

8-Port 10/100/1000Mbps + 2 100/1000X SFP Managed Ethernet Switch



Cost-effective IPv6 Managed Gigabit Switch Solution for SMB

To fulfill the demand of **IPv6 (Internet Protocol version 6)** network infrastructure, PLANET releases the **IPv6 Management Gigabit Ethernet Switch, WGSD-10020**. It supports both IPv4 and IPv6 management functions able to work with current IPv4 network structure and also support the new network structure (IPv6) in the future. With user-friendly management interfaces and plenty of management functions included, the WGSD-10020 is the best choice for ISP to build the IPv6 FTTx edge service and for SMB to connect with IPv6 network.

High Performance

The WGSD-10020 provides **8 10/100/1000Base-T** Gigabit Ethernet ports and **2 100/1000Base-X Gigabit SFP** slots. It boasts high performance architecture of switch that is capable of providing the non-blocking switch fabric and wire-speed throughput as high as 20Gbps, 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 WGSD-10020 successfully reduces substantial power consumption with the fanless and noiseless design collocating with the effective cooler. Therefore, the WGSD-10020 is able to operate stably and quietly in any environment without affecting its performance.

Diversity for Multiple Applications

The WGSD-10020 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 20Gbps switching fabric. The powerful features of QoS and network security offered by the WGSD-10020 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.

Robust Layer 2 Features

The WGSD-10020 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/MLD Snooping. The WGSD-10020 provides 802.1Q Tagged VLAN, and the VLAN groups allowed will be maximally up to 255. Via aggregation of supporting ports, the WGSD-10020 allows the operation of a high-speed trunk combining multiple ports. It enables maximum 5 groups of 10 ports for trunk and supports fail-over as well.

Enhanced Security

The WGSD-10020 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 WGSD-10020 also provides Network Security functions including DHCP Snooping, IP Source Guard and Dynamic ARP Inspection 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-10020 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-10020 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-10020 Managed Ethernet Switch is equipped with console, WEB and SNMP management interfaces. With the built-in Web-Based management interface, the WGSD-10020 offers an easy-to-use, platform-independent management and configuration facility. The WGSD-10020 supports standard Simple Network Management Protocol (SNMP) and can be managed via any standard-based management software. For text-based management, the WGSD-10020 can be accessed via Telnet and the console port. Moreover, the WGSD-10020 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-10020 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.

Green Networking

In line with the energy-saving trend worldwide, the WGSD-10020 adopts the new generation green technology to deliver benefits of energy saving and Gigabit performance. The new engine provides power saving up to 25% less energy consumption without reducing the performance, and particularly it offers flexible power saving mode to fulfill various demands.

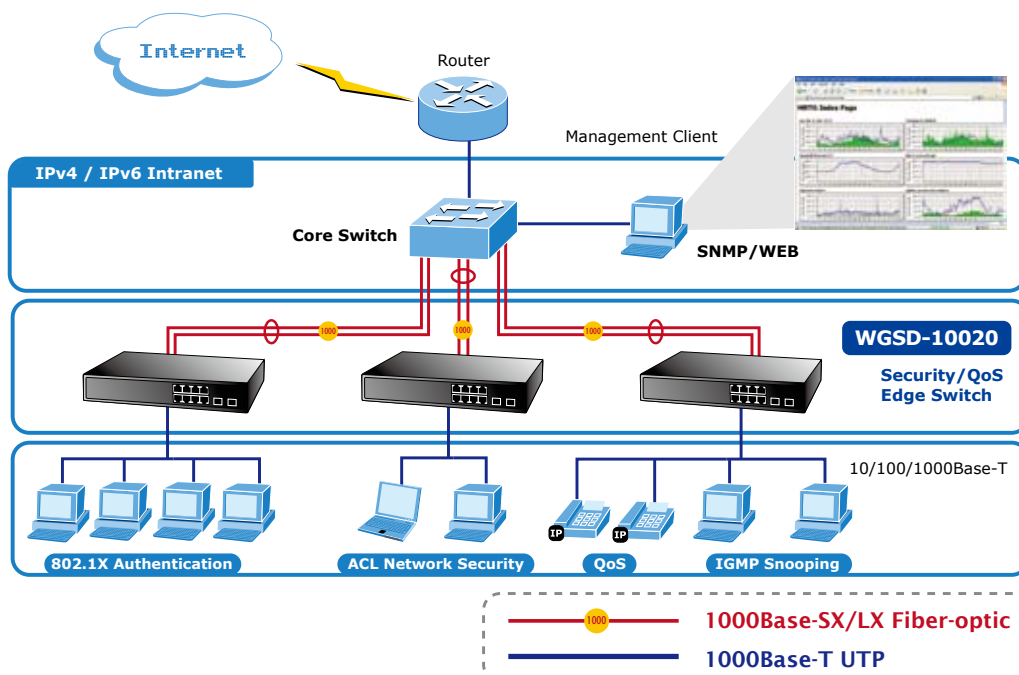
APPLICATIONS

Department / Edge Security and QoS Switch for SMB

The WGSD-10020 can connect up to 10 high speed workstations in the Ethernet environment, in which its two SFP mini-GBIC interfaces uplink to a department backbone. Moreover, the Switch provides 20 Gigabit per second switch fabric and high bandwidth for backbone connection. The WGSD-10020 improves the network efficiency and protects the network clients with the powerful features:

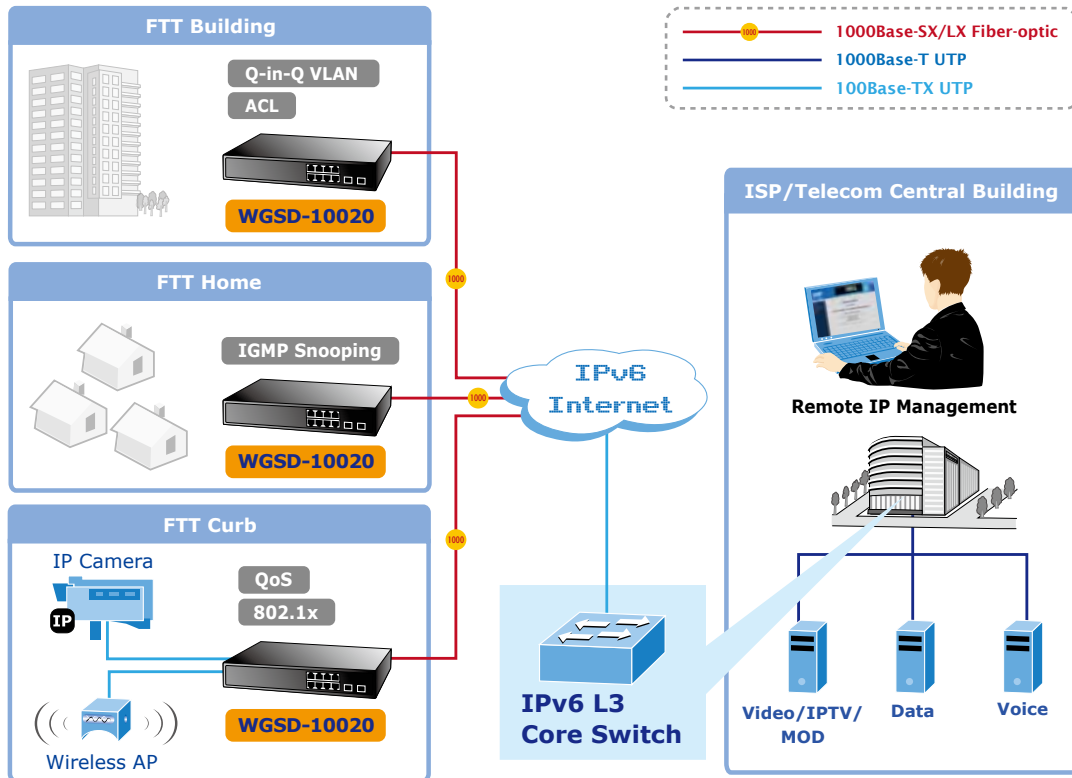
- IPv6 / IPv4 management
- Layer 2 to Layer 4 security
- QoS
- 802.1x Port-Based and MAC-Based network access authentication security
- Multicast IGMP/MLD Snooping

The advanced functionality of the WGSD-10020 eliminates traditional issues associated with the use of Ethernet. Users can be separated with advanced VLAN functionality to enhance security. It makes the WGSD-10020 one of the best and most cost-effective switch solutions for SMB.



FTTX / MAN application Switch

The WGSD-10020 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 security functions. The SNMPv3 security structure consists of security models and helps to isolate each model with its own security levels to enhance the security protections in the FTTX and MAN Network. With the built in two Dual-Speed SFP slots, the deployment distance of the WGSD-10020 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 10 Gigabit ports of the WGSD-10020 can be configured with VLAN settings and connect to different units, offices, floors, houses and departments.



KEY FEATURES

PHYSICAL PORT

- **8-Port 10/100/1000Base-T** RJ-45 copper
- **2 100/1000Base-X mini-GBIC/SFP** slots, SFP type auto detection
- 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
 - Multicast / Unknown-Unicast
- Supports **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
- 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**
 - 802.3ad Link Aggregation Control Protocol (LACP)
 - Cisco ether-channel (Static Trunk)
 - Maximum 5 trunk groups, up to 10 ports per trunk group
 - Up to 20Gbps bandwidth (Duplex Mode)
- Provides 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
- 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
- Supports QoS and In/Out bandwidth control on each port
- Traffic-policing policies on the switch port
- DSCP remarking

MULTICAST

- Supports IGMP Snooping v1, v2 and v3
- Supports 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
- 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 untrusted 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
- DHCP 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

SPECIFICATION

Product	8-Port 10/100/1000Mbps with 2 Shared SFP Managed Switch
Model	WGSD-10020
Hardware Specification	
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 (Port-9 and Port-10) Compatible with 100Base-FX SFP
Console	1 x RS-232 DB9 serial port (115200, 8, N, 1)
Switch Architecture	Store-and-Forward
Switch Fabric	20Gbps / 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	9K bytes
Reset Button	< 5 sec: System reboot > 5 sec: Factory Default
Dimension (W x D x H)	330 x 155 x 43.5 mm, 13-inch, 1U height
Weight	1.4 kg
Power Requirement	100~240V AC, 50/60Hz
Power Consumption	Max. 10.3 Watts / 35.13 BTU
ESD Protection	6KV DC
Layer 2 Function	
Basic Management Interfaces	Console, Telnet, Web Browser, SNMPv1, v2c
Secure 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 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) MAC-Based VLAN Protocol-Based VLAN Voice VLAN MVR (Multicast VLAN Registration) Up to 256 VLAN groups, out of 4096 VLAN IDs
Link Aggregation	IEEE 802.3ad LACP / Static Trunk Supports 5 groups of 10-Port trunk support
QoS	Traffic classification based, Strict priority and WRR 8-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
MLD Snooping	MLD (v1/v2) Snooping, up to 255 multicast Groups MLD Querier mode support
Access Control List	IP-Based ACL / MAC-Based ACL Up to 123 entries
Bandwidth Control	Per port bandwidth control - Ingress: 500Kb~80Mbps - Egress: 64Kb~80Mbps

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, 2, 3 and 9)	RFC-2737 Entity MIB RFC-2618 RADIUS Client MIB RFC-2933 IGMP-STD-MIB RFC3411 SNMP-Frameworks-MIB IEEE 802.1X PAE LLDP MAU-MIB
Standards Conformance		
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 Degree C Relative Humidity: 20 ~ 95% (non-condensing)	
Storage	Temperature: -20 ~ 70 Degree C Relative Humidity: 20 ~ 95% (non-condensing)	

ORDERING INFORMATION

WGSD-10020	8-Port 10/100/1000Mbps with 2 Shared SFP Managed Switch
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RELATIVE PRODUCT

WGSD-10020HP	8-Port 10/100/1000Mbps PoE Plus + 2 100/1000X SFP Managed Ethernet Switch
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AVAILABLE 1000BASE-X MODULES FOR WGSD-10020

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

AVAILABLE 100BASE-FX MODULES FOR WGSD-10020

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