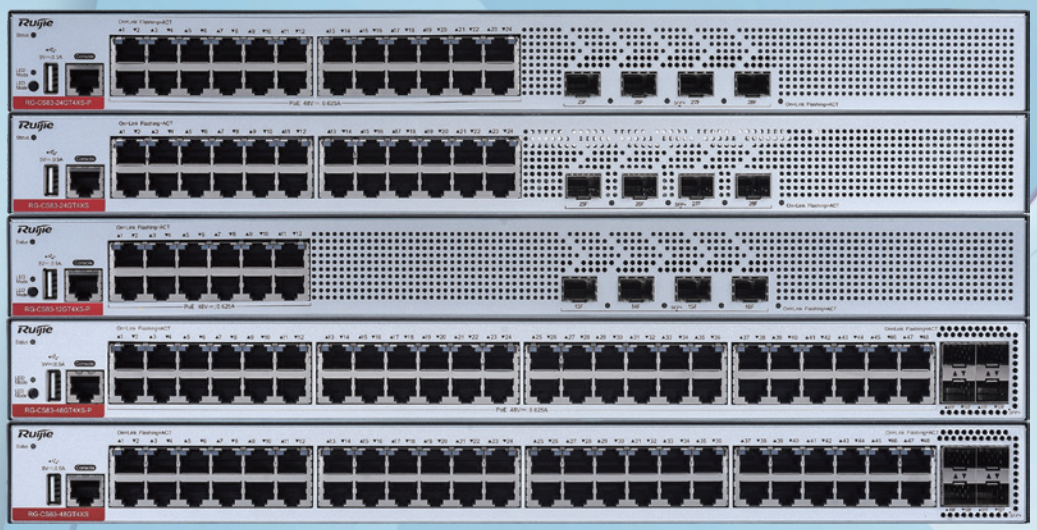
Datasheet



RG-CS83 Series

Switches

INNOVATION
Beyond Networks

Ruijie

01 Product Overview

The RG-CS83 series switches are next-generation 1000M Ethernet switches launched by Ruijie Networks, featuring security, high efficiency, energy saving, and innovation. They provide full 1000M access and 10GE uplink data exchange with flexible scaling. With the new hardware architecture and Ruijie RGOS12.X modular operating system, the switch provides more resource entries, faster hardware processing performance, and better operation experience.

02 Product Appearance

Front View of the RG-CS83-12GT4XS-P

Rear View of the RG-CS83-12GT4XS-P

Front View of the RG-CS83-24GT4XS

Rear View of the RG-CS83-24GT4XS

Front View of the RG-CS83-24GT4XS-P

Rear View of the RG-CS83-24GT4XS-P

Front View of the RG-CS83-48GT4XS

Rear View of the RG-CS83-48GT4XS

Front View of the RG-CS83-48GT4XS-P

Rear View of the RG-CS83-48GT4XS-P

03 Product Highlights

- **Multiple port types — 1000M electrical ports and uplink 10GE ports, PoE/PoE+ power supply, faster speed, and experience enhancement**
- **VSU, delivering flexible networking**
- **Diverse Layer 3 protocols: OSPF, RIP, and multicast**
- **Depth of 220 mm (8.66 in.) and compact design, which can be easily installed in a small cabinet**
- **Resistance to harsh environments and excellent anti-corrosion performance**
- **10 kV surge protection on an interface, 8 kV surge protection for PoE power, 6 kV surge protection for non-PoE power, higher performance, and greater**

anti-interference capability

- Intelligent variable-speed fans, advanced heat dissipation architecture, operating noise less than 35 dB, and fanless design
- Free Ruijie Cloud management, supporting self-organizing networking (SON), remote O&M, mobile VLAN configuration, and simplified ACL configuration
- Multiple network management modes, achieving simple and easy network maintenance
- RGOS modular operating system, providing more entries, faster hardware processing, and better operation experience
- 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 basic functions.
- Rectification of faults related to processes online in seconds, without interrupting network operations
- Python that allows applications across the platform
- Online upgrade and extension of functions to ensure nonstop services

04 Product Features

High Reliability

The RG-CS83 supports STP (IEEE 802.1D), RSTP (IEEE 802.1w), and MSTP (IEEE 802.1s) to achieve fast convergence, improve 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.

With the Rapid Link Detection Protocol (RLDP), the RG-CS83 can quickly detect link connectivity and unidirectional optical fiber links. Through loop detection on a port, the RG-CS83 can prevent network failures caused by the loops due to unauthorized connection between the port and hubs.

The RG-CS83 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 RG-CS83 can detect links within milliseconds, and quickly converge routing and other services through association with upper-layer routing protocols, ensuring service continuity.

Energy Efficiency

Ruijie integrates multiple energy-saving designs into the RG-CS83. The RG-CS83 reduces loud noise produced by deployment in offices and solves excessive energy consumption resulting from the large-scale deployment of access devices.

In addition, the RG-CS83 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-CS83 provides automatic and energy-saving PoE modes.

Easy Network Maintenance

The RG-CS83 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.

IPv4/IPv6 Dual-Stack Multi-Layer Switching

The RG-CS83 hardware supports both IPv4 and IPv6 dual stacks, as well as multi-layer line-rate switching to differentiate and process packets of each protocol effectively. With flexible IPv6 network communication solutions, the RG-CS83 can meet various IPv6 network demands such as planning or maintenance. The RG-CS83 supports a wide range of IPv4 routing protocols, covering IPv4 static routing, RIP, and OSPFv2. You can select a routing protocol based on the network situation for flexible network building. Additionally, the RG-CS83 also supports abundant IPv6 routing protocols such as IPv6 static routing, RIPng, and OSPFv3. These protocols can be flexibly selected to either upgrade an existing network to IPv6 or establish a new one.

05 Specifications

Hardware Specifications

Hardware Specifications	RG-CS83-12GT4XS-P	RG-CS83-24GT4XS	RG-CS83-48GT4XS	RG-CS83-24GT4XS-P	RG-CS83-48GT4XS-P
Interface Specifications					
Fixed ports	12 x 100M/1000M BASE-T ports 4 x 1GE/10GE SFP+ ports support POE+	24 x 100M/1000M BASE-T ports 4 x 1GE/10GE SFP+ ports	48 x 100M/1000M BASE-T ports 4 x 1GE/10GE SFP+ ports	24 x 100M/1000M BASE-T ports 4 x 1GE/10GE SFP+ ports support POE+	48 x 100M/1000M BASE-T ports 4 x 1GE/10GE SFP+ ports support POE+
Fan module	1 x fixed fan module	No fan	1 x fixed fan module	1 x fixed fan module	1 x fixed fan module
Power module	1 x fixed power module	1 x fixed power module	1 x fixed power module	1 x fixed power module	1 x fixed power module
Fixed management port	1 x console, and 1 x USB 2.0 port				
System Specifications					
Packet forwarding rate	78 Mpps	96 Mpps	96 Mpps	132 Mpps	132 Mpps
Switching capacity	104 Gbps	128 Gbps	128 Gbps	176 Gbps	176 Gbps
System Switching capacity	336 Gbps	336 Gbps	336 Gbps	432 Gbps	432 Gbps
MAC address table size	16,000				
ARP table size	4,000	4,000	4,000	4,000	4,000
Number of IPv4 multicast routes	1,000				
Number of IPv4 unicast routes	6,000				

Hardware Specifications	RG-CS83-12GT4XS-P	RG-CS83-24GT4XS	RG-CS83-48GT4XS	RG-CS83-24GT4XS-P	RG-CS83-48GT4XS-P
Number of IPv6 multicast routes	750	750	750	750	750
Number of IPv6 unicast routes	2,000				
Number of ACEs	Ingress: 1,750 Egress: 800				
Number of VSU members	4	4	4	4	4
Dimensions and Weight					
Dimensions (W x D x H)	442 mm x 220 mm x 43.6mm (17.40 in. x 8.66 in. x 1.72 in.)	442 mm x 220 mm x 43.6mm (17.40 in. x 8.66 in. x 1.72 in.)	442 mm x 220 mm x 43.6mm (17.40 in. x 8.66 in. x 1.72 in.)	442 mm x 220 mm x 43.6mm (17.40 in. x 8.66 in. x 1.72 in.)	442 mm x 220 mm x 43.6mm (17.40 in. x 8.66 in. x 1.72 in.)
Weight	3 kg (6.61 lbs)	3 kg (6.61 lbs)	3 kg (6.61 lbs)	3 kg (6.61 lbs)	3.75 kg (8.27 lbs)
CPU and Storage					
CPU	1.0 GHz dual-core CPU	1.0 GHz dual-core CPU	1.0 GHz dual-core CPU	1.0 GHz dual-core CPU	1.0 GHz dual-core CPU
Flash memory	512 MB	512 MB	512 MB	512 MB	512 MB
BootROM	16 MB	16 MB	16 MB	16 MB	16 MB
SDRAM	1 GB	1 GB	1 GB	1 GB	1 GB
Data packet buffer	4 MB	4 MB	4 MB	4 MB	4 MB
Power and Consumption					
Maximum power consumption	< 35 W (non-PoE) < 405 W (PoE full load)	< 25 W	< 40 W	< 35 W (non-PoE) < 405 W (PoE full load)	< 52 W (non-PoE) < 460 W (PoE full load)
Maximum output power	409 W Maximum PoE output :370W	25 W	40 W	409 W Maximum PoE output :370W	460 W Maximum PoE output :405W
Rated input voltage	100 V AC to 240 V AC	100 V AC to 240 V AC	100 V AC to 240 V AC	100 V AC to 240 V AC	100 V AC to 240 V AC
Maximum input voltage	90 V AC to 264 V AC, 50 Hz to 60 Hz	90 V AC to 264 V AC, 50 Hz to 60 Hz	90 V AC to 264 V AC, 50 Hz to 60 Hz	90 V AC to 264 V AC, 50 Hz to 60 Hz	90 V AC to 264 V AC, 50 Hz to 60 Hz
Environment and Reliability					
MTBF	24.14 years	23.74 years	23.85 years	23.94 years	22.86 years
Primary airflow	Front-to-right and left-to-right airflow Natural heat dissipation for fanless design				
Operating temperature	0°C to 45°C (32°F to 113°F)				
Storage temperature	–40°C to +70°C (–40°F to +158°F)				

Hardware Specifications	RG-CS83-12GT4XS-P	RG-CS83-24GT4XS	RG-CS83-48GT4XS	RG-CS83-24GT4XS-P	RG-CS83-48GT4XS-P
Operating humidity	10% to 90% RH (non-condensing)				
Storage humidity	5% to 95% RH (non-condensing)				
Operating noise	27℃: < 35 dB	27℃: < 20 dB	27℃: < 20 dB	27℃: < 35 dB	27℃: < 35 dB
Interface surge protection	Power port: 6 kV(common mode)/8 kV (differential mode) Communication port: 10 kV	Power port: 6 kV(common mode)/6 kV (differential mode) Communication port: 10 kV	Power port: 6 kV(common mode)/6 kV (differential mode) Communication port: 10 kV	Power port: 6 kV(common mode)/8 kV (differential mode) Communication port: 10 kV	Power port: 6 kV(common mode)/8 kV (differential mode) Communication port: 10 kV

Software Specifications

RG-CS83 Series	
Feature	**Description**
Ethernet switching	Jumbo frame (maximum length: 9,216 bytes)
	IEEE 802.1Q (4K VLANs)
	Voice VLAN
	Super-VLAN and private VLAN
	MAC address-based VLAN, interface-based VLAN, protocol-based VLAN, and IP subnet-based VLAN
	GVRP
	Basic QinQ Selective QinQ
	STP, RSTP, and MSTP
	ERPS (G.8032)
	LLDP/LLDP-MED
IP service	ARP
	DHCP client, DHCP relay, and DHCP server
	DHCP snooping
	DNS
	DHCPv6 client, DHCPv6 relay, and DHCPv6 server
	DHCPv6 snooping
	Neighbor Discovery (ND) and ND snooping

RG-CS83 Series	
Feature	**Description**
IP routing	Static routing
	RIP and RIPng
	OSPFv2 and OSPFv3
	IPv4 and IPv6 VRF
	IPv4 and IPv6 PBR
Multicast	IGMP v1/v2/v3, and IGMP proxy
	IGMP v1/v2 snooping
	PIM-DM, PIM-SM, and PIM-SSM
	MSDP
	MLD v1/v2
	MLD snooping v1/v2
	PIM-SMv6 and PIM-SSM v6
ACL and QoS	Standard IP ACLs Extended IP ACLs Extended MAC ACLs Time-based ACLs Expert-level ACLs ACL80 IPv6 ACL
	ACL redirection
	Traffic rate limiting on an interface
	Congestion management: RR, SP, WRR, DRR, WFQ, SP+WRR, SP+DRR, and SP+WFQ
	Congestion avoidance: tail drop
	802.1p/DSCP/ToS traffic classification Eight priority queues per interface
Security	Multiple AAA modes
	RADIUS and TACAS+
	Interface-based and MAC address-based 802.1x authentication
	Web authentication
	HTTPS
	SSHv1 and SSHv2
	Global IP-MAC binding

RG-CS83 Series	
Feature	**Description**
Security	Port isolation and port security
	IP source guard
	SAVI
	CPP and NFPP
Reliability	REUP, RLDP, DLDP
	IPv4 VRRP v2/v3 and IPv6 VRRP
	BFD
	Link tracing, fault notification, and remote loopback based on 802.3ah (EFM)
	Hot swapping of power modules and cables
	Fan speed adjustment Fan fault alarm
Device virtualization	Virtual Switching Unit (VSU)
NMS and maintenance	SPAN, RSPAN
	sFlow
	NTP and SNTP
	FTP and TFTP
	SNMP v1/v2/v3
	RMON (1, 2, 3, 9)
	NETCONF
	CWMP (TR-069)
	gRPC
	Cloud and SON
PoE	RG-CS83-12GT4XS-P, RG-CS83-24GT4XS-P, and RG-CS83-48GT4XS-P: IEEE 802.3af and 802.3at Warm start Interface priority

06 Protocol Compliance

RG-CS83 Series	
Organization	**Standards and Protocol**
IETF	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 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 2131 Dynamic Host Configuration Protocol (DHCP) RFC 2132 DHCP Options and BOOTP Vendor Extensions RFC 2571 SNMP Management Frameworks RFC 2863 The Interfaces Group MIB RFC 2925 Definitions of Managed Objects for Remote Ping, Traceroute, and Lookup Operations (Ping only) RFC 3046 DHCP Option82 RFC 3417 (SNMP Transport Mappings) RFC 3418 Management Information Base (MIB) for the Simple Network Management Protocol (SNMP) RFC 4022 MIB for TCP 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) RFC 2865 Remote Authentication Dial In User Service (RADIUS) RFC 3575 IANA Considerations for RADIUS RFC 3579 RADIUS Support For EAP RFC 1058 Routing Information Protocol (RIP) RFC 1583 OSPF Version 2 RFC 1981 Path MTU Discovery for IP version 6 RFC 2236 IGMP RFC 2328 OSPF Version 2 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 2711 IPv6 Router Alert Option RFC 2787 Definitions of Managed Objects for the Virtual Router Redundancy Protocol RFC 2934 Protocol Independent Multicast MIB for IPv4 RFC 3101 OSPF Not so stubby area option RFC 3137 OSPF Stub Router Advertisement sFlow RFC 3509 Alternative Implementations of OSPF Area Border Routers RFC 3513 IP Version 6 Addressing Architecture RFC 3623 Graceful OSPF Restart RFC 3768 VRRP RFC 3810 Multicast Listener Discovery Version 2 (MLDv2) for IPv6 RFC 3973 PIM Dense Mode RFC 4552 Authentication/Confidentiality for OSPFv3 RFC 4750 OSPFv2 MIB partial support no SetMIB RFC 4940 IANA Considerations for OSPF RFC 5187 OSPFv3 Graceful Restart RFC 5340 OSPFv3 for IPv6 RFC 6620 FCFS SAVI

RG-CS83 Series	
Organization	**Standards and Protocol**
IEEE	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

07

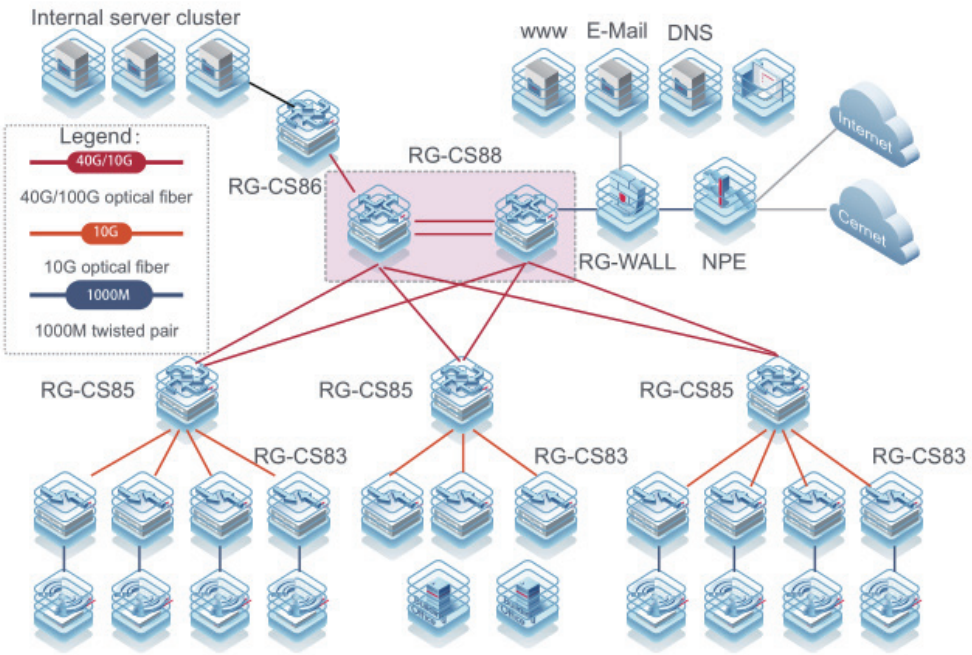
Typical Applications

The RG-CS83 series switches are characterized by security, high efficiency, intelligence, and energy saving to fully meet network requirements in the following scenarios:

- Full 1000M access to a local area network (LAN) in a large-scale institution or enterprise campus, such as the government building, university, and manufacturing/energy/metallurgy unit
- 1000M access to a commercial system such as the healthcare, library, exhibition center, and website
- Access for IP telephones, WLAN access points (APs), and HD cameras
- 1000M access for server groups and high-bandwidth 10GE uplink
- Flexible and diverse security control policies are needed to prevent and control network viruses and attacks, ensuring user access security.

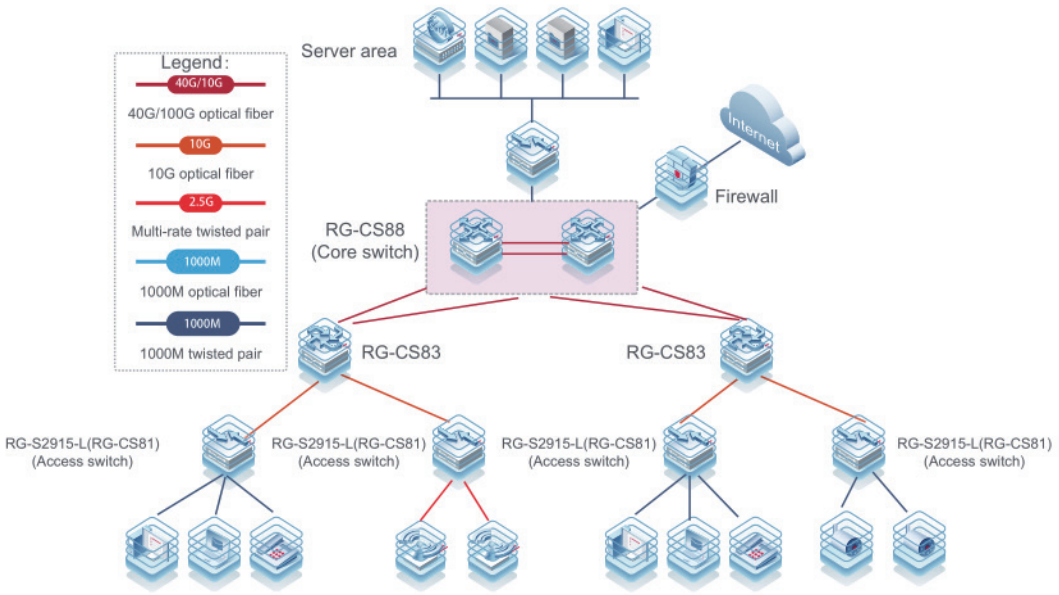
Scenario 1

The RG-CS83 series switches used as access switches are connected to the RG-CS85 series aggregation switches and the RG-CS88 series campus core switches. They provide 1000M access to the desktop and high-performance 10GE links between aggregation and core layers, meeting growing demands of access to user information.



Scenario 2

The RG-CS83 series switches used as aggregation switches are connected to the RG-2915L series indoor access switches and the RG-CS88 series core switches. They provide 1000M access to the desktop and 10GE links between aggregation and core layers, meeting growing demands of access to user information. This networking provides cost-effectiveness, high performance, and high bandwidth.



08 Ordering Guide

Follow the steps to order the RG-CS83 series switches.

- Select a switch and expansion modules based on port requirements.
- Select optical transceivers based on port requirements.

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

09 Ordering Information

Order switches, expansion modules, power supply modules, and other components as needed. Before ordering an expansion module or power supply module, please contact our online customer service team for the latest support information about the module.

Model	Description
RG-CS83-12GT4XS-P	12 x 10M/100M/1000M electrical ports with auto-negotiation, 4 x 1GE/10GE SFP+ ports, PoE power supply, a maximum of 370 W PoE output, and built-in power module
RG-CS83-24GT4XS	24 x 10M/100M/1000M electrical ports with auto-negotiation, 4 x 1GE/10GE SFP+ ports, and built-in power module
RG-CS83-48GT4XS	48 x 10M/100M/1000M electrical ports with auto-negotiation, 4 x 1GE/10GE SFP+ ports, and built-in power module
RG-CS83-24GT4XS-P	24 x 10M/100M/1000M electrical ports with auto-negotiation, 4 x 1GE/10GE SFP+ ports, PoE power supply, a maximum of 370 W PoE output, and built-in power module
RG-CS83-48GT4XS-P	48 x 10M/100M/1000M electrical ports with auto-negotiation, 4 x 1GE/10GE SFP+ ports, PoE power supply, a maximum of 405 W PoE output, and built-in power module
Mini-GBIC-GT	1000BASE-GT mini GBIC module
MINI-GBIC-SX-MM850	Single-port 1000BASE-SX mini GBIC module (LC connector)
MINI-GBIC-LX-SM1310	Single-port 1000BASE-LX mini GBIC module (LC connector)
MINI-GBIC-LH40-SM1310	Single-port 1000BASE-LH mini GBIC module (LC connector), supporting a transmission distance of 40 km (24.85 miles)
MINI-GBIC-ZX50-SM1550	Single-port 1000BASE-ZX mini GBIC module (LC connector), supporting a transmission distance of 50 km (24.85 miles)
MINI-GBIC-ZX80-SM1550	Single-port 1000BASE-ZX mini GBIC module (LC connector), supporting a transmission distance of 80 km (24.85 miles)
MINI-GBIC-ZX100-SM1550	1000BASE-ZX mini GBIC module, supporting a transmission distance of 100 km (62.14 miles)
XG-SFP-SR-MM850	10GE LC module (62.5/125 μm: 33 m (108.27 ft.); 50/125 μm: 66 m (216.54 ft.); transmit for 300 m (984.25 ft.) when modal bandwidth is 2000 MHz * km), applicable to SFP+ ports

Model	Description
XG-SFP-LR-SM1310	10GE LC interface module (1310 nm), 10 km (6.21 miles), applicable to SFP+ ports
XG-SFP-ER-SM1550	10GE LC interface module (1550 nm), 40 km (24.85 miles), applicable to SFP+ ports
XG-SFP-AOC1M	10GE SFP+ fiber-optic cable, 1 m (3.28 ft.), including one cable and two interface modules
XG-SFP-AOC3M	10GE SFP+ fiber-optic cable, 3 m (3.28 ft.), including one cable and two interface modules
XG-SFP-AOC5M	10GE SFP+ fiber-optic cable, 5 m (3.28 ft.), including one cable and two interface modules

10 Package Contents

Device	RG-CS83-12GT4XS-P	RG-CS83-24GT4XS	RG-CS83-48GT4XS	RG-CS83-24GT4XS-P	RG-CS83-48GT4XS-P
Host	1	1	1	1	1
Mounting bracket	2	2	2	2	2
Rubber pad	4	4	4	4	4
Mounting Bracket Installation Guide	1	1	1	1	1
Warranty Manual and Network Product Hazardous Substance Table	1	1	1	1	1
Cross recessed countersunk head screw, M4x8, GB819-85M4X8	8	8	8	8	8
Grounding wire	1	1	1	1	1
Package dimensions (W x D x H)	540 mm x 338 mm x 154 mm (21.26 in. x 13.31 in. x 6.06 in.)	540 mm x 338 mm x 154 mm (21.26 in. x 13.31 in. x 6.06 in.)	540 mm x 338 mm x 154 mm (21.26 in. x 13.31 in. x 6.06 in.)	540 mm x 338 mm x 154 mm (21.26 in. x 13.31 in. x 6.06 in.)	540 mm x 338 mm x 154 mm (21.26 in. x 13.31 in. x 6.06 in.)
Package weight	4.18 kg (9.22 lbs)	4.10 kg (9.04 lbs)	4.10 kg (9.04 lbs)	4.25 kg (9.37 lbs)	4.90 kg (10.80 lbs)

11 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/service_41*

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

12 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*

Notice

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