

## Product Specification

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

### WGSW-24040R

Version 2.0

This document contains confidential proprietary information and is property of PLANET. The contents of this document should not be disclosed to unauthorized persons without the written consent of PLANET.

#### Change History:

Revision:	Date:	Author:	Change List
Version 1.0	2008/8/14	Kent Kang	Initial Release
Version 1.1	2008/09/15	Kent Kang	1. Number Active VLANs from 4k to 256 2. Remove Port Security
Version 2.0	2012/10/04	Neo Tsai	Hardware Change

Author:	Neo Tsai	Editor:	Neo Tsai
Reviewed By:	Tom Shih	Approved By:	Tom Shih

## 1. PRODUCT DESCRIPTION

### Cost-effective IPv6 Managed Gigabit Switch Solution for SMB

Nowadays, 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 each single users/Clients. The situation forces the ISP to build up the **IPv6 (Internet Protocol version 6)** network infrastructure speedily. To fulfill the demand, PLANET releases the **IPv6 management Gigabit Ethernet Switch, the WGSW-24040 series** which supports both IPv4 and IPv6 management functions. It can work with original network structure (IPv4) and also support 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 ISP to build the IPv6 FTTx edge service and for SMB to connect with the IPv6 network.

### Diversity for Multiple Applications

PLANET WGSW-24040 series is a 19" rack mount sized, **Layer 2 / Layer 4 Full Managed** Gigabit Switch which can handle extremely large amounts 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 high performance architecture of switch 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.

### Robust Layer 2 Features

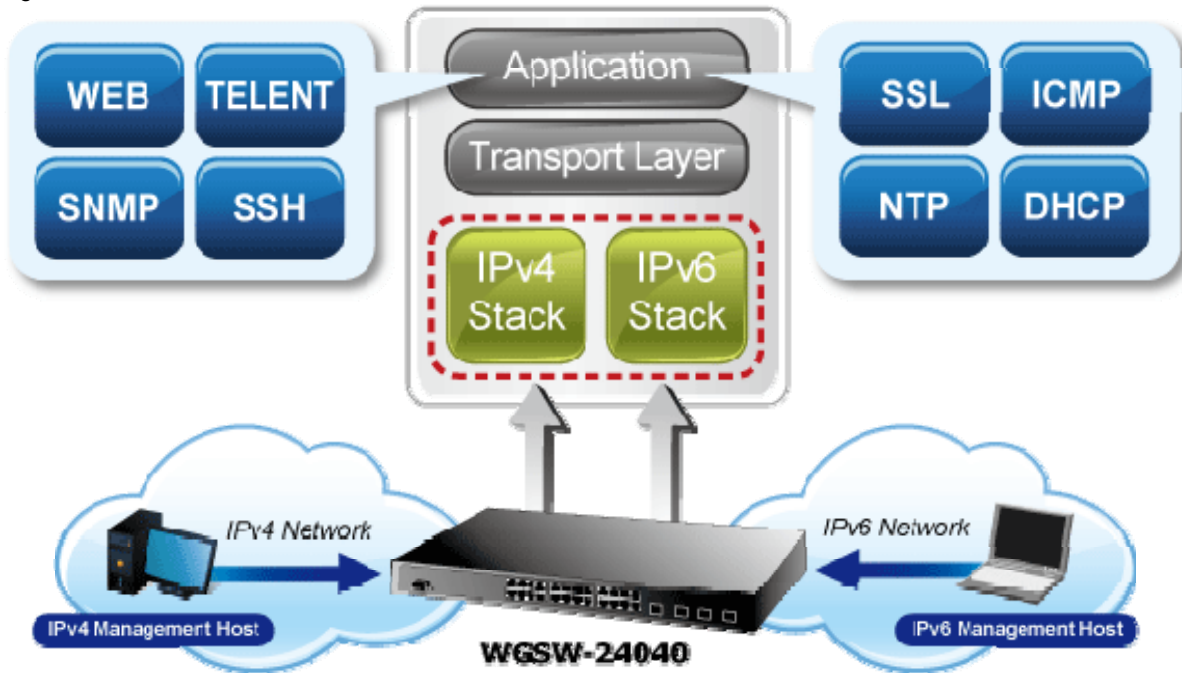
The WGSW-24040 series can be programmed for advanced switch management functions such as dynamic Port link aggregation, **Q-in-Q VLAN**, private VLAN, **Multiple Spanning Tree protocol (MSTP)**, Layer 2 to Layer 4 QoS, bandwidth control and IGMP Snooping. The WGSW-24040 series provides 802.1Q Tagged 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 combining 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 of **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** 及 **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 secured corporate networks with considerably less time and effort than before.

### IPv6 / IPv4 Dual Stack

By supporting IPv6 management features and also backward compatible with IPv4, the WGSW-24040 series helps the SMB to step in the IPv6 era with the lowest investment but not need to replace the network facilities while the ISP constructs the IPv6 FTTx edge network.



### 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 includes wire-speed Layer 4 traffic classifiers and bandwidth limiting that are particularly useful for multi-tenant unit, multi business unit, Telco, or Network Service Provider applications. The WGSW-24040 series also empowers the enterprises to take full advantages of the limited network resources and guarantees the best performance in VoIP and Video conferencing transmission.

### Efficient and Secure Management

For efficient management, the WGSW-24040 series Managed Ethernet Switch 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** connection 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, that means, the administrator now can flexibly choose the 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.

### AC / DC Power Redundant to Ensure Continuous Operation

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 at the electronic room.



## 2. PRODUCT FEATURES

### ➤ **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 256 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 14 trunk groups, up to 8 ports per trunk group
- Up to 16Gbps bandwidth(Duplex Mode)

■ Provide Port Mirror (many-to-1)

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

■ Loop protection to avoid broadcast loops

➤ **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
- Support 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
- Build-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
  - 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**

- 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.

### 3. PRODUCT SPECIFICATION

#### 3.1 MAIN COMPONENT

<b>Switch ASIC:</b>	VITESSE VSC7426	X1
<b>Giga PHY:</b>	VITESSE VSC8512	X1
<b>Flash:</b>	MX25L12845EMI-10G (16Mbytes / 128Mbits)	x 1
<b>DDR RAM:</b>	MT47H128M8CF-25E (128Mbytes / 1Gbits)	x 1

Open frame power supply 12V / 2.5A max.

X1

### 3.2 FUNCTION SPECIFICATION

<b>Product</b>	<b>WGSW-24040R</b>
<b>Hardware Specification</b>	
<b>Hardware Version</b>	Version 2
<b>Copper Ports</b>	24 10/ 100/1000Base-T RJ-45 Auto-MDI/MDI-X ports
<b>SFP/mini-GBIC Slots</b>	4 100/1000Base-X SFP interfaces, shared with Port-21 to Port-24 Compatible with 100Base-FX SFP
<b>Console</b>	1 x RS-232 DB9 serial port (115200, 8, N, 1)
<b>Switch Architecture</b>	Store-and-Forward
<b>Switch Fabric</b>	48Gbps / non-blocking
<b>Throughput</b>	35.7Mpps@64Bytes
<b>Address Table</b>	16K entries, automatic source address learning and ageing
<b>Share Data Buffer</b>	4Mbits
<b>Flow Control</b>	IEEE 802.3x Pause Frame for Full-Duplex Back pressure for Half-Duplex
<b>Jumbo Frame</b>	9Kbytes
<b>Reset Button</b>	< 5 sec: System reboot > 5 sec: Factory Default
<b>Dimension (W x D x H)</b>	440 x 200 x 44.5 mm, 1U high
<b>Weight</b>	2740g
<b>LED</b>	Power 1000 Link/Act and 10/100 Link/Act for per Gigabit port 1000 Speed and Link/Act for per fiber port
<b>Power Requirement</b>	100~240V AC, 50/60Hz -48V DC @ 0.6A, Range: -36 ~ -60V (WGSW-24040R Only)
<b>Power Consumption</b>	Max 21.0 watts / 71.652BTU
<b>ESD Protection</b>	6KV DC
<b>Layer 2 Function</b>	
<b>Basic Management Interfaces</b>	Console, Telnet, Web Browser, SNMP v1, v2c
<b>Secure Management Interfaces</b>	SSH, SSL, SNMP v3
<b>Port Configuration</b>	Port disable / enable Auto-Negotiation 10/100/1000Mbps full and half duplex mode selection Flow Control disable / enable
<b>Port Status</b>	Display each port's speed duplex mode, link status, Flow control status, Auto

	negotiation status, trunk status
<b>Port Mirroring</b>	TX / RX / Both Many-to-1 monitor
<b>VLAN</b>	802.1Q Tagged Based VLAN, up to 256 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 4094 VLAN IDs
<b>Link Aggregation</b>	IEEE 802.3ad LACP / Static Trunk Support 12 groups of 16-Port trunk support
<b>QoS</b>	Traffic classification based, Strict priority and WRR 8-Level priority for switching <ul style="list-style-type: none"> <li>- Port Number</li> <li>- 802.1p priority</li> <li>- 802.1Q VLAN tag</li> <li>- DSCP/TOS field in IP Packet</li> </ul>
<b>IGMP Snooping</b>	IGMP (v1/v2/v3) Snooping, up to 255 multicast Groups IGMP Querier mode support
<b>MLD Snooping</b>	MLD (v1/v2) Snooping, up to 255 multicast Groups MLD Querier mode support
<b>Access Control List</b>	IP-Based ACL / MAC-Based ACL Up to 256 entries
<b>SNMP MIBs</b>	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
<b>Standards Conformance</b>	
<b>Regulation Compliance</b>	FCC Part 15 Class A, CE



<b>Standards Compliance</b>	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	
RFC 3810 MLD version 2	
<b>Environment</b>	
<b>Operating</b>	Temperature: 0 ~ 50 Degree C Relative Humidity: 20 ~ 95% (non-condensing)
<b>Storage</b>	Temperature: -20 ~ 70 Degree C Relative Humidity: 20 ~ 95% (non-condensing)

### 3.3 PHYSICAL SPECIFICATIONS:

**Dimensions:**

440 x 200 x 44.5mm (W x D x H), 1U height

**Weight:**

2.85 KG

■ **Front Panel:**



■ Rear Panel:



■ LED definition

■ System

LED	Color	Function
PWR	Green	Lights to indicate that the Switch has power.

■ Per 10/100/1000Mbps Port

LED	Color	Function
1000 LNK/ACT	Green	<b>Lights</b> to indicate the port is running in <b>1000Mbps</b> speed and successfully established. <b>Blink:</b> indicate that the switch is actively sending or receiving data over that port.
10/100 LNK/ACT	Orange	<b>Lights</b> to indicate the port is running in <b>10/100Mbps</b> speed and successfully established. <b>Blink:</b> indicate that the switch is actively sending or receiving data over that port.

■ Per 100/1000Base-X SFP Interfaces

LED	Color	Function
1000	Green	<b>Lights</b> to indicate that the port is operating at <b>1000Mbps</b> . <b>Off</b> to indicate the port is operating at 100Mbps or no link.
LNK/ACT	Orange	<b>Lights</b> to indicate the port is successfully established. <b>Blink:</b> indicate that the switch is actively sending or receiving data over that port.

**3.4 ENVIRONMENTAL SPECIFICATION**

Operating:

- Temperature: 0°C ~ 50 degree C
- Relative Humidity: 5% ~ 95% (non-condensing)

Storage:

- Temperature: -40°C ~ 70 degree C
- Relative Humidity: 5% ~ 95% (non-condensing)

**3.5 ELECTRICAL SPECIFICATION**

- Power Input Voltage:** 100 - 240VAC, 50 - 60Hz, Auto-sensing. -48V DC (Range -36V ~ -60V)
- Power Consumption(System on):** 110V AC: 10 Watts / 34.1 BTU -36V DC: 9.5 Watts / 32.395 BTU

	220V AC : 10.4Watts / 35.464 BTU	-48V DC: 10 Watts / 34.1 BTU
<b>Power Consumption(Full Load):</b>	110V AC : 20.3 Watts / 69.223 BTU	-60V DC: 10.2 Watts / 34.782 BTU
		-36V DC: 20.1 Watts / 68.541 BTU
	220V AC: 21.0 Watts / 71.652 BTU	-48V DC: 20.2 Watts / 68.882 BTU
		-60V DC: 20.8 Watts / 70.928 BTU

### 3.6 REGULATORY COMPLIANCE

FCC Class A, CE.

### 3.7 REALIABILITY

MTBF > 50,000 hrs @ 25 Degree C

### 3.8 BASIC PACKAGING

■ WGSW-24040R	X1
■ User's manual	X1
■ Quick Installation Guide	X1
■ Power Cord	X1
■ RS232 cable	X1
■ Rubber fee	X4
■ SFP dusty cap	X4
■ Two rack-mounting brackets with attachment screws	X2

### 3.9 PACKING DIMENSION

**Dimension:** 520mm (W) x 450mm (D) x 90mm (H)

**Weight:** TBD KG (Gross Weight)

5 pcs in one carton