Layer 3 Multiple Gigabit + 10G SFP+ Managed Ethernet Switch
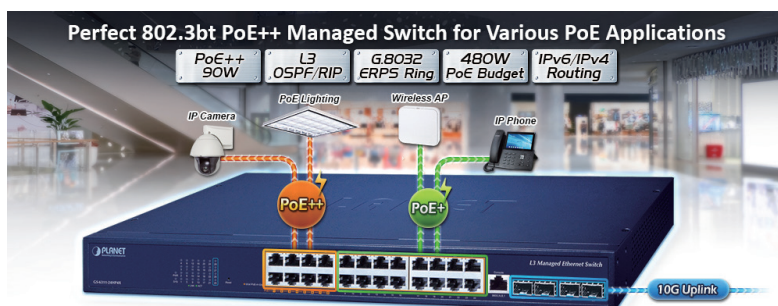
NMS is Integrated to Improve Network Management Efficiency

PLANET GS-6311 series is a Layer 3 Managed Gigabit Switch that provides high-density performance, **Layer 3 IPv4/IPv6 static routing**, **RIP (Routing Information Protocol)** and **OSPF (Open Shortest Path First)**. With 10Gbps interfaces, the GS-6311 series can handle extremely large amounts of data in a secure topology linking to an enterprise backbone or high-capacity servers. **With PLANET NMS (Network Management System)**, the GS-6311 series makes network management easier and more efficient. Its powerful network security features securely perform effective data traffic control for ISP and enterprise VoIP, video streaming, and multicast applications.

The hardware specifications of these models are shown below:

Models	10/100/1000T Copper	100/1000X SFP	1000/10G SFP+	PoE Ports	Power Input	Smart LCD
GS-6311-24T4X	24	--	4	--	AC	--
GS-6311-24HP4X	24	--	4	8bt + 16at	AC	--
GS-6311-24P4XV	24	--	4	24at	AC	■
GS-6311-24PL4X	24	--	4	24at	AC	--
GS-6311-16S8C4XR	8 (combo)	24	4	--	AC + DC	--
GS-6311-48T6X	48	--	6	--	AC	--
GS-6311-48P6X	48	--	6	48at	AC	--

Perfect 802.3bt PoE++ Managed Switch for Various PoE Applications

PoE++ 90W | L3 OSPF/RIP | G.8032 ERPS Ring | 480W PoE Budget | IPv6/IPv4 Routing

High Performance 10Gbps Ethernet Capacity

The four to six SFP+ ports built in the GS-6311 series boast a high-performance switch architecture that is capable of providing non-blocking switch fabric and wire-

IP Routing Features
- IPv4 routing protocol supports **RIPv1/v2** and **OSPFv2**
- IPv6 routing protocol supports **RIPng** and **OSPFv3**
- Routing interface provides per VLAN routing mode
- Supports route redistribution

Layer 2 Features
- Complies with the IEEE 802.3, IEEE 802.3u, IEEE 802.3ab, IEEE 802.3z Gigabit Ethernet standard
- Prevents packet loss flow control
  - IEEE 802.3x pause frame flow control in full-duplex mode
  - Back pressure flow control in half-duplex mode
- High performance Store-and-Forward architecture, broadcast storm control, port loopback detection
- 16K ~ 32K MAC address table, automatic source address learning and aging
- Supports VLAN
  - IEEE 802.1Q tag-based VLAN
  - GVRP for dynamic VLAN management
  - Provider Bridging (VLAN Q-in-Q, IEEE 802.1ad) supported
  - Private VLAN Edge (PVE) supported
  - GVRP protocol for Management VLAN
  - Protocol-based VLAN
  - MAC-based VLAN
  - IP subnet VLAN
- Supports Link Aggregation
  - Maximum 64 trunk groups, up to 8 ports per trunk group
  - IEEE 802.3ad LACP (Link Aggregation Control Protocol)
  - Cisco ether-channel (static trunk)
- Supports Spanning Tree Protocol
  - STP, IEEE 802.1D (Classic Spanning Tree Protocol)
  - RSTP, IEEE 802.1w (Rapid Spanning Tree Protocol)
  - MSTP, IEEE 802.1s (Multiple Spanning Tree Protocol, spanning tree by VLAN)
  - Supports BPDU & root guard
- Port mirroring to monitor the incoming or outgoing traffic on a particular port (many to many)
- Provides port mirror (many-to-1)
- Supports G.8032 ERPS (Ethernet Ring Protection Switching)

Quality of Service
- 8 priority queues on all switch ports
- Support for strict priority and WRR (Weighted Round Robin) CoS policies
- Traffic classification
  - IEEE 802.1p CoS/ToS

speed throughput as high as up to **120Gbps**, which greatly simplifies the tasks of upgrading the LAN for catering to increasing bandwidth demands. Each of the SFP+ ports supports **Dual-Speed**, **10GBASE-SR/LR** or **1000BASE-SX/LX**, meaning the administrator now can flexibly choose the suitable SFP/SFP+ transceiver according to the transmission distance or the transmission speed required to extend the network efficiently.

Remote Management Solution with NMS

The GS-6311 series with the NMS helps IT staff remotely manage all network devices and monitor PDs' operational statuses. Thus, they are designed for both the enterprises and industries where deployments of PDs can be as remote as possible, without having to go to the actual location once a bug or faulty condition is found. With the NMS, all kinds of businesses can now be speedily and efficiently managed from one platform.

XGS-6311 Series

Powerful NMSViewerPro Solution for Evolving Network Management Needs

The GS-6311 Series, equipped with advanced features such as QoS, Link Aggregation, PoE, VLAN, and IGMP, offers a more secure and efficient network. With the remote monitoring and management of network devices through a mobile app. Operational efficiency, and real-time visibility and control over the network infrastructure can be enhanced, delivering a highly-intuitive and responsive management experience.

The **NMSViewerPro mobile app**, with its user-friendly interface, enables administrators to effortlessly perform key tasks such as traffic monitoring, device configuration, troubleshooting, and more. Complementing this, PLANET NMS platform offers real-time alerts and notifications, allowing network administrators to quickly respond to urgent issues and ensure continuous network stability and performance.

With the NMSViewerPro, users can manage their networks with greater flexibility and efficiency. It provides a clear overview of device statuses, facilitating a fast, effective resolution if one of the devices has a bug. These great features are essential for today's dynamic network environments.

In combination with PLANET's free cloud service, **PLANET NMS and NMSViewerPro** enable quick and simple remote detection, configuration, deployment, and management of devices. By scanning the QR code on the NMS agent (NMS-500/NMS-1000V), users can easily monitor and control remote network devices through a secure private cloud connection.

- – IPv4/IPv6 DSCP
- – Port-based WRR
- Strict priority and WRR CoS policies

Multicast
- Supports IPv4 IGMP snooping v1, v2 and v3
- Supports IPv6 MLD v1 and v2 snooping
- Querier mode support
- Supports Multicast VLAN Register (MVR)

Security
- IEEE 802.1x port-based network access authentication
- MAC-based network access authentication
- Built-in RADIUS client to cooperate with the RADIUS servers for IPv4 and IPv6
- TACACS+ login users access authentication
- IP-based Access Control List (ACL)
- MAC-based Access Control List
- Supports DHCP snooping
- Supports ARP inspection
- **IP Source Guard** prevents IP spoofing attacks
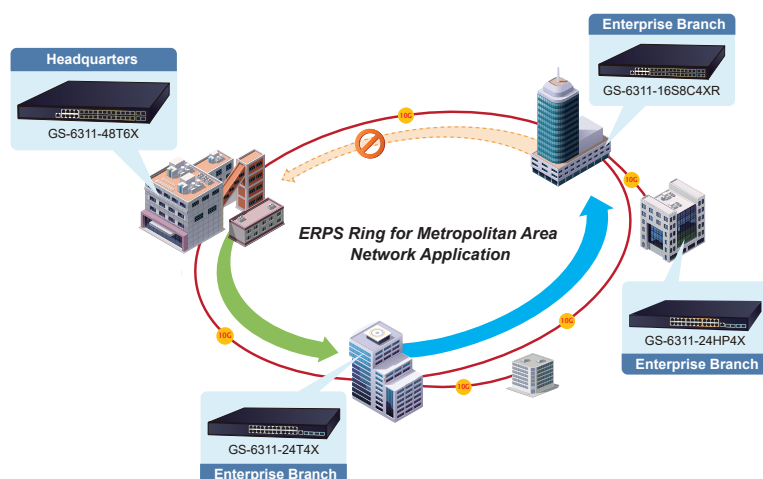- **Dynamic ARP Inspection** discards ARP packets with invalid MAC address to IP address binding

Management
- Management IP for IPv4 and IPv6
- Switch Management Interface
    - – Console/Telnet Command Line Interface
    - – Web switch management
    - – SNMP v1, v2c, and v3 switch management
    - – SSH/TLS secure access
- BOOTP and DHCP for IP address assignment
- Firmware upload/download via TFTP or HTTP Protocol for IPv4 and IPv6
- SNTP (Simple Network Time Protocol) for IPv4 and IPv6
- User privilege levels control
- Syslog server for IPv4 and IPv6
- Supports DDM
- Four RMON groups 1, 2, 3, 9 (history, statistics, alarms and events)
- Supports sFlow
- Supports ULDP
- Supports ULPP (Uplink Protection Protocol)
- Supports ULSM (Uplink State Monitor protocol)
- Supports LLDP/LLDP MED
- Supports DHCP Option82/43/60/61/67
- Supports ping, trace route function for IPv4 and IPv6
- PLANET Smart Discovery Utility for deployment management
- Supports PLANET NMS for centralized deployment and management
- Compatible with PLANET NMSViewerPro mobile app for remote monitoring and control

PLANET
Networking & Communication

NMSViewerPro

XGS-6311 Series

NMS System

Redundant Ring, Fast Recovery for Critical Network Applications

The GS-6311 series supports redundant ring technology and features strong, rapid self-recovery capability to prevent interruptions and external intrusions. It incorporates advanced ITU-T **G.8032 ERPS** (Ethernet Ring Protection Switching) technology and Spanning Tree Protocol (802.1s MSTP) into customer's network to enhance system reliability and uptime in harsh environments. In a certain simple Ring network, the recovery time could be less than 15ms to quickly bring the network back to normal operation.

Enterprise Branch

GS-6311-16S8C4XR

Headquarters

GS-6311-48T6X

ERPS Ring for Metropolitan Area Network Application

GS-6311-24HP4X

Enterprise Branch

GS-6311-24T4X

Enterprise Branch

Layer 3 Routing Support

The GS-6311 series enables the administrator to conveniently boost network efficiency by configuring Layer 3 static routing manually, the **RIP** (Routing Information Protocol) or **OSPF** (Open Shortest Path First) settings automatically.

- The RIP can employ the hop count as a routing metric and prevent routing loops by implementing a limit on the number of hops allowed in a path from the source to a destination.
- The OSPF is an interior dynamic routing protocol for autonomous system based on link state. The protocol creates a database for link state by exchanging link states among Layer 3 switches, and then uses the Shortest Path First algorithm to generate a route table based on that database.

Strong Multicast

The GS-6311 series supports abundant multicast features. In Layer 2, it features IPv4 IGMPv1/v2/v3 snooping and IPv6 MLD v1/v2 snooping. With Multicast VLAN Register (MVR), multicast receiver/sender control and illegal multicast source detect functions which make the GS-6311 series great for any robust networking.

Power over Ethernet

- Complies with IEEE 802.3bt Power over Ethernet Plus Plus (GS-6311-24HP4X)
- 8 IEEE 802.3bt PoE++ up to 90 watts on port 1~port 8 (GS-6311-24HP4X)
- 16 IEEE 802.3at PoE+ up to 32 watts on port 9~port 24 (GS-6311-24HP4X)
- Maximum 480-watt PoE budget (GS-6311-24HP4X)
- Complies with IEEE 802.3at/af Power over Ethernet Plus (GS-6311-24P4XV)
- Up to 24 ports of IEEE 802.3af/at devices powered (GS-6311-24P4XV)
- Supports PoE power with up to 32 watts for each PoE port (GS-6311-24P4XV)
- Maximum 370-watt PoE budget (GS-6311-24P4XV)
- Up to 24 ports of IEEE 802.3af/at devices powered (GS-6311-24PL4X)
- Supports PoE power with up to 32 watts for each PoE port (GS-6311-24PL4X)
- Maximum 720-watt PoE budget (GS-6311-24PL4X)
- Complies with IEEE 802.3at/af Power over Ethernet Plus (GS-6311-48P6X)
- Up to 48 ports of IEEE 802.3af/at devices powered (GS-6311-48P6X)
- Supports PoE power with up to 32 watts for each PoE port (GS-6311-48P6X)
- 110VAC supports maximum 500-watt PoE budget (GS-6311-48P6X)
- 220VAC supports maximum 600-watt PoE budget (GS-6311-48P6X)
- Auto detects powered device (PD)
- Circuit protection prevents power interference between ports
- Remote power feeding up to 100 meters
- PoE management
  - Total PoE power budget control
  - Per port PoE function enable/disable
  - PoE port power feeding priority
  - Per PoE port power limitation
  - PD classification detection
  - PoE schedule

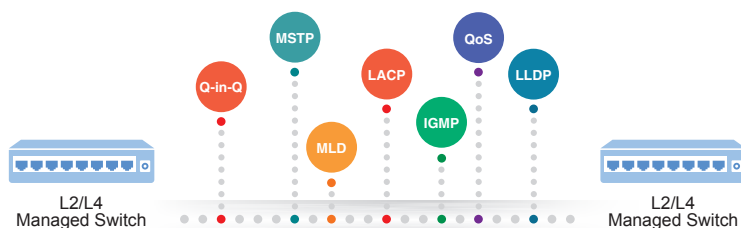## Redundant Power System (GS-6311-16S8C4XR)

- 100~240V AC / 36 -72V DC dual power redundancy
- Active-active redundant power failure protection
- Backup of catastrophic power failure on one supply

Full IPv6 Support

The GS-6311 series provides **IPv6 management** and enterprise-level secure features such as **SSH**, **ACL**, **WRR** and **RADIUS** authentication. It thus helps the enterprises to step in the IPv6 era with the lowest investment. In addition, you don't need to replace the network facilities when the IPv6 FTTx edge network is built.

Robust Layer 2 Features

The GS-6311 series can be programmed for basic switch management functions such as port speed configuration, port aggregation, VLAN, Multiple Spanning Tree Protocol, bandwidth control and IGMP snooping. This switch provides 802.1Q tagged VLAN, Q-in-Q, voice VLAN and GVRP Protocol functions. By supporting port aggregation, the GS-6311 series allows the operation of a high-speed trunk combined with multiple ports. It enables up to 64 groups for trunk with a maximum of 8 ports for each group.

L2/L4 Managed Switch — L2/L4 Managed Switch

Smart LCD (GS-6311-24P4XV)

- The LCD switch features Standard, VLAN and Extend modes of which the Extend mode features 20-watt PoE transmission distance of 250m at speed of 10Mbps and VLAN isolation
- The LCD switch is able to isolate ports to prevent broadcast storm and defend DHCP spoofing
- Power low-voltage, power over-voltage and PSE over-temperature protection
- Screen saver, factory default and save configuration

Excellent Layer 2 to Layer 4 Traffic Control

The GS-6311 series is loaded with powerful traffic management and WRR features to enhance services offered by telecoms. The WRR functionalities include wire-speed Layer 4 traffic classifiers and bandwidth limitation which are particularly useful for multi-tenant unit, multi-business unit, Telco, or network service applications. It also empowers the enterprises to take full advantage of the limited network resources and guarantees the best in VoIP and video conferencing transmission.

Powerful Network Security

The GS-6311 series offers comprehensive Layer 2 to Layer 4 **Access Control List** (ACL) for enforcing security to the edge. It can be used to restrict network access by denying packets based on source and destination IP address, TCP/UDP ports or defined typical network applications. Its protection mechanism also comprises 802.1x Port-based, MAC-based and web-based user and device authentications, which can be deployed with RADIUS, to ensure the port level security and block illegal users.

Advanced IP Network Protection

The GS-6311 series also provides DHCP Snooping, IP Source Guard and Dynamic ARP Inspection functions to prevent IP snooping from attack and discard ARP packets with invalid MAC address. The network administrators can now construct highly-secure corporate networks with considerably less time and effort than before.

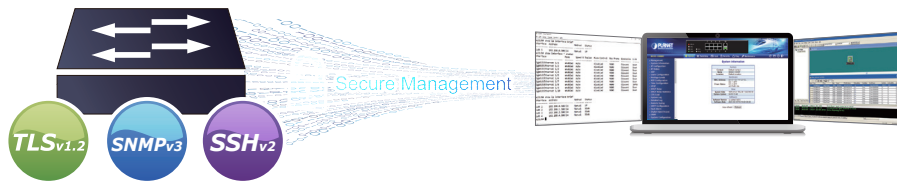## Efficient and Secure Management

For efficient management, the GS-6311 series is equipped with console, Web and SNMP management interfaces.

- With the built-in Web-based management interface, the GS-6311 series offers an easy-to-use, platform-independent management and configuration facility.
- For text-based management, it can be accessed via Telnet and the console port. For reducing product learning time, the GS-6311 series offers Cisco-like command and customer doesn't need to learn new command from these switches
- For standard-based monitor and management software, it offers SNMPv3 connection which encrypts the packet content at each session for secure remote management.

Moreover, the GS-6311 series offers secure remote management by supporting SSHv2 connection which encrypts the packet content at each session.

Intelligent SFP Diagnosis Mechanism

The GS-6311 series supports **SFP-DDM (Digital Diagnostic Monitor)** function that greatly helps network administrator to easily monitor real-time parameters of the SFP and SFP+ transceivers, such as optical output power, optical input power, temperature, laser bias current, and transceiver supply voltage.
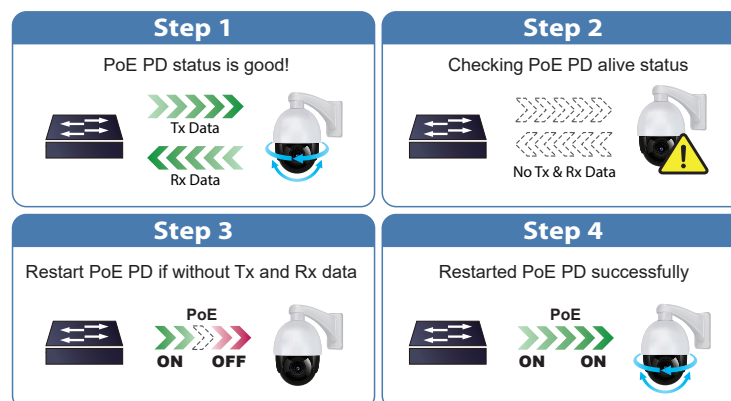
SFP DDM (Digital Diagnostic Monitor)

| Voltage | Ammeter | Temperature | Power Transceiver | Power Receiver |
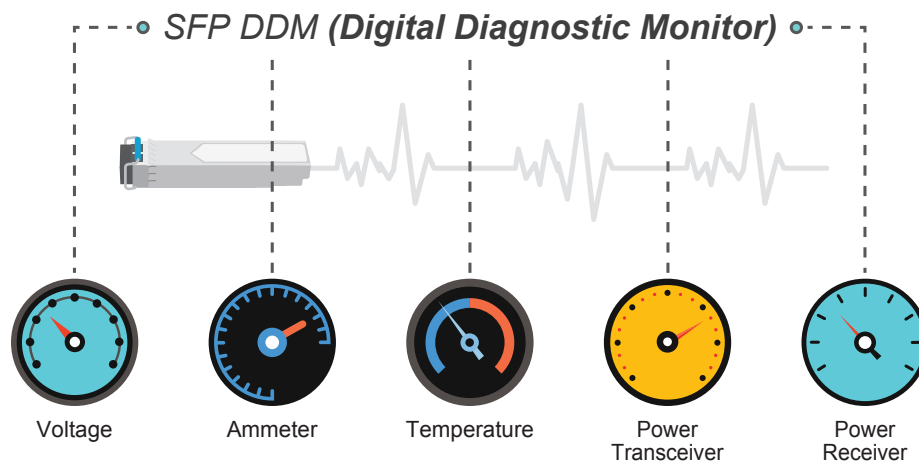
Centralized Power Management for Gigabit Ethernet PoE Networking

To fulfill the needs of higher power required PoE network applications with Gigabit speed transmission. The GS-6311-24HP4X features 8 10/100/1000BASE-T high-performance Gigabit IEEE 802.3bt PoE++ up to 90 watts on port 1~port 8 and 16 IEEE 802.3at PoE+ up to 32 watts on port 9~port 24. The GS-6311-24P4XV and GS-6311-24PL4X feature 24 10/100/1000BASE-T high-performance Gigabit IEEE 802.3at PoE+ ports with up to 32 watts on ports 1 to 24, while the GS-6311-48P6X features 48 10/100/1000BASE-T high-performance Gigabit IEEE 802.3at PoE+ ports with up to 32 watts on ports 1 to 48. They perfectly meet the power requirements of PoE VoIP phone and all kinds of PoE IP cameras such as IR, PTZ, speed dome cameras or even the box-type IP cameras with built-in fan and heater.

The GS-6311 PoE series capabilities also help to reduce deployment costs for network devices as a result of freeing from the restrictions of power outlet locations. Power and data switching are integrated into one unit, delivered over a single cable and managed centrally. It thus eliminates the cost for additional AC wiring and reduces installation time.

Intelligent Powered Device Alive Check

The GS-6311-24P4XV can monitor connected PD status in real time via PD alive check function. Once the PD stops working and responding, the GS-6311-24P4XV will resume the PoE power and bring the PD back to work. It will greatly enhance the network reliability through the PoE port resetting the PD's power source and reducing administrator management burden.

Step 1
PoE PD status is good!
Tx Data
Rx Data

Step 2
Checking PoE PD alive status
No Tx & Rx Data

Step 3
Restart PoE PD if without Tx and Rx data
PoE
ON   OFF

Step 4
Restarted PoE PD successfully
PoE
ON   ON

PoE Schedule for Energy Savings

Besides being used for IP surveillance, the GS-6311 PoE Series is certainly applicable to any PoE network including VoIP and wireless LAN. Under the trend of energy savings worldwide and contributing to the environmental protection on the Earth, the GS-6311 PoE Series can effectively control the power supply besides its capability of giving high watts power. The "PoE schedule" function helps you to enable or disable PoE power feeding for each PoE port during specified time intervals and it is a powerful function to help SMBs or enterprises save energy and budget.

PoE Schedule

08:00~17:00

17:00~08:00

| ON 6 Watts | ON 6 Watts | ON 12 Watts | ON 12 Watts | | OFF 6 Watts | OFF 6 Watts | OFF 12 Watts | ON 12 Watts |

Total Consumption of 36 watts/hr

Save 24 watts/hr during off-business hours
∗ Total Saved = 10800watts/month
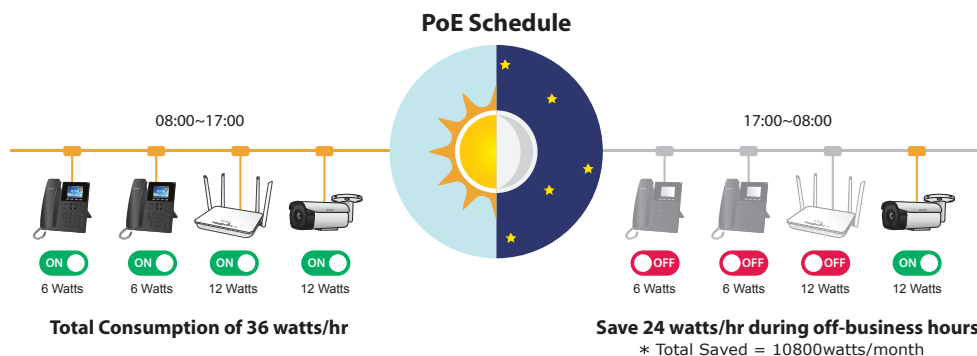
Smart and Intuitive LCD Control

The front panel of the GS-6311-24P4XV provides an intuitive color panel for easy Ethernet network management and PoE PD management. With the jog dial and LCD screen, users can quickly change the setting they want. Just select the setting you want by rotating the dial and then press the dial to enter the setting. This easy operation can enhance the management efficiency of large networks such as enterprises, hotels, shopping malls, government buildings and other public areas. The following special management and status functions are included:

- PoE management and status
- Port management and status
- Switch mode: Standard, VLAN or Extend
- IP setting and loop detection
- VLAN ownership setting
- Screen saver, factory default and save configuration

Main Menu

01 – Switch Mode
02 – Loop Detection
03 – Port Enable
04 – VLAN Ownership
05 – IP Setting
06 – Screen Saver
07 – Default Setting
08 – Password Setting

Port	STS	UP	DOWN	POE
01	Norm	786M	786M	28.9W
02	Norm	786M	786M	25.6W
03	Norm	786M	786M	28.1W
04	Norm	786M	786M	28.0W
05	Norm	78M	78M	27.9W
06	Norm	786M	786M	28.0W
07	Norm	786M	786M	28.3W
Own:Default				V3.05

GS-6311-24P4XV

IP Setting

Old IP: 192.168.0.254
New IP:
192.168.0.254
New IP mask:
255.255.255.0

<Knop>: Input IP
<Enter>: Confirm <Back>: Return

PoE Basic Info

PoE SW Ver.: 1.1.6

PoE power budget: 370W

PoE voltage: 54.5V

<Back>: Return

Applications

PLANET NMSViewerPro Networking Solution

The GS-6311 series effortlessly integrates the functionalities of PLANET NMS and NMSViewerPro, providing users with a seamless and intuitive experience. Leveraging the internet connectivity feature of smartphones enables real-time monitoring of network traffic, configuration settings, and troubleshooting execution. It can access a wealth of device information stored in the cloud, allowing for a comprehensive understanding of your network. Users can benefit from real-time monitoring and control of access points, regardless of their location or time zone.

High Performance Server Service
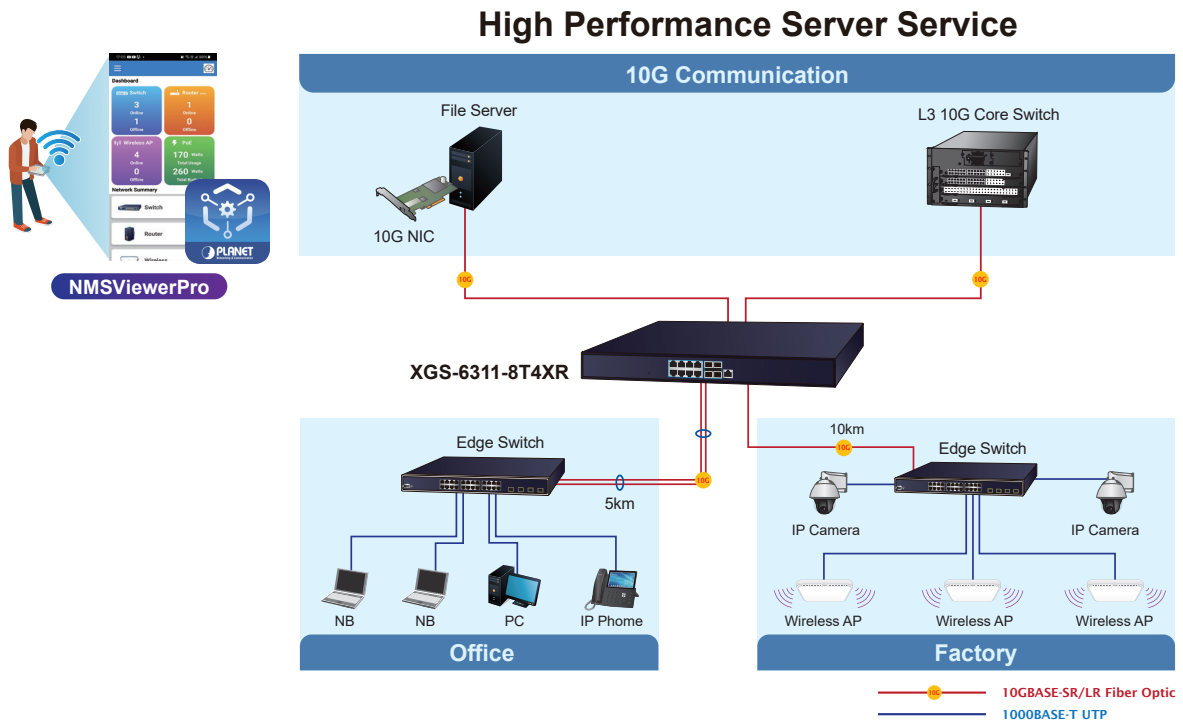
Layer 3 VLAN Routing

With the built-in robust Layer 3 traffic routing protocols, the GS-6311 series ensures reliable routing between VLANs and network segments. The routing protocols can be applied via VLAN interface. The GS-6311 series is certainly a cost-effective and ideal solution for enterprises.

VLAN Routing + 10G Uplink Applications
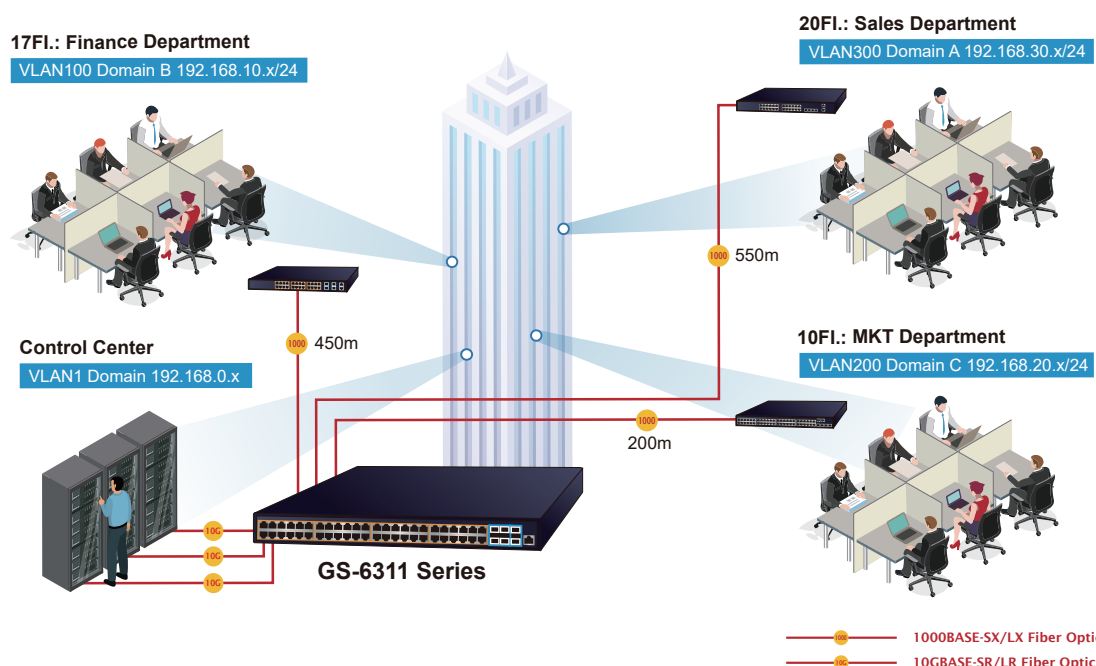
*High Availability Mesh Networking Solution for Big Data System*

With highly-flexible, highly-extendable and easy-to-install features, the GS-6311 series offers up to 128/216Gbps data exchange speed via optical fiber interface and the transmission distance can be extended to 120km. The GS-6311 series features strong, rapid, self-recovery capability to prevent interruptions and external intrusions. It incorporates **IEEE 802.1s MSTP (Multiple Spanning Tree Protocol, spanning tree by VLAN)** into customer's automation network to enhance system reliability and uptime. The GS-6311 series is the ideal solution for data centers, service providers and telecoms to build redundant connection and establish high bandwidth for **Big Data** server farm.
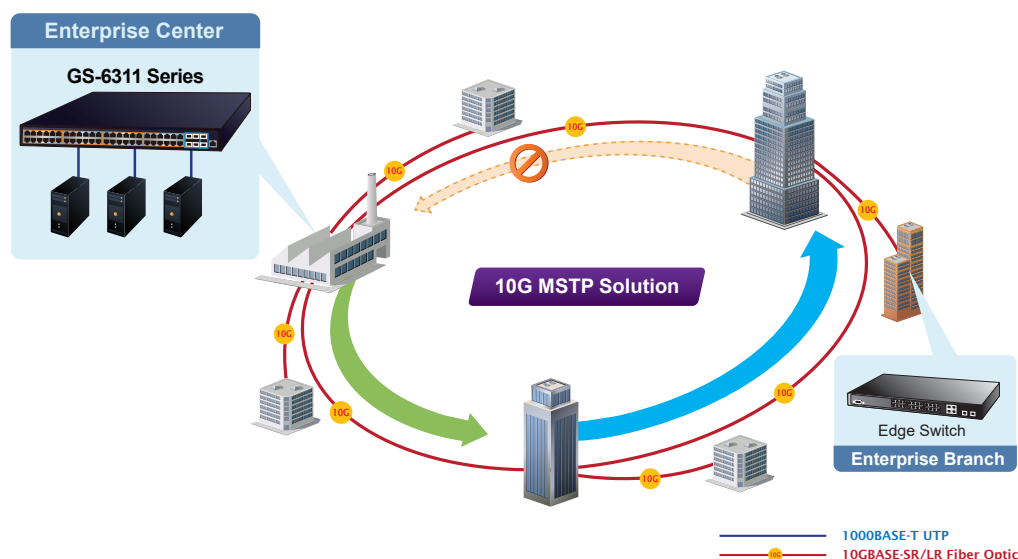
Specifications

GS-6311 Series (Non-PoE Models)

Product	GS-6311-24T4X	GS-6311-16S8C4XR	GS-6311-48T6X
Hardware Specifications			
10/100/1000 RJ45 Ports	24	8 (combo)	48
100/1000BASE-X SFP Ports	--	24	--
10G SFP+ Ports	4	4	6
	10GBASE-SR/LR SFP+ interface Backward compatible with 1000BASE-SX/LX/BX SFP transceiver		
Console Port	1 x RJ45-to-RS232 serial port (9600, 8, N, 1)		
CPU	MIPS 800MHz		
RAM	512Mbytes		
Flash Memory	32Mbytes		
Dimensions (W x D x H)	440 x 207 x 44mm	440 x 260 x 44mm	440 x 260 x 44 mm
Weight	2742g	3495g	3676g
Power Consumption	23.2 watts/79.11 BTU	36.2 watts/102.9 BTU	53.7 watts/183BTU
Power Requirements- AC	AC 100~240V, 50/60Hz	AC 100~240V, 50/60Hz	AC: 100~240V, 50/60Hz
Power Requirements - DC	--	DC: 36~72V	--
Fan	--	2	1
LED	**System:** PWR (Green) SYS (Green)	**System:** PWR (Green) SYS (Green)	**System:** PWR (Green) SYS (Green)
	Ports: LNK/ACT (Green)	**Ports:** LNK/ACT (Green)	**Ports:** LNK/ACT (Green)
Switching Specifications			
Switch Architecture	Store-and-forward		
Switch Fabric	128Gbps/non-blocking		216Gbps/non-blocking
Switch Throughput	95.23Mpps		160.7Mpps
Address Table	16K MAC address table with auto learning function		32K MAC address table with auto learning function
ARP Table	8K	8K	8K
Routing Table	6K	6K	12K
IP Interface	1024	1024	1024

8

ACL Table	2K	2K	4K
Shared Data Buffer	12MB	12MB	16MB
Jumbo Frame	12KBytes		
Flow Control	Back pressure for half duplex IEEE 802.3x pause frame for full duplex		

IPv4 Layer 3 Functions

IP Routing Protocol	Static route RIPv1/v2 OSPFv2 BGP4 Hardware-based Layer 3 routing
Layer 3 Protocol	ARP ARP Proxy IGMP Proxy

IPv6 Layer 3 Functions

IP Routing Protocol	IPv6 Static Route RIPng OSPFv3 BGP6 (BGP4+) PIM6 IPv6 RA (Router Advertisement) IPv6 LPM Routing Hardware-based Layer 3 routing SNMP over IPv6 Support IPv6 IPSec Support IPv6 ACL
Other	ICMPv6,ND,DNSv6 DNS over IPv6 Support

Layer 2 Functions

Port Configuration	Port disable/enable Flow control disable/enable Bandwidth control on each port Port loopback detect
Port Status	Display each port's speed duplex mode, link status, flow control status and auto negotiation status
VLAN	802.1Q tagged VLAN, up to 4K VLAN groups 802.1ad Q-in-Q (VLAN stacking) GVRP for VLAN management Private VLAN Edge (PVE) supported Protocol-based VLAN MAC-based VLAN IP subnet VLAN
Bandwidth Control	TX/RX/Both
Link Aggregation	IEEE 802.3ad LACP/static trunk Supports 64 groups with 8 ports per trunk group

QoS	8 priority queues on all switch ports
	Supports strict priority and Weighted Round Robin (WRR) CoS policies
	Traffic classification:
	  - IEEE 802.1p CoS/ToS
	  - IPv4/IPv6 DSCP
	  - Port-based WRR

Multicast	IPv4 IGMP v1/v2/v3 snooping IPv4 Querier mode support IPv6 MLD v1/v2 snooping Multicast VLAN Register (MVR) Up to 1024

Security Functions

Access Control List	Supports Standard and Expanded ACL IP-based ACL/MAC-based ACL Time-based ACL Up to 2K entries

Security	Port isolation
	Supports IP + MAC + port binding
	Identification and filtering of L2/L3/L4 based ACL
	Defend against DOS or TCP attacks
	Suppression of broadcast, multicast and unknown unicast packet
	DHCP Snooping, DHCP Option 82/43/60/61/67
	Command line authority control based on user levels
AAA	TACACS+ and IPv4/IPv6 over RADIUS
Authentication	IEEE 802.1x port-based network access control

Switch Management Functions	
System Configuration	Console, Telnet, Web browser, SNMP v1, v2c
Secure Management Interfaces	SSHv2, TLSv1.2, SNMPv3
Management	IPv4 and IPv6 dual stack management
	SNMP over IPv6 Support
	User IP security inspection for IPv4/IPv6 SNMP
	SNMP v1, v2c and v3
	SNMP MIB and TRAP
	SNMP RMON 1, 2, 3, 9 four groups
	HTTP over IPv6 Support
	IPv4/IPv6 FTP/TFTP
	IPv4/IPv6 SNTP/NTP
	Supports ping, trace route function for IPv4 and IPv6
	RADIUS authentication for IPv4/IPv6 Telnet user name and password
	IPv4/IPv6 SSH`
	IPv4/IPv6 Telnet
	IPv6 Radius+ Support
	The right configuration for users to adopt RADIUS server's shell management
	CLI, console, Telnet
	Security IP safety net management function: avoid unlawful landing at nonrestrictive area
	Syslog server for IPv4 and IPv6
	IPv6 TACACS+ support
	PLANET Smart Discovery Utility
	PLANET NMS
	PLANET NMSViewerPro
SNMP MIBs	RFC 1213 MIB-II
	RFC 1215 Internet Engineering Task Force
	RFC 1271 RMON
	RFC 1354 IP-Forwarding MIB
	RFC 1493 Bridge MIB
	RFC 1643 Ether-like MIB
	RFC 1907 SNMP v2
	RFC 2011 IP/ICMP MIB
	RFC 2012 TCP MIB
	RFC 2013 UDP MIB
	RFC 2096 IP forward MIB
	RFC 2233 if MIB
	RFC 2452 TCP6 MIB
	RFC 2454 UDP6 MIB
	RFC 2465 IPv6 MIB
	RFC 2466 ICMP6 MIB
	RFC 2573 SNMP v3 notify
	RFC 2574 SNMP v3 vacm
	RFC 2674 Bridge MIB Extensions (IEEE 802.1Q MIB)
	RFC 2674 Bridge MIB Extensions (IEEE 802.1P MIB)

Standard Conformance	
Regulatory Compliance	FCC Part 15 Class A, CE

Standards Compliance	IEEE 802.3 10BASE-T
	IEEE 802.3u 100BASE-TX
	IEEE 802.3z Gigabit 1000BASE-SX/LX
	IEEE 802.3ab Gigabit 1000BASE-T
	IEEE 802.3ae 10Gb/s Ethernet
	IEEE 802.3x flow control and back pressure
	IEEE 802.3ad port trunk with LACP
	IEEE 802.1ag CFM
	IEEE 802.1D Spanning Tree Protocol
	IEEE 802.1w Rapid Spanning Tree Protocol
	IEEE 802.1s Multiple Spanning Tree Protocol
	IEEE 802.1p Class of Service
	IEEE 802.1Q VLAN tagging
	IEEE 802.1X port authentication network control
	IEEE 802.1ab LLDP
	IEEE 802.3af Power over Ethernet
	IEEE 802.3at Power over Ethernet PLUS
	IEEE 802.3bt 4-pair Power over Ethernet Plus Plus
	RFC 768 UDP
	RFC 783 TFTP
	RFC 793 TCP
	RFC 791 IP
	RFC 792 ICMP
	RFC 2068 HTTP
	RFC 1112 IGMP v1
	RFC 2236 IGMP v2
	RFC 3376 IGMP v3
	RFC 2710 MLD v1
	RFC 3810 MLD v2
	RFC 2328 OSPF v2
	RFC 1058 RIP v1
	RFC 2453 RIP v2
	ITU-T G.8032 ERPS Ring

Environment

Operating	Temperature: 0 ~ 50 degrees C Relative Humidity: 5 ~ 90% (non-condensing)
Storage	Temperature: -10 ~ 70 degrees C Relative Humidity: 5 ~ 90% (non-condensing)

GS-6311 Series (PoE Models)

Product	GS-6311-24HP4X	GS-6311-24P4XV	GS-6311-24PL4X	GS-6311-48P6X
Hardware Specifications				
10/100/1000 RJ45 Ports	24	24	24	48
100/1000BASE-X SFP Ports	--	--	--	--
10G SFP+ Ports	4	4	4	6
	10GBASE-SR/LR SFP+ interface Backward compatible with 1000BASE-SX/LX/BX SFP transceiver			
Console Port	1 x RJ45-to-RS232 serial port (9600, 8, N, 1)			
CPU	MIPS 800MHz	MIPS 800MHz	RTL9301-CG	MIPS 800MHz
RAM	512Mbytes	512Mbytes	4Gbytes	512Mbytes
Flash Memory	32Mbytes			
Dimensions (W x D x H)	440 x 207 x 44mm	440 x 207 x 44mm	440 x 330 x 44mm	440 x 330 x 44mm
Weight	3542g	3457g	4542g	5368g
Power Consumption	15 watts/ 51.1BTU (System)	14.5 watts/ 49.4BTU (System)	23.3 watts/ 79.5BTU (System)	39.9 watts/ 136BTU (System)
	540 watts/ 1841.4BTU (System+PoE)	425 watts/ 1449BTU (System+PoE)	745.5 watts/ 2544.8BTU (System+PoE)	698 watts/ 2380BTU (System+PoE)
Power Requirements- AC	AC 100~240V, 50/60Hz	AC 100~240V, 50/60Hz	AC 100~240V, 50/60Hz	AC 100~240V, 50/60Hz
Fan	2	2	4	5

LED	System: PWR (Green) SYS (Green)	System: PWR (Green) SYS (Green)	System: PWR (Green) SYS (Green)	System: PWR (Green) SYS (Green)
	Ports: LNK/ACT (Green) PoE-in-Use (Amber)	Ports: LNK/ACT (Green) PoE-in-Use (Amber)	Ports: LNK/ACT (Green) PoE-in-Use (Amber)	Ports: LNK/ACT (Green) PoE-in-Use (Amber)
Switching Specifications				
Switch Architecture	Store-and-forward			
Switch Fabric	128Gbps/non-blocking			216Gbps/non-blocking
Switch Throughput	95.23Mpps			160.7Mpps
Address Table	16K MAC address table with auto learning function			32K MAC address table with auto learning function
ARP Table	8K	8K	8K	8K
Routing Table	6K	6K	6K	12K
IP Interface	1024	1024	1024	1024
ACL Table	2K	2K	2K	4K
Shared Data Buffer	12MB	12MB	12MB	16MB
Jumbo Frame	12KBytes			
Flow Control	Back pressure for half duplex IEEE 802.3x pause frame for full duplex			
Power over Ethernet Specifications				
PoE Standard	IEEE 802.3bt PoE++ PSE (Ports 1 to 8) IEEE 802.3af/at PoE+ PSE (Ports 9 to 24)	IEEE 802.3at PoE+ PSE	IEEE 802.3at PoE+ PSE	IEEE 802.3at PoE+ PSE
PoE Power Supply Type	End-span/Mid-span/802.3bt (Ports 1 to 8) End-span (Ports 9 to 24)	End-span	End-span	End-span
PoE Power Output	Port 1-8 90W (max), Port 9-24 32W (max)	32W(MAX)	32W(MAX)	32W(MAX)
Power Pin Assignment	End-span: 1/2 (-), 3/6 (+) Mid-span: 4/5 (+), 7/8 (-) 802.3bt: 1/2 (-), 3/6 (+), 4/5 (+), 7/8 (-)	1/2(-), 3/6(+)	1/2(-), 3/6(+)	1/2(+), 3/6(-)
PoE Power Budget	480W (max.)	370W (max.)	720W (max.)	500W / 110V AC 600W / 220V AC
IPv4 Layer 3 Functions				
IP Routing Protocol	Static route RIPv1/v2 OSPFv2 BGP4 Hardware-based Layer 3 routing			
Layer 3 Protocol	ARP ARP Proxy IGMP Proxy			
IPv6 Layer 3 Functions				
IP Routing Protocol	IPv6 Static Route RIPng OSPFv3 BGP6 (BGP4+) PIM6 IPv6 RA (Router Advertisement) IPv6 LPM Routing Hardware-based Layer 3 routing SNMP over IPv6 Support IPv6 IPSec Support IPv6 ACL			
Other	ICMPv6,ND,DNSv6 DNS over IPv6 Support			

Layer 2 Functions	
Port Configuration	Port disable/enable Flow control disable/enable Bandwidth control on each port Port loopback detect
Port Status	Display each port's speed duplex mode, link status, flow control status and auto negotiation status
VLAN	802.1Q tagged VLAN, up to 4K VLAN groups 802.1ad Q-in-Q (VLAN stacking) GVRP for VLAN management Private VLAN Edge (PVE) supported Protocol-based VLAN MAC-based VLAN IP subnet VLAN
Bandwidth Control	TX/RX/Both
Link Aggregation	IEEE 802.3ad LACP/static trunk Supports 64 groups with 8 ports per trunk group

QoS	8 priority queues on all switch ports
	Supports strict priority and Weighted Round Robin (WRR) CoS policies
	Traffic classification:
	  - IEEE 802.1p CoS/ToS
	  - IPv4/IPv6 DSCP
	  - Port-based WRR

Multicast	IPv4 IGMP v1/v2/v3 snooping IPv4 Querier mode support IPv6 MLD v1/v2 snooping Multicast VLAN Register (MVR) Up to 1024
Security Functions	
Access Control List	Supports Standard and Expanded ACL IP-based ACL/MAC-based ACL Time-based ACL Up to 2K entries
Security	Port isolation Supports IP + MAC + port binding Identification and filtering of L2/L3/L4 based ACL Defend against DOS or TCP attacks Suppression of broadcast, multicast and unknown unicast packet DHCP Snooping, DHCP Option 82/43/60/61/67 Command line authority control based on user levels
AAA	TACACS+ and IPv4/IPv6 over RADIUS
Authentication	IEEE 802.1x port-based network access control
Switch Management Functions	
System Configuration	Console, Telnet, Web browser, SNMP v1, v2c
Secure Management Interfaces	SSHv2, TLSv1.2, SNMPv3
Management	IPv4 and IPv6 dual stack management SNMP over IPv6 Support User IP security inspection for IPv4/IPv6 SNMP SNMP v1, v2c and v3 SNMP MIB and TRAP SNMP RMON 1, 2, 3, 9 four groups HTTP over IPv6 Support IPv4/IPv6 FTP/TFTP IPv4/IPv6 SNTP/NTP Supports ping, trace route function for IPv4 and IPv6 RADIUS authentication for IPv4/IPv6 Telnet user name and password IPv4/IPv6 SSH` IPv4/IPv6 Telnet IPv6 Radius+ Support The right configuration for users to adopt RADIUS server's shell management CLI, console, Telnet Security IP safety net management function: avoid unlawful landing at nonrestrictive area Syslog server for IPv4 and IPv6 IPv6 TACACS+ support PLANET Smart Discovery Utility PLANET NMS PLANET NMSViewerPro

SNMP MIBs	RFC 1213 MIB-II
	RFC 1215 Internet Engineering Task Force
	RFC 1271 RMON
	RFC 1354 IP-Forwarding MIB
	RFC 1493 Bridge MIB
	RFC 1643 Ether-like MIB
	RFC 1907 SNMP v2
	RFC 2011 IP/ICMP MIB
	RFC 2012 TCP MIB
	RFC 2013 UDP MIB
	RFC 2096 IP forward MIB
	RFC 2233 if MIB
	RFC 2452 TCP6 MIB
	RFC 2454 UDP6 MIB
	RFC 2465 IPv6 MIB
	RFC 2466 ICMP6 MIB
	RFC 2573 SNMP v3 notify
	RFC 2574 SNMP v3 vacm
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Standard Conformance

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	IEEE 802.1p Class of Service
	IEEE 802.1Q VLAN tagging
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	IEEE 802.1ab LLDP
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	IEEE 802.3at Power over Ethernet PLUS
	IEEE 802.3bt 4-pair Power over Ethernet Plus Plus
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	RFC 783 TFTP
	RFC 793 TCP
	RFC 791 IP
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	RFC 2068 HTTP
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	RFC 2236 IGMP v2
	RFC 3376 IGMP v3
	RFC 2710 MLD v1
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	RFC 1058 RIP v1
	RFC 2453 RIP v2
	ITU-T G.8032 ERPS Ring

Environment

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	Relative Humidity: 5 ~ 90% (non-condensing)
Storage	Temperature: -10 ~ 70 degrees C
	Relative Humidity: 5 ~ 90% (non-condensing)

Ordering Information

GS-6311-24T4X	L3 24-Port 10/100/1000T + 4-Port 10G SFP+ Managed Ethernet Switch
GS-6311-24HP4X	L3 8-Port 802.3bt PoE + 16-Port 802.3at PoE + 4-Port 10G SFP+ Managed Ethernet Switch
GS-6311-24P4XV	L3 24-Port 802.3at PoE + 4-Port 10G SFP+ Managed Ethernet Switch with Smart LCD Screen
GS-6311-24PL4X	L3 24-Port 10/100/1000T 802.3at PoE + 4-Port 10G SFP+ Managed Ethernet Switch (720W)
GS-6311-16S8C4XR	L3 16-Port 100/1000X SFP + 8-Port Gigabit TP/SFP + 4-Port 10G SFP+ Managed Ethernet Switch with 36-72V DC Redundant Power
GS-6311-48T6X	L3 48-Port 10/100/1000T + 6-Port 10G SFP+ Managed Ethernet Switch
GS-6311-48P6X	L3 48-Port 10/100/1000T 802.3at PoE + 6-Port 10G SFP+ Managed Ethernet Switch

Related Products

XGS-5240-24X2QR	Layer 2+ 24-Port 10G SFP+ + 2-Port 40G QSFP+ Stackable Managed Switch
XGS-6320-12X4TR	Layer 3 12-Port 10GBASE-X SFP+ + 4-Port 10GBASE-T Managed Ethernet Switch with 48V DC Redundant Power
XGS-6320-8X8TR	Layer 3 8-Port 10GBASE-X SFP+ + 8-Port 10GBASE-T Managed Ethernet Switch with 48V DC Redundant Power
MGS-6320-2T6S2X	L3 2-Port 100/1000T + 2-Port 100/1000X SFP + 4-Port 2.5G SFP + 2-Port 10G SFP+ Metro Ethernet Switch
SGS-6310-48T6X	L3 48-Port 10/100/1000T + 6-Port 10G SFP+ Stackable Managed Switch
SGS-6310-48P6XR	L3 48-Port 10/100/1000T 802.3at PoE + 6-Port 10G SFP+ Stackable Managed Switch with 55V DC Redundant Power
XGS-6350-48X2Q4C	Layer 3 48-Port 10G SFP+ + 2-Port 40G QSFP+ + 4-Port 100G QSFP28 Managed Switch

Available Modules for GS-6311 series

10Gigabit Ethernet Transceiver

MTB-LB40	1-Port 10GBASE-BX SFP+ Fiber Optic Module - 40km (TX:1330nm RX:1270nm)
MTB-LA40	1-Port 10GBASE-BX SFP+ Fiber Optic Module - 40km (TX:1270nm RX:1330nm)
MTB-LB20	1-Port 10GBASE-BX SFP+ Fiber Optic Module - 20km (TX:1330nm RX:1270nm)
MTB-LA20	1-Port 10GBASE-BX SFP+ Fiber Optic Module - 20km (TX:1270nm RX:1330nm)
MTB-SR	1-Port 10GBASE-SR SFP+ Fiber Optic Module - 300m
MTB-LR	1-Port 10GBASE-LR SFP+ Fiber Optic Module - 10km
MTB-LA60	1-Port 10GBASE-BX SFP+ Fiber Optic Module - 60km (TX:1270nm RX:1330nm)
MTB-LB60	1-Port 10GBASE-BX SFP+ Fiber Optic Module - 60km (TX:1330nm RX:1270nm)
MTB-RJ	1-Port 10GBASE-T SFP+ Copper Fiber Optic Module - 30m
MTB-LR40	1-Port 10GBASE-LR SFP+ Fiber Optic Module - 40km
MTB-SR2	1-Port 10GBASE-SR SFP+ Fiber Optic Module – 2km
MTB-LR20	1-Port 10GBASE-LR SFP+ Fiber Optic Module - 20km
MTB-LR60	1-Port 10GBASE-LR SFP+ Fiber Optic Module - 60km
MTB-LR80	1-Port 10GBASE-LR SFP+ Fiber Optic Module - 80km
MTB-LA10	1-Port 10GBASE-BX SFP+ Fiber Optic Module - 10km (TX:1270nm RX:1330nm)
MTB-LB10	1-Port 10GBASE-BX SFP+ Fiber Optic Module - 10km (TX:1330nm RX:1270nm)

Gigabit Ethernet Transceiver (1000BASE-X SFP)

MGB-GT	SFP-Port 1000BASE-T Module
MGB-LX	SFP-Port 1000BASE-LX mini-GBIC module - 20km
MGB-SX	SFP-Port 1000BASE-SX mini-GBIC module - 550m
MGB-SX2	SFP-Port 1000BASE-SX mini-GBIC module - 2km
MGB-L40	SFP-Port 1000BASE-LX mini-GBIC module - 40km
MGB-L80	SFP-Port 1000BASE-LX mini-GBIC module - 80km
MGB-L120	SFP-Port 1000BASE-LX mini-GBIC module - 120km
MGB-LA10	SFP-Port 1000BASE-BX (WDM, TX:1310nm) mini-GBIC module - 10km
MGB-LB10	SFP-Port 1000BASE-BX (WDM, TX:1550nm) mini-GBIC module - 10km
MGB-LA20	SFP-Port 1000BASE-BX (WDM, TX:1310nm) mini-GBIC module - 20km
MGB-LB20	SFP-Port 1000BASE-BX (WDM, TX:1550nm) mini-GBIC module - 20km
MGB-LA40	SFP-Port 1000BASE-BX (WDM, TX:1310nm) mini-GBIC module - 40km
MGB-LB40	SFP-Port 1000BASE-BX (WDM, TX:1550nm) mini-GBIC module - 40km
MGB-LA80	SFP-Port 1000BASE-BX (WDM, TX:1490nm) mini-GBIC module - 80km
MGB-LB80	SFP-Port 1000BASE-BX (WDM, TX:1550nm) mini-GBIC module - 80km

GS-6311 series