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

PLANET introduces the latest Managed Gigabit Switch - WGSW-28040 that is perfectly designed for SMB and SOHO network construction. Besides the hot IPv6 / IPv4 management and abundant L2 / L4 switching functions, the WGSW-28040 applies the fanless and Green technology to provide a quiet, energy saving, high speed and reliable office network environment. It benefits the SMB and SOHO users the Gigabit network environment with only the low price as Fast Ethernet Switches cost. The WGSW-28040 is quite suitable for next generation network deployment and offers the lowest total cost of ownership. It is the best investment for business expanding or upgrading its network infrastructure.

High Performance

The WGSW-28040 provides **28 10/100/1000Mbps** Gigabit Ethernet ports in which including **4 shared Gigabit SFP** slots. It boasts high performance architecture of switch that is capable for providing the non-blocking switch fabric and wire-speed throughput as high as 56Gbps, which greatly simplifies the tasks of upgrading the LAN for catering to increasing bandwidth demands.

Fanless Design

Applies the latest chip process and Green technology, the WGSW-28040 successfully reduces substantial power consumption with the fanless and noiseless design collocating with the effective cooler. Therefore, the WGSW-28040 is able to operate stably and quietly in any environment without affecting its performance.

IPv6 / IPv4 Dual Stack

By supporting IPv6 management features and also backward compatible with IPv4, the WGSW-28040 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.

Robust Layer 2 Features

The WGSW-28040 can be programmed for advanced switch management functions such as dynamic Port link aggregation, 802.1Q VLAN and Q-in-Q VLAN, Multiple Spanning Tree protocol (MSTP), Loop and BPDU Guard, and IGMP Snooping. Via aggregation of supporting ports, the WGSW-28040 allows the operation of a high-speed trunk combining multiple ports as a 16Gbps fat pipe and supports fail-over as well.

Efficient Traffic Control

The WGSW-28040 is loaded with robust QoS features and powerful traffic management to enhance services to business-class data, voice, and video solutions. The functionality includes broadcast / multicast **storm control**, per port **bandwidth control**, IP DSCP QoS priority and remarking. It guarantees the best performance at VoIP and Video stream transmission and empowers the enterprises to take full advantages of the limited network resources.

Enhanced and Secure Management

For efficient management, the WGSW-28040 is equipped with console, **WEB**, telnet and **SNMP** management interfaces. With the built-in Web-Based management interface, the WGSW-28040 offers an easy-to-use, platform-independent management and configuration facility. By supporting standard Simple Network Management Protocol (SNMP), the switch can be managed via any standard management software. For text-based management, the switch can be accessed via Telnet and the console port. Moreover, the WGSW-28040 offers secure remote management by supporting **SSH** and **SSL** connection which encrypt the packet content at each session.

Data Sheet

Powerful Security

PLANET WGSW-28040 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** authentication, which can be deployed with RADIUS, to ensure the port level security and block illegal users. With the **Protected Port** function, communication between edge ports can be prevented to guarantee user privacy. **Port Security** allows to limit the number of users on a given port. The network administrators can now construct highly secured corporate networks with considerably less time and effort than before.

Flexible Extension Solution

The four mini-GBIC slots built in the WGSW-28040 are compatible with 1000Base-SX/LX and WDM SFP (Small Form Factor Pluggable) fiber-optic modules. The distance can be extended from 550 meters (Multi-Mode fiber) up to above 10/20/30/40/50/70/120 kilometers (Single-Mode fiber or WDM fiber). It is well suited for applications in the enterprise data centers and distributions.

Green Networking

In line with the energy-saving trend worldwide, the WGSW-28040 adopts the new generation green technology which brings both benefits of energy saving and Gigabit performance. The new engine provides up to 60% less energy consumption without reducing the performance, and particularly it offers flexible power saving mode to fill various demands.

KEY FEATURES

PHYSICAL PORT

- **28-Port 10/100/1000Base-T** Gigabit RJ-45 copper

- **100/1000Base-X** mini-GBIC/SFP slots, shared with Port-25 to Port-28

- RS-232 DB9 console interface for Switch 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

- Supports **VLAN**
  - Management VLAN
  - IEEE 802.1Q Tagged VLAN
  - Up to 256 VLANs groups, out of 4094 VLAN IDs
  - Provider Bridging (VLAN Q-in-Q) support (IEEE 802.1ad)
  - Private VLAN Edge (PVE / Port Isolation)
  - IP Subnet VLAN
  - Voice VLAN

- Supports **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

- Supports **Link Aggregation**
  - IEEE 802.3ad Link Aggregation Control Protocol (LACP)
  - Cisco ether-channel (Static Trunk)
  - Maximum 8 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

QUALITY OF SERVICE

- Ingress / Egress Rate Limit per port bandwidth control

- 8 priority queues on all switch ports

- Traffic classification:
  - Port-Based priority
  - IEEE 802.1p CoS
  - IP DSCP

- Strict priority and Weighted Round Robin (WRR) CoS policies

- DSCP remarking

MULTICAST

- Supports IGMP Snooping v1, v2 and v3

- Querier mode support

- IGMP Snooping v2 fast leave

- Unknown Multicast drop

SECURITY

- Storm Control support
  - Broadcast / Multicast / Unknown-Unicast / Unknown-Multicast

- Authentication
  - IEEE 802.1X Port-Based network access authentication
  - Built-in RADIUS client to co-operate with the RADIUS servers
  - RADIUS / TACACS+ user access authentication

- Access Control List
  - IP-Based ACL
  - MAC-Based ACL

- MAC Security
  - Static MAC
  - Source / Destination MAC Filtering
  - Port Security for Source MAC address entries filtering

- 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
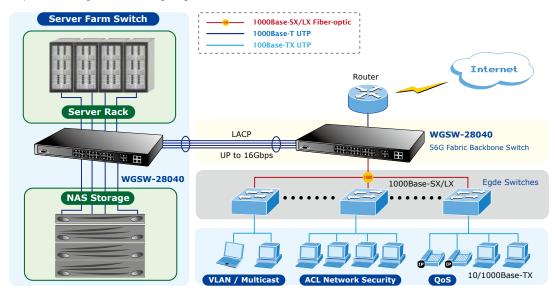
MANAGEMENT

- Switch Management Interfaces
  - Console / Telnet Command Line Interface
  - IPv4 and IPv6 Web switch management
  - SNMP v1, v2c & v3 switch management
  - SSH / SSL secure access

- Four RMON groups (history, statistics, alarms, and events)

- SNMP trap for interface Link Up and Link Down notification

- SNTP (Simple Network Time Protocol)

- Built-in Trivial File Transfer Protocol (TFTP) client

- BOOTP and DHCP for IP address assignment

- Firmware upload/download via HTTP / TFTP

- DHCP Relay

- DHCP Option 82

- Link Layer Discovery Protocol (LLDP) Protocol

- Event message logging to remote Syslog server

- Reset button for system reboot or reset to factory default

- IP Stacking management up to 16 units

APPLICATIONS

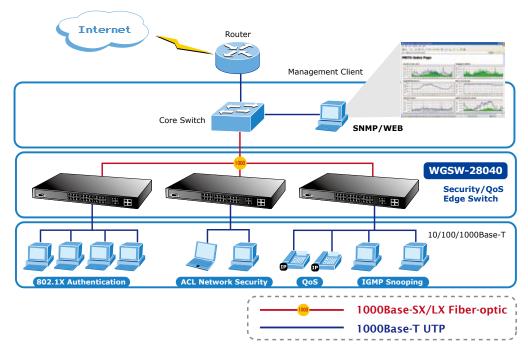### High Performance Backbone / Server Farm Switch

Gigabit Ethernet supported equipment has become the fundamental unit of Enterprises and Network servers. With up to 56 Gigabits per second of non-blocking switch fabric, the WGSW-28040 can easily provide the high bandwidth required from now on. It can easily provide a local, high bandwidth and Gigabit Ethernet network for backbone of enterprises or SMB. With its port trunking function, a 16Gbps fat pipe is provided for connecting to the backbone if required. It is ideal to be used as a server farm Switch to connect servers. With the four SFP ports, the WGSW-28040 provides the uplink to the edge network through Gigabit Ethernet LX/SX SFP modules.

Department / Edge ACL, Security and QoS Switch

The WGSW-28040 improves the network efficiency and protects the network clients with the powerful features:
● Layer 2 to Layer 4 ACL
● QoS
● 802.1X Port-Based network access authentication security
● Multicast IGMP Snooping

SPECIFICATION

Product	28-Port 10/100/1000Mbps with 4 Shared SFP Managed Switch
Model	WGSW-28040
Hardware Specification	
Hardware Version	Version 2
Copper Ports	28 10/ 100/1000Base-T RJ-45 Auto-MDI/MDI-X ports
SFP/mini-GBIC Slots	4 SFP interfaces, shared with Port-25 to Port-28, Compatible with 100Base-FX
Switch Processing Scheme	Store-and-Forward
Switch Fabric	56Gbps / non-blocking
Throughput @ 64Kbytes	41.67Mpps
MAC Address Table	16K entries
Share Data Buffer	448K bytes
Flow Control	IEEE 802.3x Pause Frame for Full-Duplex Back pressure for Half-Duplex
Jumbo Frame	9216 Bytes
LED	PWR, SYS, LNK/ACT, 1000
Dimension (W x D x H)	440 x 200 x 44.5 mm, 1U height
Weight	2.7 KG
Power Consumption	Max. 12 Watts / 40.92 BTU
Power Requirement	AC 100~240V, 50/60Hz
ESD Protection	6KV DC
Layer 2 Function	
Basic Management Interfaces	Console, Telnet, IPv4 & IPv6 Web Browser, SNMPv1, v2c
Security 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 Description
Port Status	Display each port's speed duplex mode, link status, Flow control status, Auto negotiation status, trunk status.
VLAN	802.1Q Tagged Based VLAN Q-in-Q Private VLAN Edge (PVE) IP Subnet VLAN Voice VLAN Up to 256 VLAN groups, out of 4094 VLAN IDs
Link Aggregation	IEEE 802.3ad LACP / Static Trunk Supports 8 groups of 8-Port trunk support

QoS	• 8-Level priority queue for switching
	• Traffic classification based, Strict priority and WRR
	  - 802.1p priority
	  - IP DSCP field

IGMP Snooping	IGMP (v1/v2/v3) Snooping, up to 255 multicast Groups IGMP Querier mode support
Access Control List	IP-Based ACL / MAC-Based ACL Up to 256 entries
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) RFC 2737 Entity MIB RFC 3411 SNMP-MIB
Standards Conformance	
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
	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

Environment		
Operating	Temperature:	0 ~ 50 Degree C
	Relative Humidity:	20 ~ 95% (non-condensing)
Storage	Temperature:	-10 ~ 70 Degree C
	Relative Humidity:	20 ~ 95% (non-condensing)

ORDERING INFORMATION

WGSW-28040	28-Port 10/100/1000Mbps with 4 Shared SFP Managed Switch

AVAILABLE 1000BASE-X MODULES FOR WGSW-28040

MGB-GT	SFP-Port 1000Base-T Module
MGB-SX	SFP-Port 1000Base-SX mini-GBIC module - 220/550m
MGB-LX	SFP-Port 1000Base-LX mini-GBIC module - 10km
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

AVAILABLE 1000BASE-X MODULES FOR WGSW-28040

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

C-WGSW-28040v2