RG-WALL 1600-Z3200-S

Ruijie Cloud-Managed Firewall

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Product Pictures

Front Top View of the RG-WALL 1600-Z3200-S

Product Overview

Introduction

As new hot spots such as social networking, cloud computing, and big data have emerged, the Internet has entered an unprecedented era of prosperity. However, the information security problems accompanied have become increasingly complex, bringing huge challenges to the traditional security construction model. Drawing on years of technological expertise and in line with the development trend of next-generation firewalls, Ruijie Networks has unveiled the RG-WALL 1600-Z3200-S series cloud-managed firewall to cater for ever-changing demands of today's market. This firewall can be installed on a standard 19-inch rack and features high performance and flexible expansion.

Product Features and Benefits

The RG-WALL 1600-Z3200-S series firewalls use a DPDK-based high-performance network forwarding service platform to provide intelligent quick deployment, active asset discovery, intelligent policy manager, one-click fault analysis, and service health diagnosis, simplifying device deployment and O&M. They have rich security functions, including intrusion prevention, antivirus, port scan, traffic learning, application control, and defense against DoS/DDoS attacks. They also support unified management on the cloud platform, data synchronization to the cloud for analysis and reporting, remote monitoring and O&M, policy translation for device replacement, batch configuration, and automatic inspection.
In addition, you can expand the performance of the RG-WALL 1600-Z3200-S series firewalls by purchasing performance licenses.

Firewall Throughput	Firewall (Traffic Mix)	IPS	NGFW	Threat Protection	Port
10 Gbps	1–3 Gbps	0.9–2 Gbps	0.85–1.6 Gbps	0.8–1 Gbps	8 x 10/100/1000BASE-T ports 1 x GE SFP port 1 x 10GE SFP+ port
Combination of product and performance licenses: 1G: RG-WALL 1600-Z3200-S chassis 2G: RG-WALL 1600-Z3200-S chassis + one RG-WALL 1600-Z3200-S-1G-LIC performance license 3G: RG-WALL 1600-Z3200-S chassis + two RG-WALL 1600-Z3200-S-1G-LIC performance licenses					

Applicable Industries and Scenarios

The RG-WALL 1600-Z3200-S can be deployed at an Internet egress, area boundary, and data center boundary, and for branch uplink.

Appearance Design

- The RG-WALL 1600-Z3200-S adopts a brand new security product design style of Ruijie Networks. The symmetrical, concise, octagonal-corner appearance reflects simplicity and high reliability.
- The octagonal corners are user-friendly.
- The unique mounting bracket design allows rapid deployment, simplifying the installation process. In a complex equipment room environment, only one person is needed to complete the device installation and securing processes.

Hardware Security

Different from common software-based defense, the RG-WALL 1600-Z-S series firewall implements attack defense by using an exclusive built-in anti-DoS/DDoS component on the CPU. This significantly improves the DoS/DDoS attack defense performance and enables more robust and secure networks.

All-New Hardware Design, Higher Reliability

A voltage or grid exception may incur a storage component failure. To cope with this risk, add monitoring and spare components on the firewall to enhance the capability of storage components to withstand shocks, thereby reducing device damages and data loss.

Product Highlights

- **The firewall has an exclusive built-in anti-DoS/DDoS component on the CPU.**
- **The firewall features industry-leading multi-core lock-free design and the new NTOS operating system.**
- **By transforming the troubleshooting capabilities of senior engineers into product functions, the firewall provides you with a one-stop troubleshooting wizard.**
- **In the industry-first policy simulation space, you can foresee the effects of security policy adjustment, realizing zero-risk policy adjustment.**
- **Simple cloud O&M allows you to manage network and security devices on the entire network on a mobile app.**

Product Features

AI-based Security of the Z Series Firewall

Traditional machine learning requires manual feature extraction, and some deep learning methods can extract only local features of domain name information but ignore contextual features between domain name characters. A single neural network model such as convolutional neural network (CNN) is used, which is insensitive to the input time order. The RG-WALL 1600-Z-S series firewall integrates domain name allowlist intelligence, rule filter, and convolutional recurrent neural network (CRNN) multi-level detection algorithm, addressing the problems of inaccurate and inefficient algorithms on traditional devices.

- Models are regularly updated based on self-learning. In this way, model-based detection is more accurate and can adapt to new Domain Generation Algorithms (DGAs).
- Word embedding is applied in the data pre-processing phase, resolving the problems of sparse matrix and curse of dimensionality in one-hot encoding.
- The CRNN algorithm enables large models and many parameters to be computed on embedded devices, greatly improving prediction efficiency.

Unified Security Defense

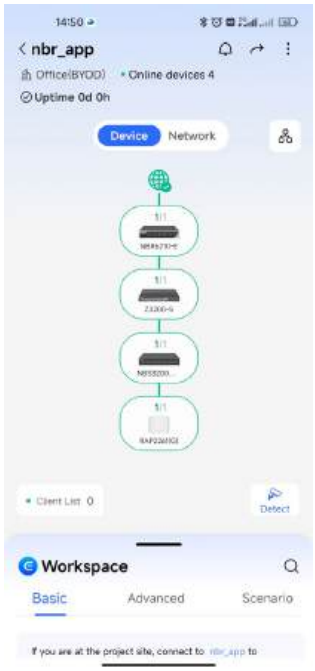
The RG-WALL 1600-Z-S series firewall integrates comprehensive security defense functions, meeting classified protection requirements on the firewall, antivirus, and intrusion prevention. Specifically, it provides DoS/DDoS attack defense against SYN, UDP, and ICMP flood attacks, ARP attack defense, detection and defense of attacks using common protocols including HTTP, TCP, UDP, DNS, and TLS, as well as various threats including spoofing, injection, and man-in-the-middle attacks, cross-site request forgery, cross-site scripting, code execution, and use after free (UAF) vulnerabilities. The virus protection function integrates a large number of virus protection signature libraries and supports dual-engine scan, enabling both quick scan and deep scan.

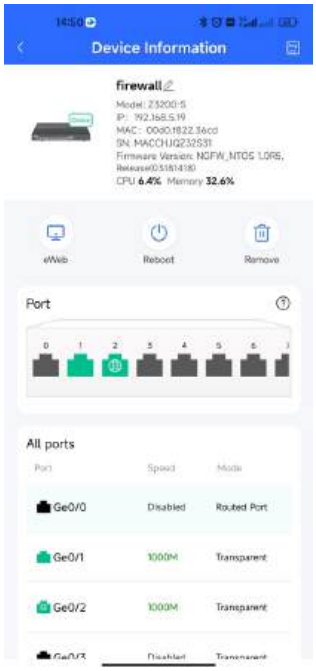
Simple Cloud O&M, Remote Device Commissioning

Administrators can remotely manage and control the firewall through Ruijie Cloud. Device configurations can be delivered uniformly, and device monitoring and other routine O&M functions can be implemented remotely.

Integrated Implementation and O&M on Ruijie Reyee App

You can use Ruijie Reyee App to perform quick onboarding and follow-up O&M of the firewall on a mobile phone. In addition, configurations can be delivered on this app, greatly improving the efficiency of implementation and O&M.





Hot Upgrade/Recovery

Hot patches can be installed in seconds to upgrade forwarding components, management components, and some system components and restart these components without affecting device running. This greatly improves the maintainability and stability of the device.

If the forwarding component encounters an exception during device running, second-level automatic hot restart can be performed, without manual discovery and device restart for recovery. The forwarding recovery time is reduced from minutes or even hours to seconds, which greatly reduces the impact on normal services of users.

Intelligent Service Diagnostic Center

Fault Analysis

The RG-WALL 1600-Z-S series firewall is developed to transform the troubleshooting capabilities of senior engineers into product functions and provides you with a one-stop troubleshooting wizard. In the diagnostic center, automatic troubleshooting can be conducted based on the paths that clients use to access target resources, and fault information and handling suggestions are displayed. This greatly improves the efficiency of troubleshooting and saves additional expenses for troubleshooting.

Packet Tracing

In the diagnostic center, you can also analyze and trace packet processing of each security service module on the device, and check detailed information of packet tracing records to accelerate network fault troubleshooting and locating.

Port Scan and Traffic Learning, Simple Firewall Onboarding

Onboarding Configuration

To perform firewall onboarding, you can conduct Port Scan to automatically identify the IP address and port number of a service system, and then enable Traffic Learning to automatically detect the service access relationship on the live network. You can also generate access control policies based on ports with one click, and complete firewall onboarding without professional knowledge.

Server Port Check

In routine O&M, server ports need to be checked to meet high security requirements and formulate refined security policies. In traditional mode, server ports need to be manually verified with the customer, which takes a long time. With port scan and traffic learning, this process can be completed in one day, which greatly improves efficiency and lowers technical thresholds.

Policy Simulation Space to Foresee Effects, Zero-Risk Policy Adjustment

You can add, delete, and modify a policy in the simulation space, use the policy to match the real traffic to analyze the difference in traffic matching before and after the policy adjustment, and adjust the policy accordingly. In this way, policies can be adjusted without service interruption, and O&M personnel do not need to stay up late to adjust policies in off-peak hours. The risk of policy adjustment is minimized, and refined policy adjustment can be achieved.

New NTOS Operating System, High Efficiency

The firewall adopts an advanced multi-core lock-free design. Typically, a firewall has multiple CPUs. Without lock-free design, when multiple CPUs compete for data from a common memory pool for processing, a

CPU obtains data and locks it, and the other CPUs can process the data only after it is unlocked, resulting in low efficiency. The Z-S series firewall uses the industry-leading multi-core lock-free design, and designates an independent space in the memory for each CPU. The CPU can obtain data from the designated memory space, so data does need to be locked and no conflict will occur. Data is also stored independently. For example, data from the same IP address source is stored in one memory unit and is processed by the same CPU. This multi-core lock-free design is applied at each of the four layers of the TCP/IP model, significantly improving efficiency.

Product Specifications

Product Performance

Firewall Throughput[4]	Firewall (Traffic Mix)	IPS[1]	NGFW[1,2]	Threat Protection[1,3]
10 Gbps	1 Gbps	900 Mbps	850 Mbps	800 Mbps
10 Gbps	2 Gbps	1.6 Gbps	1.2 Gbps	900 Mbps
10 Gbps	3 Gbps	2 Gbps	1.6 Gbps	1 Gbps
Combination of product and performance licenses: 1G: RG-WALL 1600-Z3200-S chassis 2G: RG-WALL 1600-Z3200-S chassis + one RG-WALL 1600-Z3200-S-1G-LIC performance license 3G: RG-WALL 1600-Z3200-S chassis + two RG-WALL 1600-Z3200-S-1G-LIC performance licenses				

System Performance and Capacity	RG-WALL 1600-Z3200-S
Firewall throughput of IPv4 packets (1518-byte UDP packets)[4]	10 Gbps
Firewall throughput (packets per second)	1.8 Mpps
Concurrent sessions (TCP)	500000
New sessions/second (TCP)	50000
Firewall policies	3000
SSL VPN throughput(1392-byte)	1.7Gbps
Concurrent SSL VPN users (recommended maximum, tunnel mode)	500
Application control throughput (HTTP 64K)[2]	3 Gbps
IPsec VPN throughput (512-byte)	2.6Gbps

System Performance and Capacity	RG-WALL 1600-Z3200-S
Gateway-to-gateway IPsec VPN tunnels	1000

Note:
All performance values are the maximum values and may vary depending on system configuration.
1. The performance values of IPS (mixed traffic), application control, NGFW, and threat protection are measured with logging enabled.
2. NGFW performance is measured with firewall, IPS, and application control enabled.
3. Threat protection performance is measured with firewall, IPS, application control, and malware protection enabled.
4. Firewall throughput is the maximum forwarding performance (1518-byte UDP packets) of hardware.

Hardware Specifications

Hardware Specificatio	RG-WALL 1600-Z3200-S
Dimensions and Weight	
Product dimensions (W x D x H)	440 mm x 200 mm x 43.6 mm (17.32 in. x 7.87 in. x 1.72 in.; without rubber pads)
Shipping dimensions (W x D x H)	520 mm x 345 mm x 106 mm (20.47 in. x 13.58 in. x 4.17 in.)
Product weight	2.9 kg (6.39 lbs)
Shipping weight	4.0 kg (8.82 lbs)
Form factor	1 RU rack
Port Specifications	
Fixed service port	8 x 10/100/1000BASE-T ports 1 x GE SFP port 1 x 10GE SFP+ port
Fixed management port	1 x RJ45 MGMT port (reusing Ge0/0) 1 x RJ45 console port (RS-232)
USB port	2 x USB 2.0 ports
Storage Specifications	
Hard disk	No hard disk for factory delivery. A 1 TB SATA hard drive can be added.
Power Supply and Consumption	
Power supply	Built-in single power module: • Rated input voltage: 100–240 V; 50–60 Hz • Rated input current: 0.65 A

Hardware Specificatio	RG-WALL 1600-Z3200-S
Max. Power Consumption	< 25 W
Environment and Reliability	
Operating temperature	0°C to 45°C (32°F to 113°F)
Storage temperature	–40°C to +70°C (–40°F to +158°F)
Operating humidity	5% RH to 95% RH (non-condensing)
Storage humidity	5% RH to 95% RH (non-condensing)
Noise level	43.7 dB
Operating altitude	0–5000 m (0–16404 ft.)
Compliance	EMC SZEM2302000974ATV LVD SZES2302001034AT

Software Specifications

Software Specifications	RG-WALL 1600-Z3200-S
Network	
Physical interface	Configuring interfaces as LAN/WAN interfaces; three IP address assignment modes for WAN interfaces: PPPoE, DHCP, and static IP modes Configuring routing or transparent mode for interfaces
Sub-interface	Configuring sub-interfaces and VLAN IDs
Bridge interface	Configuring interfaces in transparent mode as bridge interfaces
Static route	Configuring IPv4 static routes
PBR	Configuring policy-based routing (PBR)
Routing table	Overall routing information of a device
DHCP server	DHCP server; configuring DHCP address pools
Address management list	Assigned DHCP address list

Software Specifications	RG-WALL 1600-Z3200-S
DNS server	Configuring DNS addresses for devices
Link detection	Link detection and link detection logs
VPN	SSL VPN and IPsec VPN
VRRP	VRRP functions
Object	
Address/Address group	Configuring address objects in IP address/range format
Zone	Configuring security zones
Application and application group	Configuring application types in application/application group mode
Service/Service group	Configuring service objects; common default port services supported
Time plan	Configuring time objects; one-off time plans and cyclic time plans supported
Virus protection template	Configuring content object templates; predefined virus protection templates supported
	Configuring virus protection templates; configuring quick scan or deep scan; configuring templates based on protocols and directions; setting excluded viruses
Intrusion prevention template	Configuring content object templates; configuring intrusion prevention templates supported
	Configuring intrusion prevention templates; configuring rule filters based on objects, severity, protocols, and threat types; setting excluded rules
SSL proxy certificate	Adding, importing, deleting, viewing, and downloading SSL proxy certificates; configuring a global SSL proxy certificate
Server certificate	Importing, deleting, viewing, and downloading server certificates
Security rule base	Viewing default security rules in the IPS library
Content identification	URL category and keyword configuration
User authentication	User management, user import, authentication server configuration, real-name user information synchronization, and authentication policy configuration

Software Specifications	RG-WALL 1600-Z3200-S
Policy	
Traffic learning	Traffic learning to record destination IP addresses and port numbers as well as abnormal traffic
	Export of traffic learning logs
NAT	NAT and NAT policies
Policy import	Batch import of NAT policies
ALG	Common NAT ALG services in NAT policy
Server mapping	Server port mapping in NAT policy
Address pool	NAT address pool status display in NAT policy
Security policy	Contigunng secunty policies; customizing policies based on parameters including objects, contents, and zones; policy list
Security policy	Batch import ofsecurity policies
Simulation policy	Simulating policy execution in the simulation space to check whether uncertain security policies can achieve expected effects
Policy configuration wizard	Security policy configuration wizard for conducting port scan, performing configurations, testing configurations, and other steps to generate security policies
Policy optimization	Sorting out configured security policies and analyzing policies to identify redundant, expired, and conflicting policies
Policy lifecycle	Full lifecycle display of security policies, including detailed records of policy changes
Port scan	Port scan of configured IP ranges for all ports or selected ports; policy creation prompt for scan results
DoS/DDoS attack defense	Different DDoS attack defense policies in security defense
ARP attack defense	Anti-ARP spoofing, ARP flooding suppression, and other functions in security defense
Local defense	Configuring local defense policies in security defense
Blocklist/Allowlist	Configuring global blocklists and allowlists
SSL proxy policy	Configuring SSL proxy policies; customizing policies based on parameters including objects, contents, and zones; policy list
SSL proxy template	Configuring SSL proxy templates; setting the template type to protecting client or server
Allowlist	Configuring domain name allowlists and application allowlists
Behavior analysis	Configuring analysis policies, templates, and allowlists

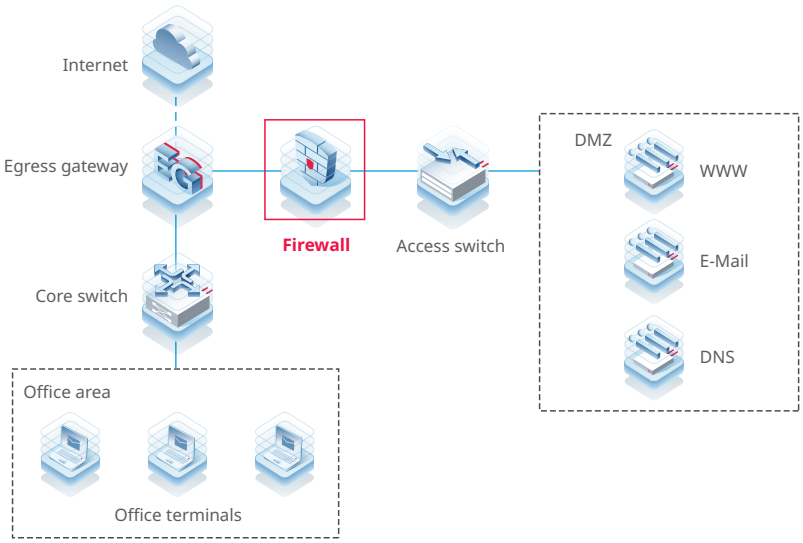
Software Specifications	RG-WALL 1600-Z3200-S
System	
Administrator	Creating device administrators, including account names, passwords, and description
Administrator role	Setting multiple administrator roles and assigning different permissions
Clock configuration	Configuring system time; NTP service configuration supported
Service parameter	Configuring service ports for a device, including web (HTTPS), SSH, and other ports
Authorization management	Managing licenses of devices, including license import and activation
Device information	Viewing device information, including the product name, SN, and MAC address, version information, running time, and license information
System restart	Restarting the system on the web UI
System upgrade	Upgrading the system
Patch installation	Downloading and installing patches for upgrade
Configuration backup	Import and export of device configurations
Factory settings restoration	Restoring factory settings on the web UI
Signature library upgrade	Automatic signature library upgrades based on the latest versions on the cloud
Cloud management platform	Enabling or disabling unified management on the cloud management platform
Device binding	Adding devices to the cloud management platform by scanning a QR code
Ping	Ping for troubleshooting
Tracert	Tracert for troubleshooting
Packet obtaining tool	Tool for obtaining packets and exporting results
One-click collection	Collecting fault information with one click
Device health	Device health diagnosis
Service diagnosis	Service continuity diagnosis
Breakdown record	Breakdown information records
Device log retention	Device log retention
Factory settings restoration	Restoring factory settings on the web UI

Typical Applications

Security Defense at Area Boundary

The RG-WALL 1600-Z-S series firewall can be deployed at an area boundary to meet LAN application requirements, improve information security, and guarantee LAN service security. The firewall can bring the following benefits:

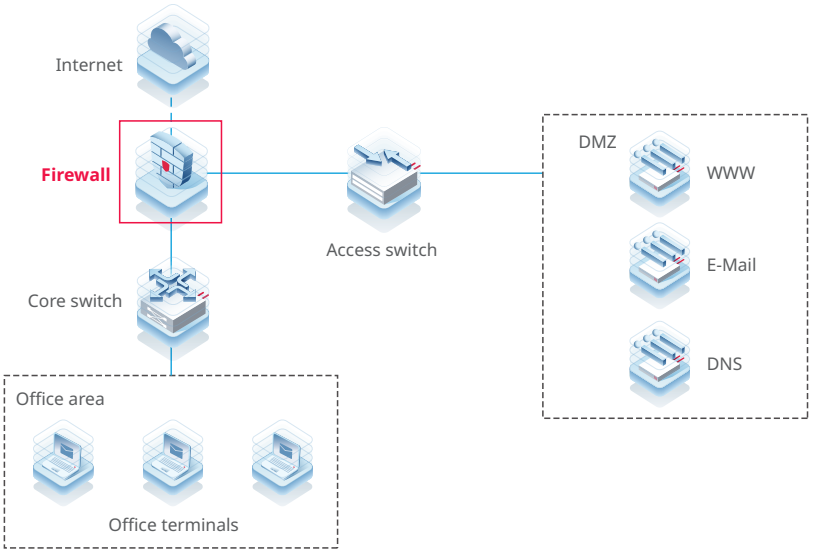
- Generate refined access control policies based on servers.
- Effectively defend against external attacks and viruses to protect key services of enterprises.
- Help users identify and control applications.



Small and Medium-Sized Internet Egress

The RG-WALL 1600-Z-S series firewall can satisfy the needs of small and medium-sized Internet egress, improve information security, and guarantee egress network security. The firewall can bring the following benefits:

- Meet the needs of small and medium-sized Internet egress scenarios.
- Effectively defend against external attacks and viruses to protect key services of users.
- Help users identify and control applications.



Ordering Information

Model	Description
RG-WALL 1600-Z3200-S	The RG-WALL 1600-Z3200-S cloud-managed firewall provides 8 x 10/100/1000BASE-T ports, 1 x GE SFP port, 1 x 10GE SFP+ port, and single power module (for factory delivery). The firewall is 1 U high and supports expansion of 1 TB enterprise-class SATA hard drive.
RG-WALL 1600-Z3200-S-1G-LIC	Performance expansion license for the RG-WALL 1600-Z3200-S cloud-managed firewall: One license provides expansion of 1 Gbps network throughput. For each device, up to two licenses can be added to achieve 3 Gbps network throughput.
RG-WALL 1600-Z3200-S-LIS-M-1Y	Four-in-one license for the firewall: One license provides one-year upgrade services for intrusion prevention (IPS), antivirus (AV), app identification (APP), and URL signature libraries.
RG-WALL 1600-Z3200-S-LIS-E-1Y	Five-in-one license for the firewall: One license provides one-year upgrade services for IPS, AV, APP, and URL signature libraries and one-year threat intelligence services.
RG-NSEC-HDD-1T	1 TB enterprise-class SATA hard drive can be added on the Z series firewall to meet hard disk configuration requirements.
RG-WALL 1600-Z3200-S-RTI-G-LIS-1Y	Threat intelligence license: One license provides one-year threat intelligence services.
RG-WALL 1600-Z3200-S+RG-WALL 1600-Z3200-S-LIS-M-1Y	Combination package of Ruijie cloud-managed firewall RG-WALL 1600-Z3200-S with a four-in-one firewall signature library license: includes one firewall and one-year upgrade services for IPS, AV, APP, and URL signature libraries.
RG-WALL 1600-Z3200-S+RG-WALL 1600-Z3200-S-LIS-E-1Y	Combination package of Ruijie cloud-managed firewall RG-WALL 1600-Z3200-S with a five-in-one firewall signature library license: includes one firewall, one-year upgrade services for IPS, AV, APP, and URL signature libraries, and one-year threat intelligence services.

Ordering Guide

The RG-WALL 1600-Z3200-S firewall provides one GE SFP port and one 10GE SFP+ port. The following table lists the optional optical transceivers.

Model	Description
MINI-GBIC-SX-MM850	1G SR module, SFP form factor, LC, 550 m (1,804.46 ft.) over MMF
MINI-GBIC-LX-SM1310	1G LX module, SFP form factor, LC, 10 km (32,808.40 ft.) over SMF
Mini-GBIC-GT	1G SFP copper module, SFP form factor, RJ-45, 100 m (328.08 ft.) over Cat 5e/6/6a

Model	Description
MINI-GBIC-LH40-SM1310	1G LH module, SFP form factor, LC, 40 km (131,233.60 ft.) over SMF
XG-SFP-LR-SM1310	10G LR module, SFP+ form factor, LC, 10 km (32,808.40 ft.) over SMF
XG-SFP-ER-SM1550	10G ER module, SFP+ form factor, LC, 40 km (131,233.60 ft.) over SMF
XG-SFP-AOC1M	10G SFP+ AOC cable, 1 m (3.28 ft.)
XG-SFP-AOC3M	10G SFP+ AOC cable, 3 m (9.84 ft.)
XG-SFP-AOC5M	10G SFP+ AOC cable, 5 m (16.40 ft.)

Package Contents

Item	Quantity
RG-WALL 1600-Z3200-S chassis (with the nameplate at the bottom)	1
Power cord	1
Power cord retention clip	1
Yellow/Green grounding cable	1
Rubber pad	4
L-shaped mounting bracket	2
M4 x 8 mm cross recessed countersunk head screw	6
Console cable	1
Network cable	1
Warranty Card	1
User Manual	1

Warranty Information

For more information about warranty terms and period, visit the official Ruijie website or contact your local sales agency:

- Warranty terms: https://www.ruijienetworks.com/support/servicepolicy
- Warranty period: https://www.ruijienetworks.com/support/servicepolicy/Service-Support-Summany/

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 Networks Co., Ltd.

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