Ruijie RG-S2910-H

High Power over Ethernet (HPoE) Switch Series Datasheet

Ruijie RG-S2910-H High Power over Ethernet (HPoE) Switch Series pushes the frontier with leading IEEE802.3bt standard, delivering 90W power output per port. The HPoE switch guarantees the best security, efficiency, stability and energy-saving experiences.

The HPoE switch is highly adaptive to a breadth of scenarios, eliminating rigid ties to expensive deployment costs, slow implementation cycle, unstable power supply, management complexity, and unsatisfactory security problems that alternative solutions have been struggling to solve. The switch fully addresses high PoE access needs for low power scenario as well as high power Wi-Fi hotspot application in outdoor venue. Industrial-grade Power Box (PBOX) is available to support non-PoE appliance or non-IEEE 802.3bt powered device (PD). The PBOX fully supports remote power supply for high power devices.

HIGHLIGHTS

- Up to 90 Watts per Port by High-power PoE Technology (IEEE 802.3bt)
- Industrial-grade PBOX for Flexible Remote Deployment (12VDC/ 24VAC Options)
- Outstanding Power Supply Stability (Average Error Rate <5%)
- Time & Cost Saving on Construction Works

RG-PBOX-AC24

RG-S2910-24GT4SFP-UP-H

RG-PBOX-DC12

PRODUCT FEATURES

New Option for High Power IP Devices

There used to be only two options available for remote power supply scenarios, namely PoE and PoE+ standards. The PoE standard would fail to meet the needs if more than 30W power is required. Instead, electrical wiring or even high power has to be deployed. Such implementation gives an enormous burden to total investment cost, completion schedule, post-sale maintenance, as well as installation safety. Based on IEEE 802.3bt, Ruijie delivers an innovation approach leveraging the HPoE power supply technology, maximizing user experience from the fundamental level.

Hardware Highlights

RG-S2910-24GT4SFP-UP-H

Interfaces

1. Console Port
2. 24 10/100/1000BASE-T ports (PoE/PoE+/HPoE+)
3. 4 Gigabit SFP ports (non-combo) for uplink

Wide Selection of Power Supply Standards

The HPoE switch supports IEEE 802.3af, IEEE 802.3at and IEEE 802.3bt and is also backward compatible with earlier standards, offering up to 90W output per port and 370W per device. The front 1-4 ports enable high power PoE application.

Outstanding Power Supply Stability

Getting power through electrical wiring come with the following disadvantages: Firstly, the power supply devices and cables are usually proprietary. In other words, there is a lack of standardization among devices and cables from different vendors. Secondly, the cable loss and voltage drop require manual adjustment to fulfill the needs of various endpoints. The average error is more than 10%, making device susceptible to failure and jeopardizing deployment efficiency. Last but not least, getting power from electrical wiring means centralized power supply. However, most endpoints do not share the same power requirement and the average utilization rate is less than 70%. There is also a high risk that if one device is lost and all can be lost. Generally speaking, more than 30% of system failure events are caused by power supply annually.

The HPoE power supply solution takes a different approach. Instead of simply lowering the failure rate, the solution precisely locates the crux of the problem and hence eliminates it. The solution supports the leading IEEE802.3bt to enable sustainable development. Also, the cable loss and voltage drop adjustment are carried out digitally with an average error rate <5%. The feature hence enables a stable voltage condition and speeds up deployment efficiency. The HPoE solution implements an independent power supply mode. Each HPoE port carries one endpoint only and automatically allocates the power required. Any failure event of one device is isolated from each other. The power utilization rate reaches up to 100%. In general, the solution usually maintains a power-failure-free period for more than 5 years.

Highly Customizable for Various Needs

The HPoE device supports regular power on/off settings for all HPoE, PoE+ and PoE ports. It can control to switch on/off all endpoints connected. Based on the actual deployment needs, users can set to suspend a certain devices from operation within a designated period. The feature ensures key services to operate in a stable manner during peak traffic periods. By putting some endpoints to rest within an idle period, energy consumption is greatly reduced and endpoint life cycle is therefore extended significantly.

The device also enables consistent power supply by hot startup. During restart or upgrade, stable and continuous power supply is guaranteed to maintain the operation of key services.

Two power supply modes, energy-saving and auto supply, are available for on-demand application.

The device offers an auto PoE switching button, enabling users to change the LED indicator display mode of the port with just one click. PoE output status of all the ports is available at a glance.

Best-in-class Management Easiness

Leveraging Existing Network Cabling

The traditional electrical wiring involves a range of tedious procedures on the wall or the floor. Such include groove opening, pipe laying, voltage and current testing and so on. Everything from the groove diameter and depth to spacing, PVC tube dimensions to curve radius of laying tube, as well as electromagnetic interference among various cables must be taken into consideration. With just one mistake in any aspect, the overall wiring outcome will be largely at stake and the end user experience will be undermined. Ruijie offers you a painless solution and what you need is just network cable. For new buildings, only network cabling needs to be taken care of. For expansion with weak power devices, users can leverage the existing network cabling. No more wall-breaking work incidental to electrical wiring is required.

Painless Management

Since there are numerous subnet systems of low powered devices, it is very difficult to centrally manage all of them. Also, each subsystem demands in-depth technological knowledge, which pose challenges to administrators. This would slow down the troubleshooting process. Also, point location, maintenance and failure logs are all recorded manually, making related data keeping and enquiry much more difficult.

To provide an end-to-end solution for the above, Ruijie has launched an intelligent operation platform RIIL IPDM (IP Devices Management). The software achieves centralized and visible management on IP devices. The RIIL IPDM enables administrators to discover failure point immediately for upgraded work efficiency.

- Support auto inspection on IP devices in the whole network. Together with figurative alerts, the software cut through problems of individual authentication of each IBMS systems, and management difficulties on IP devices.
- Intuitively show online status, physical location, uplink device and port of existing devices. Working with the HPoE switch, it can remotely restart any device and speed up troubleshooting.
- Automatically import point location map, generate and export failure logs. The feature enables zero data loss by reducing tedious manual operation.

The HPoE switch also supports SNMP V1/V2/V3, RMON, Syslog, SFLOW and USB for routine diagnosis and maintenance. A diversity of management modes are available and such include CLI (command line interface), web gateway, Telnet, CWMP(TR069) zero configuration for easy maintenance.

Cost and Time-efficient Deployment

Time and Cost Savings

Electrical wiring involves a series of construction work and tests, which means requiring more human resources, longer implementation period and higher deployment costs. The wiring work sometimes costs even more than that of device purchase. The HPoE deployment does not only help users to save costs on wiring and labor, the service also turns up faster than any traditional solutions.

Exceptional Energy Efficiency

The HPoE device supports energy-saving and auto supply PoE modes for various deployment needs.

The device features auto-power-down, a function enabling the system to automatically power off any interface which has been down for a certain period of time. The switch is also IEEE802.3az (EEE) compliant. A port will enter the energy-saving mode if it has been idle for an extensive period. When there is an incoming/outgoing packet, the port will resume service as informed by listening stream.

The devices are compliant with the RoHS standard, and SJ/T 11363/11364/11365.

Safety and Security Features

Power Supply Safety

Getting power over electrical wiring features low loss and high efficiency. However, the high power, voltage and current are potential hazards to technicians during installation or maintenance stages. The HPoE technology carries power on cables (twisted pair) with low voltage, which offers improved safety.

Device Safety

High power is also a threat to devices. With thunderstorm or electromagnetic interference, devices are vulnerable under high current. The HPoE device, on the other hand, implements various protection mechanisms. When an IP camera breaks down or short circuit is detected, the device will remain intact under the overcurrent protection.

The device also supports lightning protection up to 8KV, ensuring stable operation under severe weather conditions.

Network Security

The HPoE switch also inherits security features from conventional switches:

- Support various ACL, port security, IP + MAC + port binding technologies, etc. Such features fully protect against ARP spoofing, DoS and DDoS attacks.
- Support Ruijie leading CPP (CPU Protection Policy) and NFPP (Network Foundation Protection Policy). The technologies divide and prioritize incoming traffic to CPU and implement real-time bandwidth speed limit when necessary. The features totally protect CPU from being occupied by unauthorized traffic, malicious attacks and resources consumption. These also restrict the number of outgoing ARP, ICMP and DHCP packets issued by users. Those packets exceeding the threshold will be discarded or recognized as attacks. The relevant users will be isolated to ensure secure operation of the device and the whole network.

Superior Network Stability

Virtualization for Simplified Maintenance

VSU (Virtual Switch Unit) virtualizes multiple physical devices into one logical appliance. The VSU can be managed using one IP address, Telnet process and CLI, automatic version checking and configuration, etc. The VSU brings along advanced work efficiency and user experience while users only need to manage one single device.

Standard Protocol for Seamless Integration

The ERPS (G.8032) enables loop elimination and link recovery on the master device. Non-master devices directly report link status to the master without passing through others. Hence, the processing time for loop elimination and link recovery are faster than STP. Under ideal conditions, the link recovery of ERPS can be completed within millisecond.

SDN Advancement

The HPoE device fully supports OpenFlow1.3. In collaboration with Ruijie's proprietary SDN controller, large-scale L2 framework and smooth transition to SDN network can be easily achieved, largely simplifying network management and reducing maintenance costs.

TECHNICAL SPECIFICATIONS

HPoE Switch

Model	RG-S2910-24GT4SFP-UP-H
Ports	24 10/100/1000BASE-T ports (PoE/PoE+/HPoE+) 4 Gigabit SFP ports (non-combo) for uplink AC
Fan Slots	Fixed
Management Ports	1 console port
Switching Capacity	256Gbps
Packet Forwarding Rate	96Mpps
PoE	IEEE 802.3af, IEEE 802.3at and IEEE 802.3bt power supply standards; Automatic, energy-saving and static power supply modes; Hot startup and uninterrupted power supply; Port priority; Compatible with non-standard PD device; Scheduled power supply for PoE port
Port Buffer	1.5MB
ARP Table	1,000
MAC Address	16K
Routing Table Size (IPv4/IPv6)	500(IPv4/IPv6)
ACL Entries	In: 1500 Out: 500
VLAN	4K 802.1q VLANs, Port-based VLAN, MAC-based VLAN, Protocol-based VLAN, Private VLAN, Voice VLAN, IP subnet-based VLAN, GVRP
QinQ	Basic QinQ, Flexible QinQ
Link Aggregation	AP, LACP, Cross devices AP, Flow balance
Port Mirroring	Support general service port and aggregation port as source and destination port of mirroring; Flow-based mirroring; VLAN-based mirroring; Many-to-one mirroring; One-to-many mirroring; Cross-device traffic mirroring; RSPAN; ERSPAN
Spanning Tree Protocols	IEEE802.1d STP, IEEE802.1w RSTP, standard 802.1s MSTP, Port fast, BPDU filter, BPDU guard, TC guard, TC protection, ROOT guard
DHCP	DHCP server, DHCP client, DHCP snooping, DHCP relay, IPv6 DHCP snooping, IPv6 DHCP client, IPv6 DHCP relay
Multiple Spanning Tree Protocol (MSTP) Instances	64
Maximum Aggregation Port (AP)	Up to 128
SDN	OpenFlow 1.0 & 1.3
VSU (Virtual Switch Unit)	Support up to 9 stack members[1] VSU virtualization technology; Local and distant stacking; Cross-chassis link aggregation in the stack
Zero Configuration	CWMP(TR069)
L2 Features	MAC, EEE, ARP, VLAN, Basic QinQ, Felix QinQ, Mirroring, STP, RSTP, MSTP, Broadcast storm control, IGMP v1/v2 snooping, IGMP filter, IGMP fast leave, DHCP, Jumbo frame, RLDP, LLDP, REUP, G.8032
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, IGMP Snooping v1/v2
Layer 3 Features	ARP, IPv4/v6, PBRv4/v6
IPv4 Features	Ping, Traceroute
IPv6 Features	0-64 any length mask, ICMPv6, Neighbor Discovery, Manually configure local address, Automatically create local address, IPv6 Ping, IPv6 Tracert, IPv6 extender option head
Basic IPv6 Protocols	IPv6 addressing, Neighbor Discovery (ND), IPv6 ACL, ICMPv6, IPv6 Ping, IPv6 Tracert

Note:

[1] Future release support, latest model supports up to 4 stack members.

Model	RG-S2910-24GT4SFP-UP-H
IPv6 Routing Protocols	RIP, RIPng, Routing Policy
G.8032	Support
ACL	Standard IP ACL, Extended IP ACL, Extended MAC ACL (optional Ethernet-type hardware ACL based on the source MAC address and destination MAC address), ACL Expert-level ACL (hardware ACL based on random combination of the VLAN number, Ethernet type, MAC address, IP address, TCP/UDP port number and protocol type), ACL80, IPv6 ACL, ACL Logging, ACL Counter, ACL Remark, Global ACL, ACL Redirect
QoS	802.1p/DSCP/TOS traffic classification; Multiple queue scheduling mechanisms, such as SP, WRR, DRR, SP+WRR, SP+DRR; Input / output port-based speed limit; Each port supports 8 queue priorities
IPv6 ACL	Support
Reliability	VSU (virtualization technology for virtualizing multiple devices into 1); GR for RIP
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; Hierarchical management by administrators and password protection; RADIUS and TACACS+; AAA security authentication (IPv4/IPv6) in device login management; 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, SFLOW; Support cable detection and port sleep mode
Hot Patch	Support
Smart Temperature Control	Auto fan speed adjustment; Temperature control and alert
Other Protocols	FTP, TFTP, DNS client
Dimensions (W x D x H) (mm)	440×260×44
Rack Height	1RU
MTBF	>200K hours
Lightning Protection	6KV
Power Supply	AC input: Nominal voltage range: 100V to 240V AC Maximum voltage range: 90V to 264V AC Frequency: 50Hz to 60Hz HVDC input: Maximum voltage range: 192V to 290V DC RG-PBOX-DC12: Support 12VDC output and 10/100/1000M Ethernet signal transmission RG-PBOX-AC24: Support 24VAC output and 10/100/1000M Ethernet signal transmission (*For detailed specifications of the adapters, please refer to the below table.)
Power Consumption	≤470W
PoE Power Consumption	Total 370W PoE budget output power All 24 BASE-T ports support PoE (up to 24 ports) and PoE+ (up to 12 ports) All ports from Port 1-4 support HPoE output power of up to 90W per port
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 95%RH
Operating Altitude	-500m to 5,000m

Industrial Adapters

Model	RG-PBOX-DC12	RG-PBOX-AC24
Product Description	High-power PoE power adapter, supports 12VDC output and 10/100/1000M Ethernet signal transmission, suitable for indoor or semi-open spaces.	High-power PoE power adapter, supports 24VAC output and 10/100/1000M Ethernet signal transmission, suitable for indoor or semi-open spaces.
Ports	2 10M/100M/1000M Ethernet ports, 1 standard power supply terminal block	2 10M/100M/1000M Ethernet ports, 1 standard power supply terminal block
Power Input	Input voltage range: 43-57V DC	Input voltage range: 43-57V DC
	Input Interface: RJ45	Input Interface: RJ45
	Maximum input power: 80W (PBOX input)	Maximum input power: 80W (PBOX input)
Power Output	Power output port, 12VDC/60W	Power output port, 24VAC/60W
Operating Temperature	-20°C to 50°C	
Storage Temperature	-40°C to 70°C	
Operating Humidity	10% to 90% (non-condensing)	
Storage Humidity	10% to 95% (non-condensing)	
Operating Altitude	-500m to 5000m	
Protection Rating	IP40	
Dimensions (W x D x H) (mm)	187x89x35	

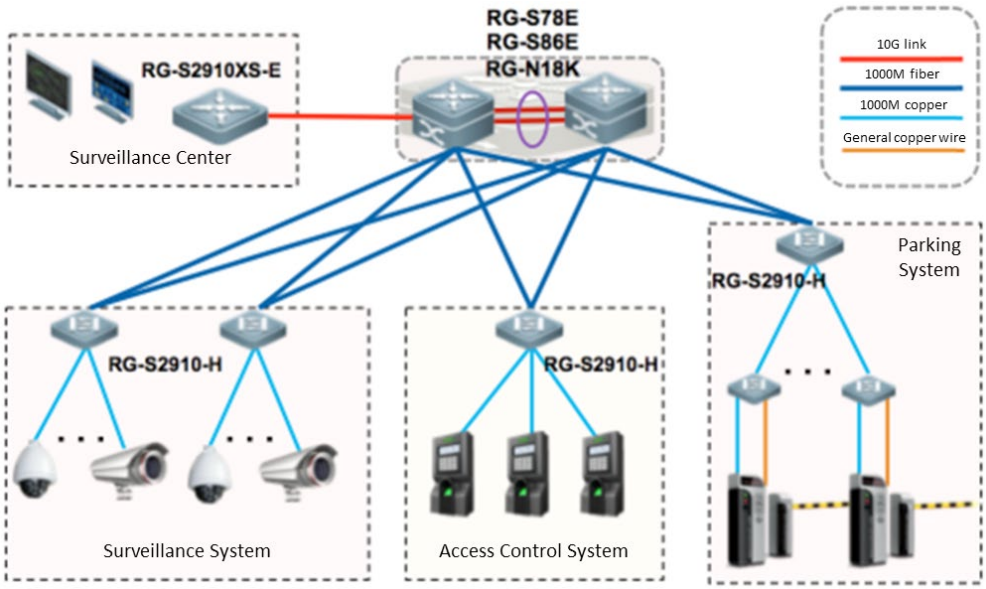
TYPICAL APPLICATION

With its powerful and flexible high-power PoE feature, the HPoE Series can fully meet the network requirements of the following scenarios:

- The PoE remote power supply of the high-power devices in different systems of a smart building, such as surveillance system, access control system, information broadcasting system, digital clock system, parking system, etc.
- In a variety of outdoor wireless deployment scenarios, the HPoE Series can meet the power supply requirement of the high-power outdoor wireless APs.

Scenario

The HPoE Series provides high-power PoE remote power supply for the infrared dome cameras of the smart building, access control card reader, parking entrance gate, information broadcasting device, etc.



Values:

- Compared to the existing power supply method using power cables, the HPoE Series can significantly reduce equipment cost and implementation cost.
- High-voltage power cables are used in the existing deployment which has a certain risk. On the other side, the low-voltage power supply of HPoE is safe and reliable.
- All devices can be accessed by the network via IP deployment and can be integrated with the IPDM (IP Devices Management) system for unified remote control.

ORDERING INFORMATION

Model	Description
RG-S2910C-24GT4SFP-UP-H	24 10/100/1000BASE-T Ports (PoE/PoE+/HPoE+), 4 Gigabit SFP Ports (non-combo) for uplink, AC
Optional Industrial Adapters and Accessories	
RG-PBOX-DC12	Support 12VDC output and 10/100/1000M Ethernet signal transmission; suitable for indoor or semi-open space
RG-PBOX-AC24	Support 24VAC output and 10/100/1000M Ethernet signal transmission; suitable for indoor or semi-open space
Mini-GBIC-GT	1000BASE-GT mini GBIC Transceiver
Mini-GBIC-SX	Single-port 1000BASE-SX mini GBIC Transceiver (LC interface)
Mini-GBIC-LX	Single-port 1000BASE-LX mini GBIC Transceiver (LC interface)
Mini-GBIC-LH40	Single-port 1000BASE-LH mini GBIC Transceiver (LC interface), 40km
Mini-GBIC-ZX50	Single-port 1000BASE-ZX mini GBIC Transceiver (LC interface), 50km
Mini-GBIC-ZX80	Single-port 1000BASE-ZX mini GBIC Transceiver (LC interface), 80km
Mini-GBIC-ZX100	1000BASE-ZX mini GBIC Transceiver, 100km

Ruijie Networks
Innovation Beyond Networks

Beijing
Fax： (8610) 6815-4205
Phone： (8610) 5171-5996
Email: info@ruijienetworks.com
Address： 11/F, East Wing, ZhongYiPengao Plaza, No. 29 Fuxing Road, Haidian District, Beijing 100036, China

Hong Kong
Fax： (852) 3620-3470
Phone： (852) 3620-3460
Email： sales-HK@ruijienetworks.com
Address: Unit 09, 20/F, Millennium City 2, 378 Kwun Tong Road, Kowloon, Hong Kong

Malaysia
Fax： (603) 2181-1071
Phone： (603) 2181-1071
Email: sales-MY@ruijienetworks.com
Address： Office Suite 19-12-3A, Level 12, UOA Center, No. 19 Jalan Pinang, 50450 Kuala Lumpur, Malaysia

OEM Cooperation Division
Phone: (8610) 5171-5995
Email: OEM@ruijienetworks.com
Address： 11/F, East Wing, ZhongYiPengao Plaza, No. 29 Fuxing Road, Haidian District, Beijing 100036, China

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