24-Port 10/100/1000Mbps with 4-Port Shared SFP Managed Switch

Cost-effective IPv6 Managed Gigabit Switch Solution for SMBs

Currently, lots of electronic products or mobile devices can browse the Internet, which means the need of IP address increases. However, the current IPv4 network infrastructure is not capable enough to provide IP address to every user/client. The situation forces ISPs to adopt the IPv6 (Internet Protocol version 6) network infrastructure. To fulfill the demand, PLANET releases the IPv6 management Gigabit Ethernet Switch, the WGSW-24040 series, which supports both IPv4 and IPv6 management functions. The WGSW-24040 series can work with the original network structure (IPv4) and also supports the new network structure (IPv6) in the future. With easy and friendly management interfaces and plenty of management functions included, the WGSW-24040 series is the best choice for ISPs to build the IPv6 FTTx edge service and for SMBs to connect with the IPv6 network.

Multiple Applications

PLANET WGSW-24040 series is a 19" rack mount sized, Layer 2 / Layer 4 Full Managed Gigabit Switch which can handle an extremely large amount of data in a secure topology linking to an Enterprise backbone or high capacity network server with 48Gbps switching fabric. The powerful features of QoS and network security offered by the WGSW-24040 series performs effective data traffic control for ISPs and Enterprises VoIP, video streaming and multicast applications. It is ideal for the remote access layer of campus or enterprise networks and the aggregation layer of IP metropolitan networks.

High Performance

The WGSW-24040 series provides 24 10/100/1000Mbps Gigabit Ethernet ports with 4 shared Gigabit SFP slots. It boasts its high-performance architecture that is capable to provide the non-blocking switch fabric and wire-speed throughput as high as 48Gbps, which greatly simplifies the tasks of upgrading the LAN for catering to increasing bandwidth demands.

Physical Port

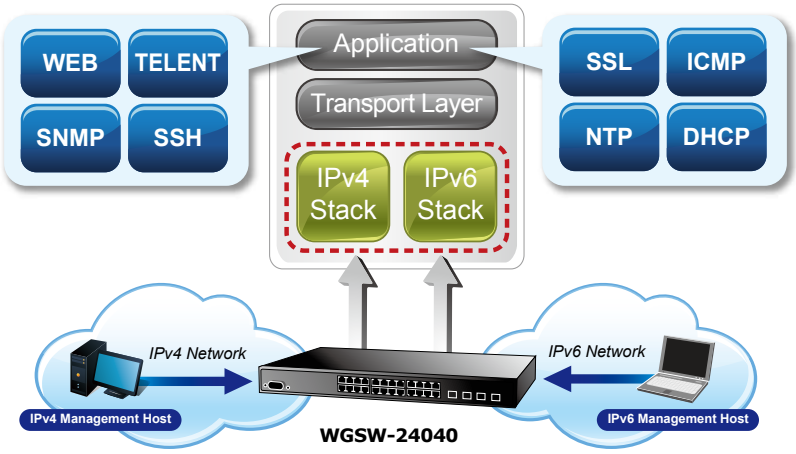
- 24-Port 10/100/1000Base-T RJ-45 copper
- 4 100/1000Base-X mini-GBIC/SFP slots , shared with Port-21 to Port-24
- RS-232 DB9 console interface for basic management and setup

Layer 2 Features

- Prevents packet loss with back pressure (half-duplex) and IEEE 802.3x pause frame flow control (full-duplex)
- High performance of Store-and-Forward architecture and runt/CRC filtering eliminates erroneous packets to optimize the network bandwidth
- Storm Control support:
  - broadcast / Unicast
- Support VLAN
  - IEEE 802.1Q Tagged VLAN
  - Up to 255 VLANs groups, out of 4095 VLAN IDs
  - Provider Bridging (VLAN Q-in-Q) support (IEEE 802.1ad)
  - Private VLAN Edge (PVE)
  - Protocol-based VLAN
  - MAC-based VLAN
  - Voice VLAN
- Support Spanning Tree Protocol
  - STP, IEEE 802.1D Spanning Tree Protocol
  - RSTP, IEEE 802.1w Rapid Spanning Tree Protocol
  - MSTP, IEEE 802.1s Multiple Spanning Tree Protocol, spanning tree by VLAN
  - BPDU Guard
- Support Link Aggregation
  - 802.3ad Link Aggregation Control Protocol (LACP)
  - Cisco ether-channel (Static Trunk)
  - Maximum 12 trunk groups, up to 16 ports per trunk group
  - Up to 16Gbps bandwidth(Duplex Mode)
- Provides Port Mirror (many-to-1)
- Loop protection to avoid broadcast loops

IPv6 / IPv4 Dual Stack

By supporting IPv6 management features and also backward compatibility with IPv4, the WGSW-24040 series helps SMBs to step in the IPv6 era with the lowest investment but does not need to replace the network facilities while ISPs construct the IPv6 FTTx edge network.



Robust Layer 2 Features

The WGSW-24040 series can be programmed for advanced switch management functions such as dynamic port link aggregation, Q-in-Q VLAN, private VLAN, Multiple Spanning Tree protocol (MSTP), Layer 2 to Layer 4 QoS, bandwidth control and IGMP Snooping. The WGSW-24040 series provides 802.1Q Tagged VLAN, and the VLAN groups allowed will be maximally up to 256. Via aggregation of supporting ports, the WGSW-24040 series allows the operation of a high-speed trunk to combine with multiple ports. It enables maximum up to 12 groups of 16 ports for trunk and supports fail-over as well.

Enhanced Security

The WGSW-24040 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 and MAC-based user and device authentication. With the private VLAN function, communications between edge ports can be protected to ensure user privacy. New WGSW-24040 series Net Security also provides DHCP Snooping, IP Source Guard and Dynamic ARP Inspection functions to prevent IP snooping from attack and discards ARP packets with invalid MAC address. The network administrators can now construct highly secured corporate networks with considerably less time and effort than before.

Excellent Traffic Control

The WGSW-24040 series is loaded with powerful traffic management and QoS features to enhance services offered by telecoms. The QoS features include wire-speed Layer 4 traffic classifiers and bandwidth limitation that are particularly useful for multi-tenant unit, multi business unit, Telco, or Network Service Provider applications. The WGSW-24040 series also empowers enterprises to take full advantage of the limited network resources and guarantees the best performance in VoIP and video conferencing transmission.

- Port Mirroring to monitor the incoming or outgoing traffic on a particular port

Quality of Service

- 8 priority queues on all switch ports
- Traffic classification:
  - IEEE 802.1p CoS
  - IP TOS / DSCP / IP Precedence
  - IP TCP/UDP port number
  - Typical network application
- Strict priority and Weighted Round Robin (WRR) CoS policies
- Traffic-policing policies on the switch port
- DSCP remarking

Multicast

- Supports IGMP Snooping v1, v2 and v3
- Supports MLD Snooping v1 and v2
- Querier mode support
- IGMP Snooping port filtering
- MLD Snooping port filtering
- MVR (Multicast VLAN Registration)

Security

- IEEE 802.1x Port-based / MAC-based network access authentication
- Built-in RADIUS client to co-operate with the RADIUS servers
- TACACS+ login users access authentication
- RADIUS / TACACS+ users access authentication
- IP-based Access Control List (ACL)
- MAC-based Access Control List
- Source MAC / IP address binding
- DHCP Snooping to filter untrusted DHCP messages
- Dynamic ARP Inspection discards ARP packets with invalid MAC address to IP address binding
- IP Source Guard prevents IP spoofing attacks
- IP address access management to prevent unauthorized intruder

Management

- Switch Management Interfaces
  - Console / Telnet Command Line Interface
  - Web switch management
  - SNMP v1, v2c, and v3 switch management

Efficient and Secure Management

For efficient management, the WGSW-24040 Managed Ethernet Switch series is equipped with console, WEB and SNMP management interfaces. With the built-in Web-based management interface, the WGSW-24040 series offers an easy-to-use, platform-independent management and configuration facility. The WGSW-24040 series supports standard Simple Network Management Protocol (SNMP) and can be managed via any standard-based management software. For text-based management, the WGSW-24040 series can be accessed via Telnet and the console port. Moreover, the WGSW-24040 series offers secure remote management by supporting SSH, SSL and SNMPv3 connections which encrypt the packet content at each session.

Flexibility and Extension Solution

The 4 mini-GBIC slots built in the WGSW-24040 series support Dual-Speed, 100Base-FX and 1000Base-SX/LX SFP (Small Form-factor Pluggable) fiber-optic modules, meaning the administrator now can flexibly choose a suitable SFP transceiver according to the transmission distance or the transmission speed required. The distance can be extended from 550 meters (Multi-Mode fiber) up to above 10/50/70/120 kilometers (Single-Mode fiber or WDM fiber). They are well suited for applications within the enterprise data centers and distributions.

Fanless Design (WGSW-24040)

Adopting the latest chip process and Green technology, the WGSW-24040 successfully reduces substantial power consumption with the fanless and noiseless design collocating with the effective cooler. Therefore, the WGSW-24040 is able to operate stably and quietly in any environment without affecting its performance.

AC / DC Power Redundant to Ensure Continuous Operation (WGSW-24040R)

Particularly for the WGSW-24040R, it is equipped with one 100~240V AC power supply unit and one DC -48V power supply unit to provide an enhanced reliable and scalable redundant power supply installation. The continuous power system is specifically designed to fulfill the demands of high tech facilities requiring the highest power integrity. The -48V DC power supply implemented makes the WGSW-24040R the telecom level device that can be located in the electronics room.

  - SSH / SSL secure access
- Four RMON groups (history, statistics, alarms, and events)
- IPv6 IP Address / NTP / DNS management
- Built-in Trivial File Transfer Protocol (TFTP) client
- BOOTP and DHCP for IP address assignment
- Firmware upload/download via HTTP / TFTP
- DHCP Relay
- DHCP Option82
- User Privilege levels control
- NTP (Network Time Protocol)
- Link Layer Discovery Protocol (LLDP) Protocol
- Cable Diagnostic technology provides the mechanism to detect and report potential cabling issues
- Reset button for system reboot or reset to factory default
- PLANET Smart Discovery Utility for deploy management

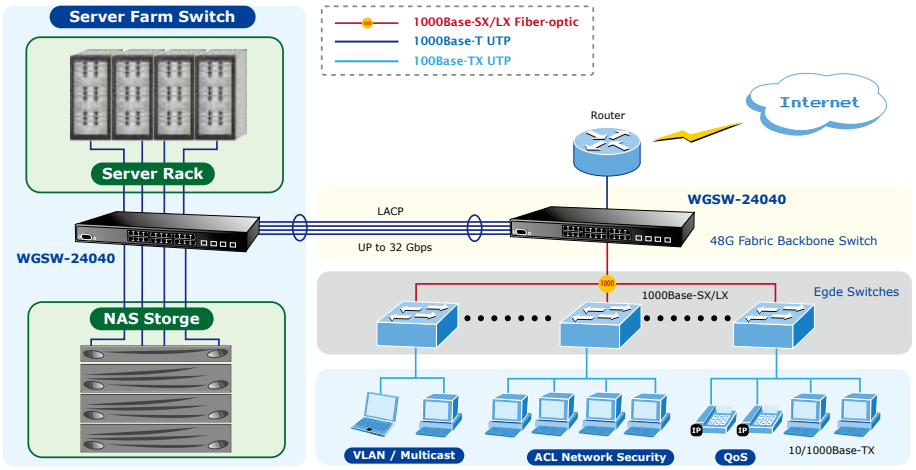
Redundant Power System (WGSW-24040R Only)

- 100~240V AC / 48V DC dual power redundant
- Active-active redundant power failure protection
- Backup of catastrophic power failure on one supply
- Fault tolerance and resilience.

Applications

High Performance Backbone / Server Farm Switch

Gigabit Ethernet supported equipment has become the fundamental unit of Enterprises and Network servers. With up to 48 Gigabits per second of non-blocking switch fabric, the WGSW-24040 series can easily provide the high bandwidth required from now on. It can easily provide a local high bandwidth Gigabit Ethernet network for backbone of enterprises or telecoms. With its port trunking function, a 16 GB fat pipe is provided to connect to the backbone if required. It is ideal to be used as a server farm switch connecting servers. The WGSW-24040 series can offer the uplink to the edge network through Gigabit Ethernet LX/SX SFP modules with the four SFP ports.

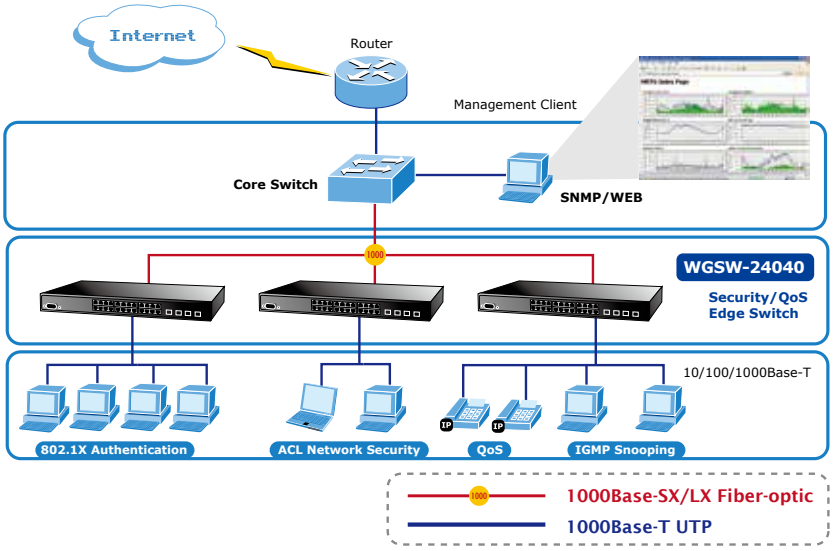


Department / Edge Security and QoS Switch

The WGSW-24040 series connects up to 24 high speed workstations in the Ethernet environment, in which its four SFP Mini-GBIC interfaces uplink to a department backbone. Moreover, the Switch provides 16 Gigabit per second switch fabric and high bandwidth for backbone connection. The WGSW-24040 series improves the network efficiency and safeguards the network clients with its powerful features:

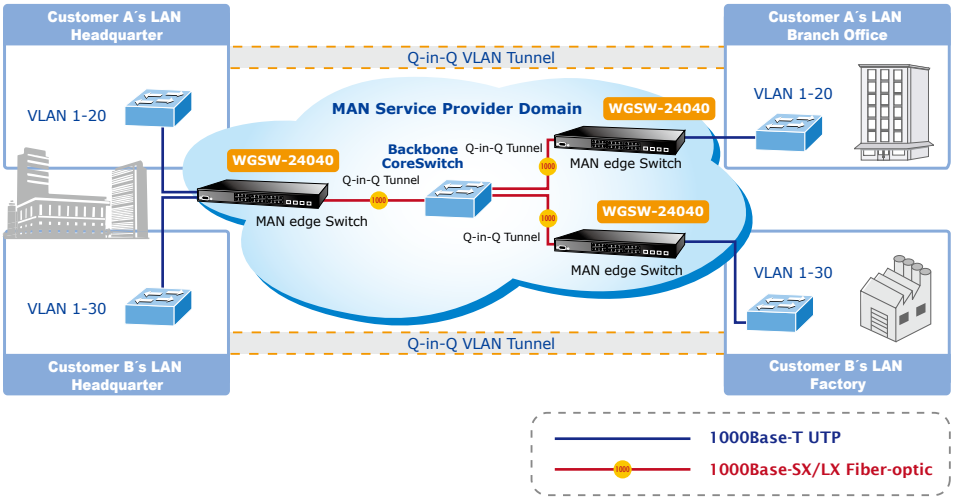
- IPv6 / IPv4 management
- Layer 2 to Layer 4 security
- QoS
- 802.1x Port-based and MAC-based network access authentication security
- Multicast IGMP Snooping

The advanced functionality of the WGSW-24040 series eliminates traditional issues associated with the use of Ethernet. Users can be separated with advanced VLAN functionality to enhance security. It makes the WGSW-24040 series one of the best and most cost-effective switch solutions for SMBs.



FTTX / MAN Application

The WGSW-24040 series applies the double tag VLAN (Q-in-Q) technology to provide low cost and easy operation for service providers carrying traffic for multiple customers across their networks. It features SNMPv3 and RMON Groups. The SNMPv3 security structure consists of security models, with each model having its own security levels. With four Dual-Speed SFP slots built in, the deployment distance of the WGSW-24040 series can be extended from 550 meters (Multi-mode fiber) up to above 10/50/70/120 kilometers (Single-mode fiber), which provides a high-performance edge service for FTTx solutions. To build a network solution of FTTH (Fiber to the Home) or FTTC (Fiber to the Curb) for ISPs, and FTTB (Fiber to the Building) for enterprises, the various distances of SFP (small-form factor) and Bidi (WDM) transceivers are optional for customers' choices. For security and various applications, the 24 Gigabit ports of the WGSW-24040 series can be configured with VLAN settings and connected to different units, offices, flowers, houses and departments.



Specifications

Model	WSGW-24040 / WGSW-24040R
Hardware Specification	
Hardware Version	Version 2
Copper Ports	24 10/100/1000Base-T RJ-45 Auto-MDI/MDI-X ports
SFP/mini-GBIC Slots	4 100/1000Base-X SFP interfaces, shared with Port-21 to Port-24 Compatible with 100Base-FX SFP
Console	1 x RS-232 DB9 serial port (115200, 8, N, 1)
Switch Architecture	Store-and-Forward
Switch Fabric	48Gbps / non-blocking
Throughput	35.7Mpps@64Bytes
Address Table	16K entries, automatic source address learning and ageing
Share Data Buffer	4Mbits
Flow Control	IEEE 802.3x pause frame for full-duplex back pressure for half-duplex
Jumbo Frame	9Kbytes
Reset Button	< 5 sec: System reboot > 5 sec: Factory Default
Dimensions (W x D x H)	440 x 200 x 44.5 mm, 1U high
Weight	2740g
LED	Power 1000 Link/Act and 10/100 Link/Act for per Gigabit port, 1000 Speed and Link/Act for per fiber port
Power Requirements	100~240V AC, 50/60Hz -48V DC @ 0.6A, Range: -36 ~ -60V (WGSW-24040R Only)
Power Consumption	Max 21.0 watts / 71.652BTU
ESD Protection	6KV DC
Layer 2 Function	
Basic Management Interfaces	Console, Telnet, Web Browser, SNMP v1, v2c
Secure Management Interfaces	SSH, SSL, SNMP v3
Port Configuration	Port disable / enable Auto-Negotiation 10/100/1000Mbps full and half duplex mode selection Flow Control disable / enable
Port Status	Display each port's speed duplex mode, link status, flow control status, auto negotiation status and trunk status
Port Mirroring	TX / RX / Both Many-to-1 monitor
VLAN	802.1Q Tagged based VLAN, up to 255 VLAN groups Q-in-Q tunneling Private VLAN Edge (PVE) MAC-based VLAN Protocol-based VLAN Voice VLAN MVR (Multicast VLAN Registration) Up to 255 VLAN groups, out of 4095 VLAN IDs
Link Aggregation	IEEE 802.3ad LACP / Static Trunk Supports 12 groups of 16-Port trunk support
QoS	Traffic classification based, Strict priority and WRR 8-Level priority for switching - Port Number - 802.1p priority - 802.1Q VLAN tag - DSCP/TOS field in IP Packet
IGMP Snooping	IGMP (v1/v2/v3) Snooping, up to 255 multicast Groups IGMP Querier mode support
MLD Snooping	MLD (v1/v2) Snooping, up to 255 multicast Groups MLD Querier mode support
Access Control List	IP-based ACL / MAC-based ACL Up to 256 entries

Specifications

SNMP MIBs	RFC-1213 MIB-II IF-MIB RFC-1493 Bridge MIB RFC-1643 Ethernet MIB RFC-2863 Interface MIB RFC-2665 Ether-Like MIB RFC-2819 RMON MIB (Group 1, 2, 3 and 9) RFC-2737 Entity MIB RFC-2618 RADIUS Client MIB RFC-2933 IGMP-STD-MIB RFC-3411 SNMP-Frameworks-MIB IEEE 802.1X PAE LLDP MAU-MIB
Standards Conformance	
Regulation Compliance	FCC Part 15 Class A, CE
Standards Compliance	IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX/100Base-FX IEEE 802.3z Gigabit SX/LX IEEE 802.3ab Gigabit 1000T IEEE 802.3x Flow Control and Back pressure IEEE 802.3ad Port trunk with LACP 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 RFC 768 UDP RFC 793 TFTP RFC 791 IP RFC 792 ICMP RFC 2068 HTTP RFC 1112 IGMP version 1 RFC 2236 IGMP version 2 RFC 3376 IGMP version 3 RFC 2710 MLD version 1 FRC 3810 MLD version 2
Environment	
Operating	Temperature: 0 ~ 50 degrees C Relative Humidity: 20 ~ 95% (non-condensing)
Storage	Temperature: -20 ~ 70 degrees C Relative Humidity: 20 ~ 95% (non-condensing)

Ordering Information

WGSW-24040	24-Port 10/100/1000Mbps with 4 Shared SFP Managed Switch
WGSW-24040R	24-Port 10/100/1000Mbps with 4 Shared SFP Managed Switch / 48V DC Redundant Power

Related Products

SGSW-24040	24-Port 10/100/1000Mbps with 4 Shared SFP Managed Stackable Switch
SGSW-24040R	24-Port 10/100/1000Mbps with 4 Shared SFP Managed Stackable Switch / 48V DC Redundant Power

Available Modules for WGSW-24040 / WGSW-24040R

MGB-GT	SFP-Port 1000Base-T Module
MGB-SX	SFP-Port 1000Base-SX mini-GBIC module
MGB-LX	SFP-Port 1000Base-LX mini-GBIC module
MGB-L30	SFP-Port 1000Base-LX mini-GBIC module-30km
MGB-L50	SFP-Port 1000Base-LX mini-GBIC module-50km
MGB-L70	SFP-Port 1000Base-LX mini-GBIC module-70km
MGB-L120	SFP-Port 1000Base-LX mini-GBIC module-120km
MGB-LA10	SFP-Port 1000Base-LX (WDM,TX:1310nm) mini-GBIC module-10km
MGB-LB10	SFP-Port 1000Base-LX (WDM,TX:1550nm) mini-GBIC module-10km
MGB-LA20	SFP-Port 1000Base-LX (WDM,TX:1310nm) mini-GBIC module-20km
MGB-LB20	SFP-Port 1000Base-LX (WDM,TX:1550nm) mini-GBIC module-20km
MGB-LA40	SFP-Port 1000Base-LX (WDM,TX:1310nm) mini-GBIC module-40km
MGB-LB40	SFP-Port 1000Base-LX (WDM,TX:1550nm) mini-GBIC module-40km
MFB-FX	SFP-Port 100Base-FX Transceiver (1310nm) -2km
MFB-F20	SFP-Port 100Base-FX Transceiver (1310nm) – 20km
MFB-F40	SFP-Port 100Base-FX Transceiver (1310nm) – 40km
MFB-F60	SFP-Port 100Base-FX Transceiver (1310nm) – 60km
MFB-FA20	SFP-Port 100Base-BX Transceiver (WDM,TX:1310nm) -20km
MFB-FB20	SFP-Port 100Base-BX Transceiver (WDM,TX:1550nm) -20km

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