

# 8-Port 10/100/1000Mbps with 2 Shared SFP Managed Switch



## *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**, WGSD-8020. It 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 WGSD-8020 is the best choice for ISP to build the IPv6 FTTx edge service and for SMB to connect with IPv6 network.

## *Diversity for Multiple Applications*

PLANET WGSD-8020 is a desktop size, **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 16Gbps switching fabric. The powerful features of QoS and network security offered by the WGSD-8020 provides 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 WGSD-8020 provides 8 10/100/1000Mbps Gigabit Ethernet ports with 2 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 16Gbps, which greatly simplifies the tasks of upgrading the LAN for catering to increasing bandwidth demands.

## *Robust Layer 2 Features*

The WGSD-8020 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 WGSD-8020 provides 802.1Q Tagged VLAN, and the VLAN groups allowed will be maximally up to 255. Via aggregation of supporting ports, the WGSD-8020 allows the operation of a high-speed trunk combining multiple ports. It enables maximum up to 4 groups of 8 ports for trunk and supports fail-over as well.

## *Enhanced Security*

PLANET WGSD-8020 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. New WGSD-8020 Net Security also provides **DHCP Snooping**, **IP Source Guard** and **Dynamic ARP Inspection** functions to prevent IP snooping 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.

## *Excellent Traffic Control*

The WGSD-8020 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 particular useful for multi-tenant unit, multi business unit, Telco, or Network Service Provider applications. The WGSD-8020 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 WGSD-8020 Managed Ethernet Switch is equipped with console, WEB and SNMP management interfaces. With the built-in Web-based management interface, the WGSD-8020 offers an easy-to-use, platform-independent management and configuration facility. The WGSD-8020 supports standard Simple Network Management Protocol (SNMP) and can be managed via any standard-based management software. For text-based management, the WGSD-8020 can be accessed via Telnet and the console port. Moreover, the WGSD-8020 offers secure remote management by supporting **SSH**, **SSL** and **SNMPv3** connection which encrypt the packet content at each session.

## *Flexibility and Extension Solution*

The two mini-GBIC slots built in the WGSD-8020 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.

## KEY FEATURES

### PHYSICAL PORT

- **8-Port 10/100/1000Base-T** RJ-45 copper
- **2 100/1000Base-X mini-GBIC/SFP** slots, shared with Port-7 to Port-8
- 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 / Multicast / Unknown-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)
- 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 4 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 Shaper and Egress Rate Limit per port bandwidth control
- 4 priority queues on all switch ports
- Traffic classification:
  - IEEE 802.1p CoS
  - TOS / DSCP / IP Precedence of IPv4/IPv6 packets
  - IP TCP/UDP port number
  - Typical network application
- Strict priority and Weighted Round Robin (WRR) CoS policies
- Supports QoS and In/Out bandwidth control on each port
- Traffic-policing policies on the switch port
- QoS Control List Wizard makes QoS creation and configuration easier and more quickly
- DSCP remarking

### MULTICAST

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

### 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 un-trusted DHCP messages
- **Dynamic ARP Inspection** discards ARP packets with invalid MAC address to IP address binding
- **IP Source Guard** prevents IP spoofing attacks
- Auto DoS rule to defend DoS attack
- 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 and Relay Option 82
- 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
- ICMPv6

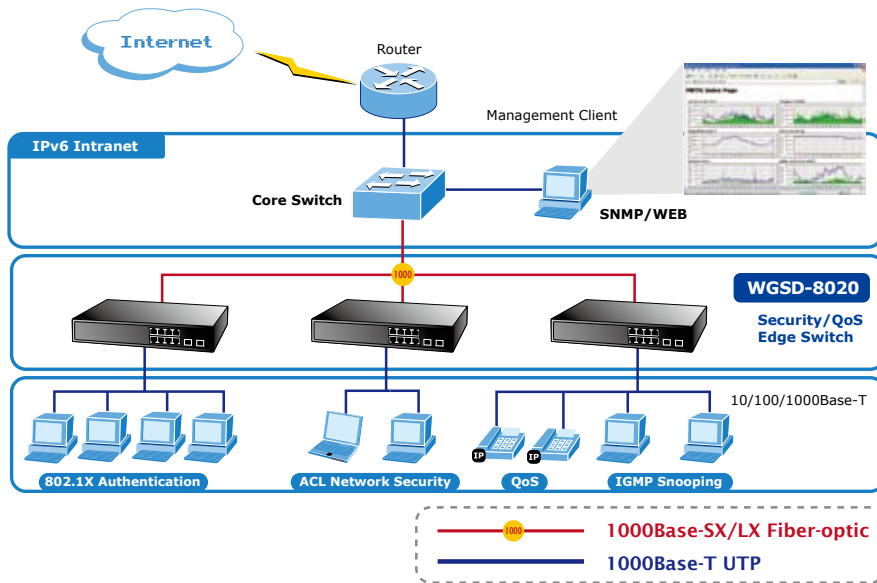
**APPLICATIONS**

**Department / Edge Security and QoS Switch for SMB**

The WGSD-8020 connects up to 8 high speed workstations in the Ethernet environment, in which its two 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 WGSD-8020 improves the network efficiency and protects the network clients with the powerful features:

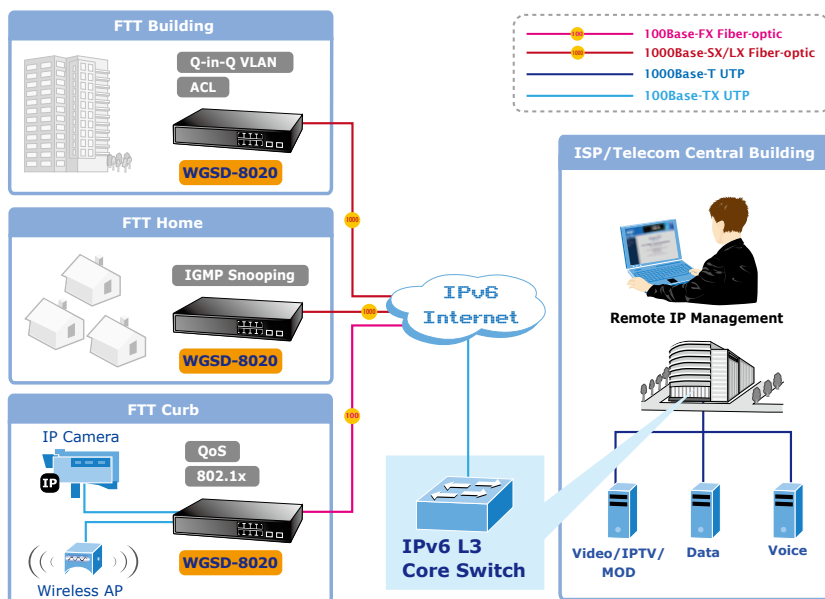
- IPv6 / IPv4 management
- Layer 2 to Layer 4 security
- QoS
- 802.1x Port-Based and MAC-Based network access authentication security
- Multicast IGMP Snooping

The advanced functionality of the WGSD-8020 eliminates traditional issues associated with the use of Ethernet. Users can be separated with advanced VLAN functionality to enhance security. It makes the WGSD-8020 one of the best and most cost-effective switch solutions for SMB.



**FTTx / MAN application Switch**

The WGSD-8020 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 two Dual-Speed SFP slots built in, the deployment distance of the WGSD-8020 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 8 Gigabit ports of the WGSD-8020 can be configured with VLAN settings and connect to different units, offices, flowers, houses and departments.



**SPECIFICATION**

Product	<b>8-Port 10/100/1000Mbps with 2 Shared SFP Managed Switch</b>
Model	<b>WGSD-8020</b>
<b>Hardware Specification</b>	
Copper Ports	8 10/ 100/1000Base-T RJ-45 Auto-MDI/MDI-X ports
SFP/mini-GBIC Slots	2 1000Base-SX/LX/BX SFP interfaces, shared with Port-7 and Port-8 Compatible with 100Base-FX SFP
Console	1 x RS-232 DB9 serial port (115200, 8, N, 1)
Switch Architecture	Store-and-Forward
Switch Fabric	16Gbps / non-blocking
Address Table	8K entries, automatic source address learning and ageing
Share data Buffer	1392 kilobytes
Flow Control	IEEE 802.3x Pause Frame for Full-Duplex Back pressure for Half-Duplex
Jumbo Frame	10Kbytes
Reset Button	< 5 sec: System reboot > 5 sec: Factory Default
LED	Power, 1000 Link/Act, 100 Link/Act
Dimension (W x D x H)	330 x 155 x 43.5 mm, 13-inch, 1U height
Weight	1.26 kg
Power Requirement	100~240V AC, 50/60Hz
Power Consumption	Max. 14.5 Watts / 49.46 BTU
ESD Protection	6KV DC
<b>Layer 2 Function</b>	
Basic Management Interfaces	Console, Telnet, Web Browser, SNMPv1, v2c
Secure Management Interface	SSH, SSL, SNMP v3
Port configuration	Port disable/enable
	Auto-negotiation 10/100/1000Mbps full and half duplex mode selection
	Flow Control disable / enable
	Power saving mode control
Port Status	Display each port's speed duplex mode, link status, Flow control status. Auto negotiation status, trunk status.
Port Mirroring	TX / RX / Both
	Many to 1 monitor
VLAN	802.1Q Tagged Based VLAN ,up to 256 VLAN groups
	Q-in-Q tunneling
	Private VLAN Edge (PVE)
Link Aggregation	Up to 256 VLAN groups, out of 4094 VLAN IDs
	IEEE 802.3ad LACP / Static Trunk Support 4 groups of 8-Port trunk support
QoS	Traffic classification based, Strict priority and WRR
	4-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
Access Control List	IP-Based ACL / MAC-Based ACL Up to 123 entries
Bandwidth Control	Per port bandwidth control
	<i>Ingress: 500Kbps~1000Mbps</i> <i>Egress: 500Kbps~1000Mbps</i>

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

## ORDERING INFORMATION

<b>WGSD-8020</b>	8-Port 10/100/1000Mbps with 2 Shared SFP Managed Switch
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## RELATIVE PRODUCT

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

**AVAILABLE MODULES FOR WGSD-8020**

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