

## 48-Port 10/100/1000Base-T + 4-Port 1000X SFP Managed Gigabit Switch



### Telecom-class Gigabit Solution for Enterprise Backbone and Data Center Networking

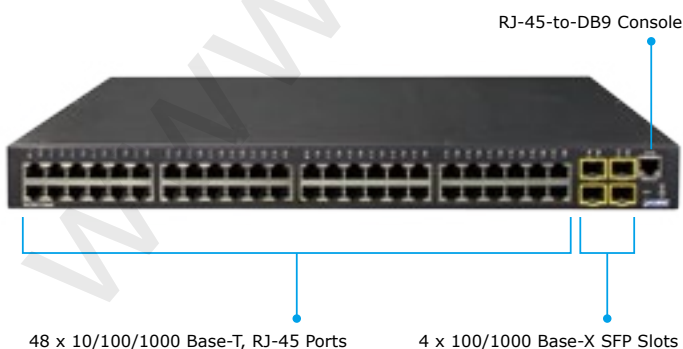
PLANET's WGSW-52040 is a Layer 2 Managed Gigabit Switch that provides high-density performance and supports static Layer 3 routing. With 104Gbps switching fabric, the WGSW-52040 can handle extremely large amounts of data in a secure topology that links to an enterprise backbone or high capacity servers. The powerful WRR (Weighted Round Robin) and Network Security features makes the WGSW-52040 effectively control data traffic for ISPs and Enterprises offering VoIP, video streaming and multicast applications.

### IPv6 Support

The WGSW-52040 provides IPv6 management and enterprise-level security features such as SSH, ACL, WRR and RADIUS authentication in addition to supporting IPv4 protocol. The WGSW-52040 helps enterprises upgrade to IPv6 management with the lowest investment. In addition, its not necessary to replace network facilities when building an IPv6 FTTH edge network.

### High-Performance

The WGSW-52040 provides 48 10/100/1000Mbps Gigabit Ethernet ports with 4 Gigabit SFP slots. It boasts a high-performing switch architecture that is capable of providing non-blocking switch fabric and wire-speed throughput as high as 104Gbps, greatly simplifying the tasks of upgrading an LAN to support an increase in bandwidth demands.



### Physical Port

- 48-Port 10/100/1000Base-T Gigabit Ethernet RJ-45
- 4 100/1000Base-X mini-GBIC/SFP slots, SFP type auto-detection
- RJ-45 to DB9 console interface for Switch basic management and setup

### IP Stacking

- Connects with stack member via both Gigabit TP and SFP interfaces
- Single IP address management, supports up to 24 units stacked together
- Stacking architecture supports Chain and Ring mode

### IP Routing Features

- Supports a maximum of 128 static routes and route summarization

### Layer 2 Features

- Complies with the IEEE 802.3, IEEE 802.3u, IEEE 802.3ab, IEEE 802.3z Gigabit Ethernet standard
- Supports Auto-negotiation and Half-Duplex / Full-Duplex modes for all 10Base-T/100Base-TX and 1000Base-T ports
- Supports 100/1000Base-X for all SFP interfaces
- Auto-MDI/MDI-X detection on each RJ-45 port
- Prevents packet loss Flow Control
  - IEEE 802.3x PAUSE Frame flow control for Full-Duplex mode
  - Back-Pressure Flow Control in Half-Duplex mode
- High-performance Store and Forward architecture, broadcast storm control, port loopback detect
- 16K MAC address table, automatic source address learning and ageing
- Supports VLAN
  - IEEE 802.1Q Tag-based VLAN
  - GVRP for dynamic VLAN Management
  - Up to 256 VLANs groups, out of 4041 VLAN IDs
  - Provider Bridging (VLAN Q-in-Q) support (IEEE 802.1ad)
  - Private VLAN Edge (PVE) supported
  - GVRP protocol for Management VLAN

### Robust Layer 2 Features

The WGSW-52040 can be programmed for basic Switch management functions such as Port speed configuration, Port aggregation, VLAN, Spanning Tree protocol, WRR, bandwidth control and IGMP Snooping. The WGSW-52040 provides 802.1Q Tagged VLAN, Q-in-Q, voice VLAN and GVRP protocol. A maximum of 256 VLAN groups are allowed on the WGSW-52040. By supporting port aggregation, the WGSW-52040 allows the operation of a high-speed trunk combined with multiple ports. It enables up to 32 groups of a maximum of 8 ports for trunking.

### Excellent Traffic Control

The WGSW-52040 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 limiting which are particularly useful for multi-tenant units, multi-business units, Telco, or Network Service applications. It also empowers enterprises to take full advantage of their limited network resources and delivers optimal performance for VoIP and Video conferencing transmission.

### Powerful Security

The WGSW-52040 supports comprehensive ACL policies. The traffic can be classified by source/destination IP addresses, source/destination MAC addresses, IP protocols, TCP/UDP, IP precedence, time ranges and ToS. In addition, various policies can be conducted to forward traffic. The WGSW-52040 also provides IEEE 802.1x port-based access authentication, which can be deployed with RADIUS, to ensure port-level security and block illegal users.

### Efficient Management

The WGSW-52040 supports the IP Stacking function that helps network managers easily configure up to 24 switches in the same series via one single IP address instead of connecting and setting each unit separately. The WGSW-52040 Managed Gigabit Switch is equipped with a console, WEB and SNMP management interfaces for efficient management. With its built-in Web-based management interface, the WGSW-52040 offers an easy-to-use, platform-independent management and configuration facility. The WGSW-52040 supports standard Simple Network Management Protocol (SNMP) and can be managed via any standard-based management software. For text-based management, the WGSW-52040 can be accessed via Telnet and its console port. In addition, the WGSW-52040 offers secure remote management by supporting SSH connection which encrypts packet contents at each session.

### Flexibility and Extension Solution

With its four built-in mini-GBIC slots, the WGSW-52040 are compatible with 100/1000Base-X and WDM SFP (Small Factor Pluggable) fiber-optic modules. 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). It is well suited for applications within enterprise data centers and distribution centers.

- Protocol-based VLAN
- MAC-based VLAN
- IP Subnet VLAN
- Supports Link Aggregation
  - Maximum of up to 32 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)

### Quality of Service

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

### Multicast

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

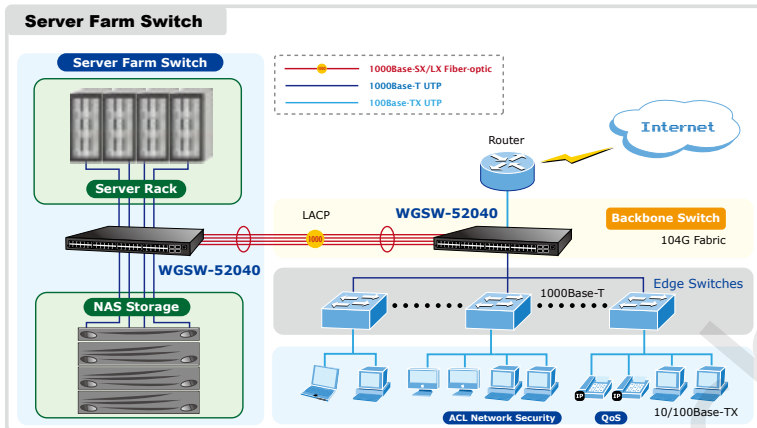
### Security

- IEEE 802.1x Port-based network access authentication
- MAC-based network access authentication
- Built-in RADIUS client to co-operate 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

## Applications

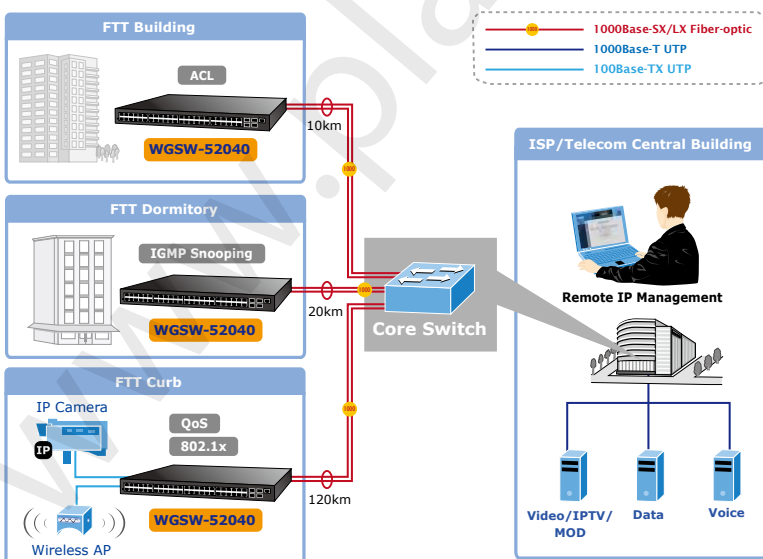
### Server Farm Switch

The WGSW-52040 provides up to 52 Gigabit Ethernet ports for Enterprises and Network servers. It can be used to build a server farm switch connecting to servers. With its port trunking function, an 8GB fat pipe is provided so that it can connect to a backbone if needed.



### Enterprise Security and QoS Edge Switch

With the IEEE 802.1x Network access authentication, the WGSW-52040 provides the MAC/IP/Protocol Access Control list and Port Security functions which can limit the number of MAC addresses to be passed through one specific port. The IGMP Snooping and QoS features in the WGSW-52040 improves network efficiency and protects network clients.



- IP Source Guard prevents IP spoofing attacks

### Management

- Switch Management Interface
  - Console / Telnet Command Line Interface
  - Web switch management
  - SNMP v1, v2c, and v3 switch management
  - SSH/SSL 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
- Four RMON groups 1, 2, 3, 9 (history, statistics, alarms, and events)
- Supports Ping, Trace route function for IPv4 and IPv6
- Management IP for IPv4 and IPv6

## Specifications

Model	<b>WGSW-52040</b> 48-Port 10/100/1000Base-T + 4-Port 1000X SFP Managed Gigabit Switch
<b>Hardware Specifications</b>	
Copper Ports	48 10/ 100/1000Base-T RJ-45 Auto-MDI/MDI-X ports
SFP / mini-GBIC Slots	4 100/1000Base-X SFP interfaces
Console	1 x RJ-45-to-RS-232 serial port
Switch Architecture	Store-and-forward
Switch Fabric	104Gbps / non-blocking
Switch Throughput	77.38Mpps
Address Table	16K MAC address table with Auto learning function
Share Data Buffer	1.5Mbytes
Flow Control	Back pressure for Half-Duplex IEEE 802.3x Pause Frame for Full-Duplex
Jumbo Frame	16K bytes
LED	System: PWR, SYS Ports: TP Port:10/100/1000 Link/Act SFP Slot: Link/Act
Dimensions (W x D x H)	440 x 220 x 44 mm, 1U height
Weight	2825g
Power Consumption	55 watts / 187.6 BTU (maximum)
Power Requirements	AC 100~240V, 50/60Hz
<b>Management Function</b>	
System Configuration	Console, Telnet, SSH, Web Browser, SNMP v1, v2c and v3
Management	Supports both IPv4 and IPv6 addressing Supports the user IP security inspection for IPv4 / IPv6 SNMP Supports MIB and TRAP Supports IPv4 / IPv6 FTP/TFTP Supports IPv4 / IPv6 NTP Supports RMOM 1, 2, 3, 9 four group Supports the RADIUS authentication for IPv4 / IPv6 telnet user name and password Supports IPv4 / IPv6 SSH The right configuration for users to adopt radius server's shell management Supports CLI, Console, Telnet Supports SNMPv1 / v2c / v3 Supports Security IP safety net management function: avoid unlawful landing at nonrestrictive area Supports Syslog server for IPv4 and IPv6 Supports TACACS+
<b>Layer3 Function</b>	
Static Route	Supports maximum 128 static routes
<b>Layer2 Function</b>	
Port Configuration	Port disable/enable Auto-negotiation 10/100/1000Mbps full and half duplex mode selection 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 Based VLAN, up to 256 VLAN groups Q-in-Q 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 32 groups of 8-Port trunk

## Specifications

Multicast	IGMP v1/ v2 / v3 Snooping Querier mode support MLD v1 / v2 Snooping Querier mode support Multicast VLAN Register (MVR)
Access Control List	Supports Standard and Expanded ACL IP-based ACL / MAC-based ACL Time-based ACL Up to 512 entries
Bandwidth Control	At least 64Kbps step
Security	Supports MAC + port binding IPv4 / IPv6 + MAC + port binding IPv4 / IPv6 + port binding Supports MAC filter ARP Scanning Prevention
Authentication	IEEE 802.1x port-based network access control AAA Authentication: TACACS+ and IPv4/IPv6 over RADIUS
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 SNMPV3 notify RFC-2574 SNMPV3 vacm RFC-2674 Bridge MIB Extensions (IEEE 802.1Q MIB) RFC-2674 Bridge MIB Extensions (IEEE 802.1P MIB)
<b>Regulation Compliance</b>	
Regulation Compliance	FCC Part 15 Class A, CE
Standards Compliance	IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX 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
<b>Environment</b>	
Operating	Temperature: 0 ~ 50 degrees C Relative Humidity: 5 ~ 90% (non-condensing)
Storage	Temperature: -10 ~ 70 degrees C Relative Humidity: 5 ~ 90% (non-condensing)

## Ordering Information

WGSW-52040 48-Port 10/100/1000Base-T + 4-Port 1000X SFP Managed Gigabit Switch

## Available Modules for WGSW-52040

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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