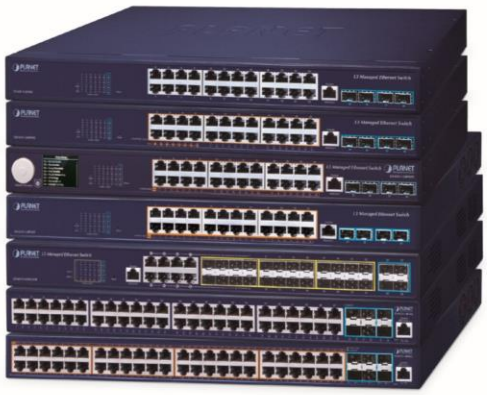
Layer 3 Multiple Gigabit + 10G SFP+ Managed Ethernet Switch

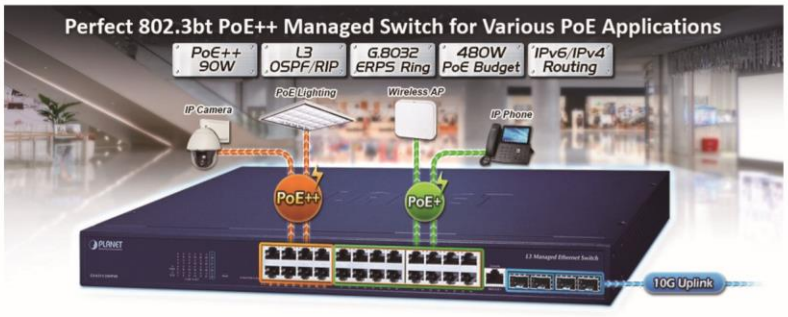


NMS is Integrated to Improve Network Management Efficiency

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	--



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.

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

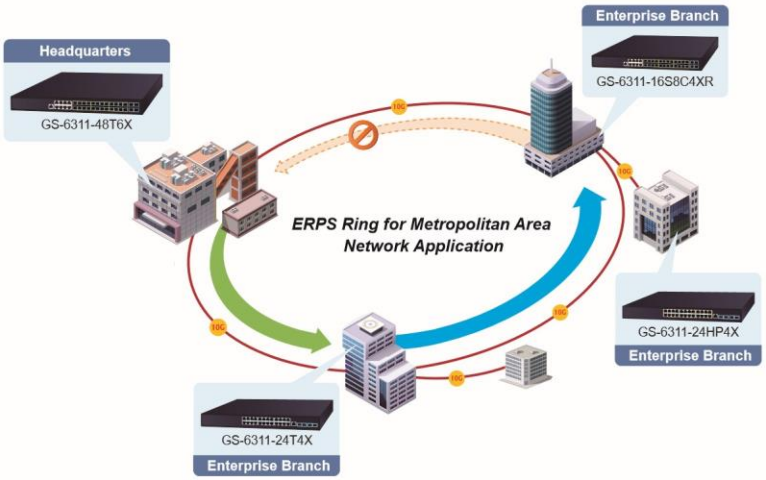
- IEEE 802.1x port-based network access authentication
- MAC-based network access authentication
- Built-in RADIUS client to cooperate with the RADIUS servers for IPv4 and IPv6
- TACACS+ login users access authentication
- IP-based Access Control List (ACL)
- MAC-based Access Control List
- Supports 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

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.



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