for the first time, their web browser will be automatically redirected to a client download page. The users can easily download and install the client by themselves.

In a certain authentication scenarios, some servers should allow access without authentication (e.g. self-service webpages in university networks). The RG-S2900G-E/P series offers a secure channeling technology to enable free authentication for users to access pages designated by administrator.

In addition, a separate solution is required for end devices such as printers or VOIP phones, which cannot be authenticated, to access the network. It is both complicated and risky to configure ports of such devices as authentication free. To better address the matter, the RG-S2900G-E/P series supports MAC address authentication, allowing the printer or VOIP phone to be authenticated through its own MAC address for network access.

Energy Saving and Emission Reduction

With a next-generation hardware system and advanced energy-saving circuit design, the RG-S2900G-E/P series remarkably reduces noise and minimizes power consumption. The RG-S2928G-E model adapts a fanless design, reducing power consumption by more than 40% and offering a no noise deployment solution. The RG-S2952G-E model, on the other hand, implements fans with variable speed control. At low temperatures, the fans will automatically reduce speed to minimize power consumed and noise produced.

The RG-S2900G-P series provides automatic/energy-saving/static PoE modes. It also supports turning the PoE port on/off in a time-based manner. The devices adopt mainstream EEE technology to further reduce power consumption.

The RG-S2900G-P series supports 6KV surge/lightning protection, guaranteeing resilient performance under harsh environments.

Easy Network Maintenance

The RG-S2900G-E/P series is easy to deploy. The plug-and-play switches support mainstream network management modes and protocols for minimized investment costs.

RG-S2900G-E/P series supports SNMPv1/v2C/v3, RMON, Syslog, and USB log backup & configuration for routine network diagnosis and maintenance. The administrator can also manage and control devices using diversified modes such as CLI, web NMS, and Telnet.

TECHNICAL SPECIFICATIONS

Model	RG-S2928G-E	RG-S2952G-E	RG-S2928G-12P	RG-S2928G-24P
Ports	24 10/100/1000BASE-T ports 4 1G SFP ports (non-combo)	48 10/100/1000BASE-T ports 4 1G SFP ports (non-combo)	24 10/100/1000BASE-T ports (PoE+) 4 1G SFP ports (non-combo) Support 12 ports for PoE or 6 ports for PoE+	24 10/100/1000BASE-T ports (PoE+) 4 1G SFP ports (non-combo) Support 24 ports for PoE or 12 ports for PoE+
Fan Slots	Fanless	Fixed	Fixed	Fixed
Management Ports	1 console port 1 USB 2.0 port			
Switching Capacity	256Gbps			
Packet Forwarding Rate	51Mpps	87Mpps	51Mpps	51Mpps
PoE	N/A		IEEE802.3af and 802.3at power supply standards; Automatic/energy-saving/static power supply mode; Hot startup and uninterrupted power supply; Port priority; PoE devices support stacking	
Port Buffer	1.5MB	3MB	1.5MB	1.5MB
ARP Table	Up to 255			
MAC Address	Up to 16K			
IP Host Entries (IPv4/IPv6)	32/16			
ACL Entries	Up to 750	Up to 1,500	Up to 750	Up to 750
VLAN	4K 802.1q VLANs, Port-based VLAN, MAC-based VLAN, Protocol-based VLAN, Private VLAN, Voice VLAN, Guest VLAN, QinQ, IP subnet-based VLAN, GVRP			
QinQ	Basic QinQ, Flexible QinQ			
Link Aggregation	AP, LACP			
Port Mirroring	Many-to-one mirroring, Flow-based mirroring, Over devices mirroring, VLAN-based mirroring, VLAN-filtering mirroring, AP-port mirroring, RSPAN, ERSPAN			
Spanning Tree Protocols	IEEE802.1d STP, IEEE802.1w RSTP, Standard 802.3s MSTP, Port fast, BPDU filter, BPDU guard, TC guard, TC protection, ROOT guard			
DHCP	DHCP client, DHCP snooping, DHCP relay			
Multiple Spanning Tree (MST) Instances	64			
Maximum Aggregation Port (AP)	Up to 32			
L2 Features	MAC, EEE, ARP, VLAN, Basic QinQ, Felix QinQ, Link aggregation, Mirroring, STP, RSTP, MSTP, Broadcast storm control, IGMP v1/v2 snooping, IGMP filter, IGMP fast leave, MLD snooping, DHCP, Jumbo frame, RLDP, LLDP			
Layer 2 Protocols	IEEE802.3, IEEE802.3u, IEEE802.3z, IEEE802.3x, IEEE802.3ad, IEEE802.1p, IEEE802.1x, IEEE802.3ab, IEEE802.1Q (GVRP), IEEE802.1d, IEEE802.1w, IEEE802.1s			
Layer 3 Features	IPv4 static routing, IPv6 static routing			
Layer 3 Protocols (IPv4)	Static routing			
IPv4 Features	Ping, Traceroute			
IPv6 Features	ICMPv6, IPv6 Ping, IPv6 Tracert, Manually configure local address, Automatically create local address			
Basic IPv6 Protocols	IPv6 addressing, Neighbor Discovery (ND), ICMPv6, IPv6 Ping, and IPv6 Tracert			
IPv6 Routing Protocols	Static routing			
Multicast	IGMP v1/v2 snooping, IGMP filter, IGMP fast leave, IVGL mode			
ACL	Standard/Extended/Expert ACL, Extended MAC ACL, ACL 80, IPv6 ACL			

| Model	RG-S2928G-E	RG-S2952G-E	RG-S2928G-12P	RG-S2928G-24P
QoS	802.1p/DSCP/TOS traffic classification; Multiple queue scheduling mechanisms, such as SP, WRR, DRR, SP+WFQ, SP+WRR, SP+DRR; Input port-based speed limit; Port-based traffic recognition; Each port supports 8 queue priorities			
IPv6 ACL	Support			
Reliability	RAS			
EEE Format	Support IEEE 802.3az standard			
Security	Binding of the IP address, MAC address, and port address; Binding of the IPv6, MAC address, and port address; Filter illegal MAC addresses; Port-based and MAC-based 802.1x; MAB; Portal and Portal 2.0 authentication; ARP-check; DAI; Restriction on the rate of ARP packets; Gateway anti-ARP spoofing; Broadcast suppression; Hierarchical management by administrators and password protection; RADIUS; SSH and SSH V2.0; BPDU guard; IP source guard; CPP, NFPP; Port protection			
Manageability	SNMPv1 / v2C / v3, CLI (Telnet / Console), RMON (1, 2, 3, 9), SSH, Syslog / Debug, NTP / SNTP, FTP, TFTP, Web			
Smart Temperature Control	Fanless	Auto fan speed adjustment; Fan malfunction alerts; Fan status check	Auto fan speed adjustment; Fan malfunction alerts; Fan status check	Auto fan speed adjustment; Fan malfunction alerts; Fan status check
Smart Power Supply	Support power control and management			
Other Protocols	FTP, TFTP, DNS client, DNS static			
Dimensions (W x D x H) (mm)	440 × 260 × 43.6			
Rack Height	1RU			
Weight	<3.5kg	<4kg	<4.5kg	<4.5kg
MTBF	>200K hours			
Lightning Protection	6KV			
Power Supply	AC input: Rated voltage range: 100V to 240V AC Maximum voltage range: 90V to 264V AC Frequency: 50/60Hz Rated current: 2A	AC input: Rated voltage range: 100V to 240V AC Maximum voltage range: 90V to 264V AC Frequency: 50/60Hz Rated current: 2A	AC input: Rated voltage range: 100V to 240V AC Maximum voltage range: 90V to 264V AC Frequency: 50/60Hz Rated current: 3A	AC input: Rated voltage range: 100V to 240V AC Maximum voltage range: 90V to 264V AC Frequency: 50/60Hz Rated current: 6A
Power Consumption	<27W	<49W	<32.7W Full PoE: <229W	<41W Full PoE: <436W
PoE Power	N/A	N/A	185W	370W
Temperature	Operating temperature: 0°C to 50°C			
	Storage temperature: -40°C to 70°C			
Humidity	Operating humidity: 10% to 90%RH			
	Storage humidity: 5% to 90%RH			
Operating Altitude	-500m to 5,000m			

TYPICAL APPLICATIONS

The RG-S2900-E/P gigabit secure and intelligent access switches are ideal for the following and scenarios alike:

- Full gigabit access to LANs of large-scale enterprises and institutions, such as government buildings, large manufacturing, energy, and metallurgy enterprises
- Full gigabit access to business systems, such as hospitals, libraries, exhibition centers, and websites
- Full gigabit access to server clusters
- Secure access through flexible and diverse security control policies that can defend and control network viruses and attacks

Access to Large-Scale Campus and Enterprise Networks

Solution 1

This networking topology enables S2900-E/P series to cooperate with convergence switches (S5750/S7600) in an entire building and S8600 series in the core area to provide gigabit services for desktops. The 10G high-bandwidth links converge in the core area to satisfy user requirements for increasing information volumes in universities, libraries, laboratories, financial centers, offices, and exhibition centers.
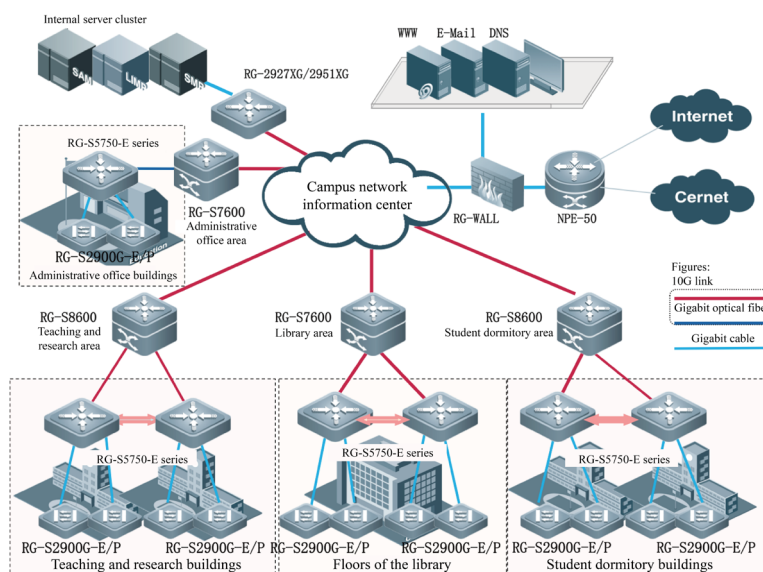
Solution 2

S2900-E/P series are connected to the S8600 series (Ruijie's multi-service IPv6 core route-switch) through upstream gigabit ports. 10G links or multiple gigabit links are converged in the core area. S2900-E/P series are connected to the desktop groups through downstream gigabit ports to provide gigabit services to desktops.
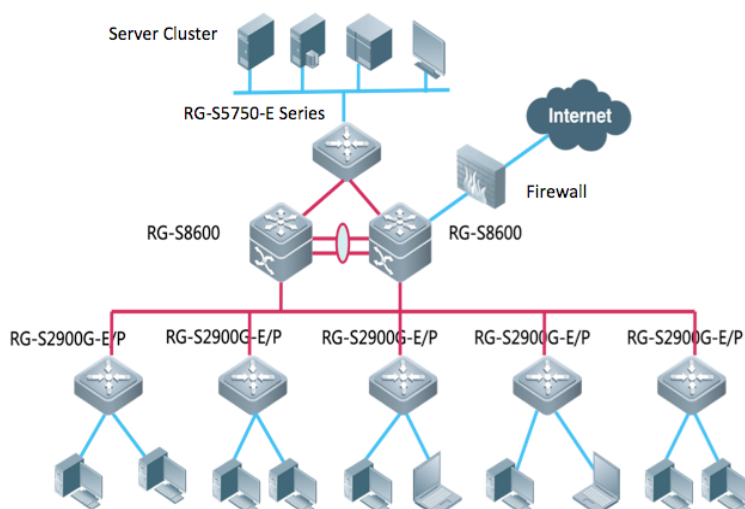
ORDERING INFORMATION

Model	Description
RG-S2928G-E	24 10/100/1000BASE-T Ports and 4 1G SFP Ports (non-combo), AC
RG-S2952G-E	48 10/100/1000BASE-T Ports and 4 1G SFP Ports (non-combo), AC
RG-S2928G-12P	24 10/100/1000BASE-T Ports (PoE+), 4 1G SFP Ports (non-combo), support 12 ports for PoE or 6 ports for PoE+
RG-S2928G-24P	24 10/100/1000BASE-T Ports (PoE+), 4 1G SFP Ports (non-combo), support 24 ports for PoE or 12 ports for PoE+
Optional Accessories	
Mini-GBIC-SX	1000BASE-SX, SFP Transceiver, MM (850nm, 550m, LC)
Mini-GBIC-LX	1000BASE-LX, SFP Transceiver, SM (1310nm, 10km, LC)
Mini-GBIC-GT	1000BASE-TX, SFP Transceiver (100m)
Mini-GBIC-LH40	1000BASE-LH, SFP Transceiver, SM (1310nm, 40km, LC)
Mini-GBIC-ZX50	1000BASE-ZX, SFP Transceiver, SM (1550nm, 50km, LC)
Mini-GBIC-ZX80	1000BASE-ZX, SFP Transceiver, SM (1550nm, 80km, LC)
Mini-GBIC-ZX100	1000BASE-ZX, SFP Transceiver, SM (1550nm, 100km, LC)

RUIJIE Networks
Innovation Beyond Networks

For further information, please visit our website http://www.ruijienetworks.com

INNOVATION BEYOND NETWORKS