Product Specification

24-Port 10/100/1000T + 4-Port Gigabit TP/SFP Combo Managed Switch

WGSW-28040

Version 3.0

Change History:

Revision:	Date:	Author:	Change List
Version 1.0	2011/2/18	Neo Tsai	Initial Release
Version 2.0	2011/12/29	Neo Tsai	Function Enhance
Version 3.0	2014/5/7	Jos Li	Changed Chip

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1. PRODUCT DESCRIPTION

High-Performance, Cost-effective Gigabit Networking Solution for SMB

The PLANET WGSW-28040 is a Layer 2 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 56Gbps switching fabric. The advanced features of QoS and network security included enable the WGSW-28040 to offer effective data traffic control for SMB and Enterprises, such as VoIP, video streaming and multicast applications. It is ideal for the enterprise networks and the aggregation layer of IP metropolitan networks.

High Performance

The WGSW-28040 provides 28 10/100/1000Mbps Gigabit Ethernet ports in which with 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.

Robust Layer 2 Features

The WGSW-28040 can be programmed for advanced switch management functions such as Port Mirroring, Dynamic Port / IEEE 802.3ad link aggregation, Port-based, IEEE 802.1Q VLAN, Q-in-Q VLAN, Multiple Spanning Tree Protocol (MSTP), IEEE 802.1p QoS, bandwidth control , IGMP Querier / Snooping and Link Layer Discovery Protocol (LLDP) . The WGSW-28040 provides IEEE 802.1Q Tagged VLAN, and the VLAN groups allowed will be maximally up to 256. Via aggregation of supporting ports, the WGSW-28040 allows the operation of a high-speed trunk combining multiple ports. It enables maximum up to 8 groups of 8 ports for port trunking, and supports fail-over as well, also it supports 802.3ad LACP (Link Aggregation Control Protocol).

Excellent Traffic Control

The WGSW-28040 is loaded with Port speed configuration, Port aggregation, VLAN, Spanning Tree protocol, QoS, bandwidth control and IGMP Snooping features to enhance services to business-class data, voice, security, and wireless solutions. The functionality includes QoS features, and bandwidth limiting that are particular useful for multi-tenant unit and multi-business unit applications. It 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 Management

For efficient management, the WGSW-28040 Managed Ethernet Switch is equipped with console, WEB 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. The WGSW-28040 supports standard Simple Network Management Protocol (SNMP) and can be managed via any standard management software. For text-based management, the WGSW-28040 can be accessed via Telnet and the console port.

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 of 802.1X port-based and MAC-based user and device authentication. With the private VLAN function, communication between edge ports can be prevented to ensure user privacy. The network administrators can now construct highly secured corporate networks with considerably less time and effort than before.

Flexibility and Extension Solution

The four mini-GBIC slots built in the WGSW-28040 is compatible with 100/1000Base-SX/LX and WDM SFP (Small Factor Pluggable) fiber-optic modules. The distance can be extended from 550 meters and 2 kilometers (Multi-Mode fiber) up to 10/50/70/120 kilometers (Single-Mode fiber or WDM fiber). They are well suited for applications within the enterprise data centers and distributions.

The WGSW-28040 supports **SFP-DDM (Digital Diagnostic Monitor)** function that can easily monitor real-time parameters of the SFP for network administrator, such as optical output power, optical input power, temperature, laser bias current, and transceiver supply voltage.

2. PRODUCT FEATURES

- **Physical Port**
  - **28-Port 10/100/1000Base-T** Gigabit RJ-45 copper
  - **4 100/1000Base-X** mini-GBIC/SFP slots, shared with Port-25 to Port-28
  - RJ-45 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 Store and Forward architecture, broadcast storm control, runt/CRC filtering eliminates erroneous packets to optimize the network bandwidth
  - Supports **VLAN**
    - IEEE 802.1Q tagged VLAN
    - Provider Bridging (VLAN Q-in-Q) support (IEEE 802.1ad)
    - Protocol VLAN
    - Voice VLAN
    - Private VLAN
    - Management VLAN
    - GVRP
  - Supports **Spanning Tree Protocol**
    - STP (Spanning Tree Protocol)
    - RSTP (Rapid Spanning Tree Protocol)
    - MSTP (Multiple Spanning Tree Protocol)
    - STP BPDU Guard, BPDU Filtering and BPDU Forwarding
  - 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
  - Provides Port Mirror (many-to-1)

- Loop protection to avoid broadcast loops

Quality of Service

- Ingress / Egress Rate Limit per port bandwidth control
- Storm Control support
  - Broadcast / Unknown-Unicast / Unknown-Multicast
- Traffic classification:
  - IEEE 802.1p CoS
  - TOS / DSCP / IP Precedence of IPv4/IPv6 packets
- Strict priority and Weighted Round Robin (WRR) CoS policies

Multicast

- Supports IGMP Snooping v2 and v3
- Supports MLD Snooping v1, v2
- IGMP Querier mode support
- IGMP Snooping port filtering
- MLD Snooping port filtering

Security

- Authentication
  - IEEE 802.1X Port-based network access authentication
  - Built-in RADIUS client to co-operate with the RADIUS servers
  - RADIUS / TACACS+ login user access authentication
- Access Control List
  - IPv4 / IPv6 IP-based ACL
  - MAC-based ACL
- MAC Security
  - Static MAC
  - MAC Filtering
- Port Security for Source MAC address entries filtering
- DHCP Snooping to filter distrusted DHCP messages
- Dynamic ARP Inspection discards ARP packets with invalid MAC address to IP address binding
- IP Source Guard prevents IP spoofing attacks
- DoS Attack Prevention
- SSH/SSL

Management

- IPv4 and IPv6 dual stack management
- Switch Management Interface
  - Web switch management
  - Telnet Command Line Interface
  - SNMP v1, v2c and v3

- SSH / SSL secure access

- User Privilege Levels Control
- Built-in Trivial File Transfer Protocol (TFTP) client
- BOOTP and DHCP for IP address assignment
- System Maintenance
  - Firmware upload/download via HTTP / TFTP
  - Configuration upload / download through Web interface
  - Dual Images
  - Hardware reset button for system reboot or reset to factory default
- SNTP Network Time Protocol
- Cable Diagnostics
- Link Layer Discovery Protocol (LLDP) Protocol and LLDP-MED
- SNMP trap for interface Link Up and Link Down notification
- Event message logging to remote Syslog server
- Four RMON groups (history, statistics, alarms, and events)
- PLANET Smart Discovery Utility

3. PRODUCT SPECIFICATION

3.1 MAIN COMPONENT

Switch ASIC:	Realtek RTL8382M	X1
Giga PHY:	Realtek RTL8218B	X2
Combo PHY:	Realtek RTL8214FC	X1
Flash:	16M bytes	x 1
DDR RAM:	128M bytes	x 1
Open Frame Power Supply:	Output: 12V / 4.2A	x1

3.2 FUNCTION SPECIFICATION

Product	**WGSW-28040**
Hardware Specifications	
Hardware Version	3.0
Copper Ports	24 x 10/100/1000Base-T RJ45 Auto-MDI/MDI-X ports 4 x 10/100/1000Base-T RJ45/SFP combo ports
SFP/mini-GBIC Slots	4 100/1000Base-X SFP interfaces, shared with Port-25 to Port-28. Supports 100/1000Mbps dual mode and DDM
Console	1 x RS-232-to-RJ45 serial port (115200, 8, N, 1)
Switch Architecture	Store-and-Forward
Switch Fabric	56Gbps / non-blocking

Switch Throughput@64Bytes	41.67Mpps @64Bytes
Address Table	8K entries
Share Data Buffer	4.1 megabits
Flow Control	IEEE 802.3x pause frame for full-duplex Back pressure for half-duplex
Jumbo Frame	10K bytes
Reset Button	< 5 sec: System reboot > 5 sec: Factory Default
LED	System: Power (Green) Sys (Green) 10/100/1000T RJ45 Interfaces (Port 1 to Port 28): 1000Mbps (Orange), LNK/ACT (Green) 100/1000Mbps SFP Interfaces (Port 25 to Port 28): 1000Mbps (Orange), LNK/ACT (Green)
Thermal Fan	Fan-less design (No Fan)
Power Requirement	AC 100~240V, 50/60Hz, Auto-sensing.
ESD Protection	6KV DC
Power Consumption / Dissipation	21.4 watts / 73.0 BTU
Dimensions (W x D x H)	440 x 200 x 44.5 mm, 1U height
Weight	2.7 KG
Enclosure	Metal
Layer 2 Functions	
Port Mirroring	TX / RX / Both Many-to-1 monitor
VLAN	802.1Q Tagged-based VLAN Up to 256 VLAN groups, out of 4094 VLAN IDs 802.1ad Q-in-Q tunneling Voice VLAN Protocol VLAN Private VLAN (Protected port) GVRP
Link Aggregation	IEEE 802.3ad LACP and static trunk Supports 8 groups of 8-port trunk
Spanning Tree Protocol	STP / RSTP / MSTP
IGMP Snooping	IGMP (v2/v3) Snooping IGMP Querier Up to 256 multicast groups
MLD Snooping	MLD (v1/v2) Snooping, up to 256 multicast groups
Access Control List	IPv4/IPv6 IP-based ACL / MAC-based ACL
QoS	8 mapping ID to 8 level priority queues

	- Port Number - 802.1p priority - 802.1Q VLAN tag - DSCP field in IP Packet Traffic classification based, Strict priority and WRR
Security	IEEE 802.1X – Port-based authentication Built-in RADIUS client to co-operate with RADIUS server RADIUS / TACACS+ user access authentication IP-MAC port binding MAC Filter Static MAC Address DHCP Snooping and DHCP Option82 STP BPDU Guard, BPDU Filtering and BPDU Forwarding DoS Attack Prevention ARP Inspection IP Source Guard
Management Functions	
Basic Management Interfaces	Web browser / Telnet / SNMP v1, v2c Firmware upgrade by HTTP / TFTP protocol through Ethernet network Remote / Local Syslog System log LLDP protocol SNTP
Secure Management Interfaces	SSH, SSL, SNMP v3
SNMP MIBs	RFC 1213 MIB-II RFC 1215 Generic Traps RFC 1493 Bridge MIB RFC 2674 Bridge MIB Extensions RFC 2737 Entity MIB (Version 2) RFC 2819 RMON (1, 2, 3, 9) RFC 2863 Interface Group MIB RFC 3635 Ethernet-like 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 RFC 3810 MLD version 2
Environment	
Operating	Temperature: 0 ~ 50 degrees C Relative Humidity: 5 ~ 95% (non-condensing)
Storage	Temperature: -20 ~ 70 degrees C Relative Humidity: 5 ~ 95% (non-condensing)

3.3 PHYSICAL SPECIFICATIONS:

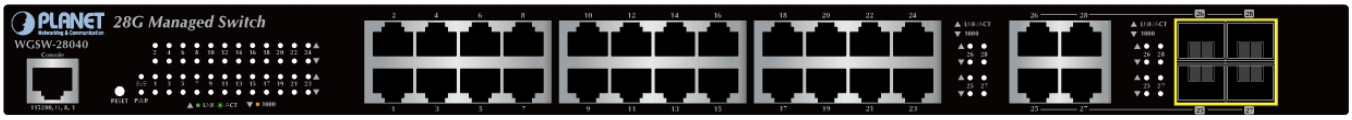
Dimensions:

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

Weight:

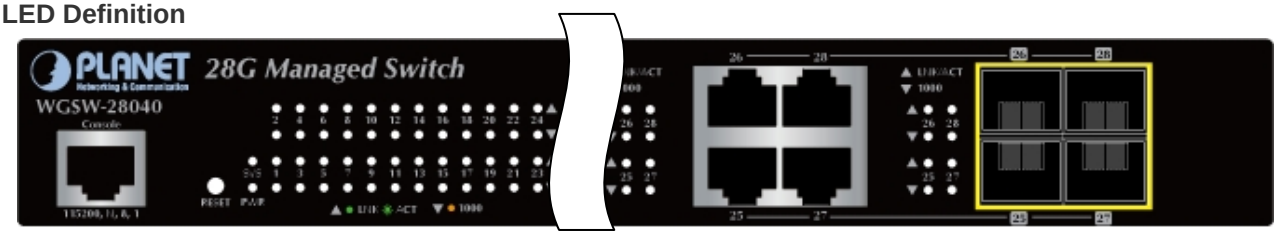
2.7 kg

■ **Front Panel:**



■ **Rear Panel:**

■ **LED Definition**



WGSW-28040 LED panel

■ **System**

LED	Color	Function
PWR	**Green**	**Lights** to indicate that the Switch has power.
SYS	**Green**	**Lights** to indicate the system is working. **Blink** to indicate the system is booting.

■ **10/100/1000Base-T interfaces**

LED	Color	Function	
LNK/ACT	**Green**	**Lights**:	To indicate the link through that port is successfully established.
		Blink:	To indicate that the switch is actively sending or receiving data over that port.
1000	**Orange**	**Lights**:	indicate that the port is operating at **1000Mbps**.
		Off:	If LNK/ACT LED light-> indicate that the port is operating at **10/100Mbps**
			If LNK/ACT LED Off -> indicate that the port is link down

■ **1000Base-SX/LX SFP interfaces (shared with Port-25 to Port-28)**

LED	Color	Function	
LNK/ACT	**Green**	**Lights**:	To indicate the link through that port is successfully established.
		Blink:	To indicate that the switch is actively sending or receiving data over that port.
1000	**Orange**	**Lights**:	indicate that the port is operating at **1000Mbps**.
		Off:	If LNK/ACT LED light-> indicate that the port is operating at **100Mbps**
			If LNK/ACT LED Off -> indicate that the port is link down

3.4 ENVIRONMENTAL SPECIFICATION

Operating:

Temperature: 0°C ~ 50 degrees C

Relative Humidity: 20% ~ 95% (non-condensing)

Storage:

Temperature: -10°C ~ 70 degrees C

Relative Humidity: 20% ~ 95% (non-condensing)

3.5 ELECTRICAL SPECIFICATION

Model		WGSW-28040
AC Power Input Voltage:		100 ~ 240VAC, 50 / 60Hz, Auto-sensing.
Power Consumption (System on):	110V	**7** Watts / 23.9 BTU
	220V	**7** Watts / 23.9 BTU
Power Consumption (Full Load Operating):	110V	**20.4** Watts / 69.6 BTU
	220V	**21.4** Watts / 73.0 BTU

3.6 REGULATORY COMPLIANCE

FCC Class A, CE.

3.7 REALIABILITY

MTBF > 50,000 hrs @ 25 degrees C

3.8 BASIC PACKAGING

- WGSW-28040 Switch X1
- Quick Installation Guide X1
- Power Cord X1
- RS-232 to RJ-45 Cable X1
- SFP dusty cap X4
- Two Rack-mounting Brackets with Attachment Screws X2

3.9 PACKING DIMENSION

Dimension: 565 (W) x 305 (D) x 95(H) mm

Weight: TBD KG (Gross Weight)

5pcs in one carton