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

PLANET GSD-1020S is an 8-Port Gigabit Managed Ethernet Switch with SFP interfaces specially designed to build a full Gigabit backbone to reliably transmit and forward data to remote network through fiber optic. It provides 8-Port 10/100/1000Base-T copper and 2 extra 100/1000Base-X SFP fiber optic interfaces with built-in power system. Besides support for 20Gbps switch fabric to handle extremely large amounts of video, voice and important data in a secure topology, the GSD-1020S provides user-friendly but advanced IPv6 / IPv4 management interfaces and abundant L2 / L4 switching functions. It is the best investment for businesses and SOHOs expanding or upgrading their network infrastructure. The features of enhanced management are shown below:

• 802.1X Authentication / RADIUS / TACACS+

• 802.1Q VLAN

• SNMP Monitor and SNMP Trap

• IGMP/MLD Snooping

• Rapid Spanning Tree

2 x 100/1000Base-X SFP Slot

8 x 10/100/1000Base-T RJ-45 Port
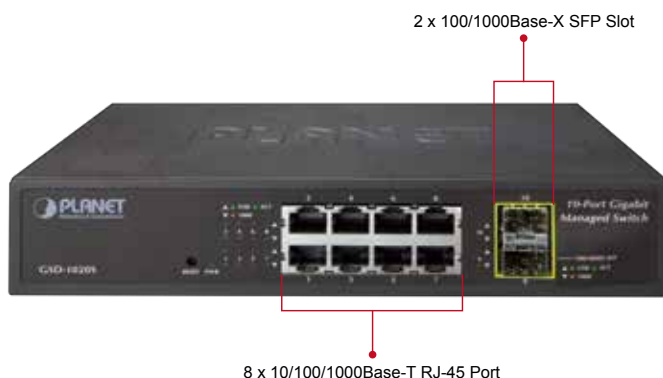
Physical Ports

• 8 10/100/1000Mbps Gigabit Ethernet ports with auto-MDI/MDI-X supported
• 2 100/1000Base-X mini-GBIC/SFP slots

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

IPv6 / IPv4 Full-functioned Secure Switch

The GSD-1020S is the ideal solution to fulfilling the demand of IPv6 network implementation. It supports both IPv4 and IPv6 management functions and can work with original network structure. It provides advanced Layer 2 to Layer 4 data switching and Quality of Service traffic control, Access Control List, network access control and authentication, and Secure Management features to safeguard the building of automation network connectivity with reliable switching recovery capability that is suitable for implementing fault tolerant and mesh network architectures. Therefore, the GSD-1020S Managed Ethernet Switch is also ideal for applications in the factory data centers and distributions.

Powerful Security

The GSD-1020S 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.

Spanning Tree Protocol for Effective Network System

The GSD-1020S features strong rapid self-recovery capability to prevent interruptions and external intrusions. It incorporates Spanning Tree Protocol (802.1s MSTP) into customer's automation network to enhance system reliability and uptime.

Cost-effective Desktop Size / High-speed for FTTD Solution

The GSD-1020S provides high-performance edge service and plug-and-play design for FTTD (Fiber to the desktop) solutions. FTTD service is fiber optic cabling with reliable, expandable and low-cost wiring architectures, and long-distance capability. It supports dual-speed, 100Base-FX and 1000Base-SX/LX SFP (small form-factor pluggable) fiber-optic modules to connect fiber access point. It utilizes a compact form factor which can be mounted in a 19-inch rack with optional rack-mounting kits and placed on desktop, with the flexibility to install in the communication closet or major computer room for SMBs. The GSD-1020S 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.

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)
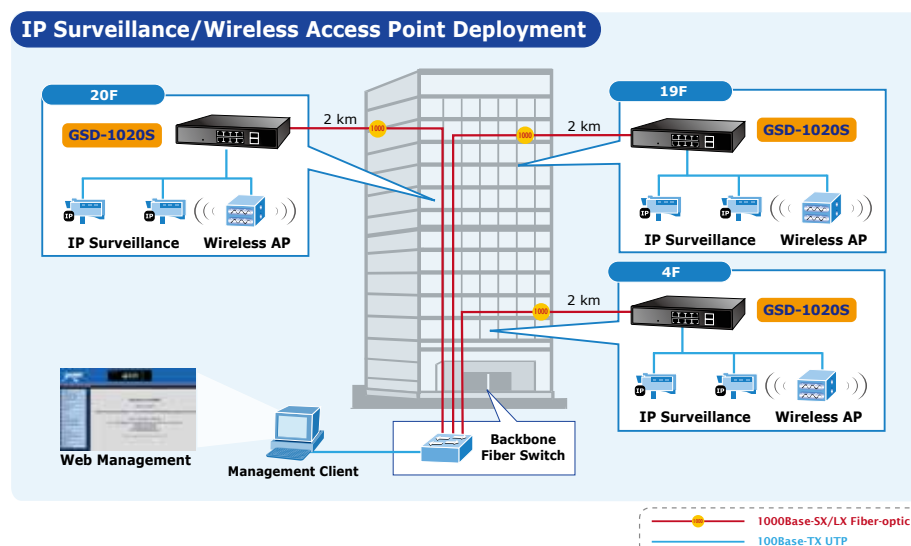- PLANET Smart Discovery Utility

Applications

FTTX / MAN Application Switch

The GSD-1020S applies the double tag VLAN (Q-in-Q) technology to providing 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 its two built-in dual-speed SFP slots, the deployment distance of the GSD-1020S can be extended from 550 meters (multi-mode fiber) to above 10/50/70/120 kilometers (single-mode fiber), thus providing 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 SFP ports of the GSD-1020S can be configured with VLAN settings and connected to different units, offices, floors, houses and departments.
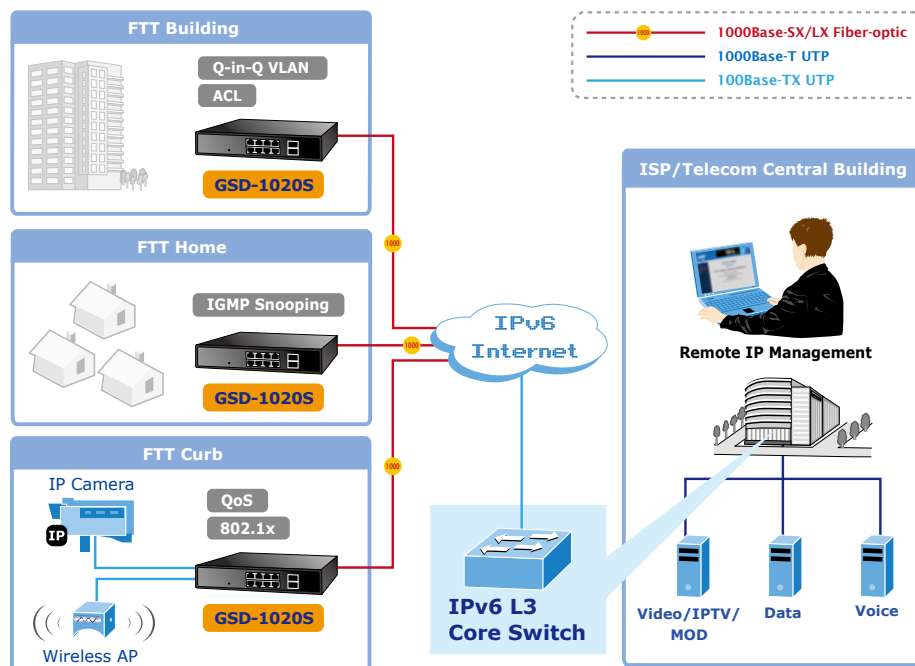
MTU Switch

In an MTU/MDU application, the advanced functionality of the GSD-1020S eliminates traditional issues associated with the use of Ethernet. Users can be separated with advanced VLAN functionality to enhance security. The flexible mini-GBIC 1000Base-SX/LX module options make the GSD-1020S one of the best and most cost-effective Switch solutions for multi-tenant service providers.

Product Specifications

Product	GSD-1020S
Hardware Specifications	
Copper Ports	8 x 10/100/1000Base-T RJ45 Auto-MDI/MDI-X ports
SFP/mini-GBIC Slots	2 100/1000Base-X SFP interfaces Supports 100/1000Mbps dual mode and DDM
Switch Architecture	Store-and-Forward
Switch Fabric	20Gbps / non-blocking
Switch Throughput@64Bytes	14.8Mpps
Address Table	8K entries
Shared Data Buffer	512K Bytes
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) 10/100/1000T RJ45 Interfaces (Port 1 to Port 8): 1000Mbps (Orange), LNK/ACT (Green) 100/1000Mbps SFP Interfaces (Port 9 to Port 10): 1000Mbps (Orange), LNK/ACT (Green)
Power Requirements	100V ~ 240V AC, 50/60Hz
ESD Protection	6KV DC
Power Consumption / Dissipation	8.2 watts / 30 BTU/hr
Dimensions (W x D x H)	217 x 135 x 43.5 mm
Weight	853g
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 3635 Ethernet-like MIB RFC 2863 Interface Group MIB RFC 2819 RMON (1, 2, 3, 9) RFC 1493 Bridge 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)

Ordering Information

GSD-1020S	8-Port 10/100/1000Mbps + 2-Port 100/1000X SFP Managed Desktop Switch

Accessories

RKE-10A	Rack Mount Kits for 10" cabinet
RKE-10B	Rack Mount Kits for 19" cabinet

Available 1000Base-X Module for GSD-1020S

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
MGB-TSX	SFP-Port 1000Base-SX mini-GBIC module - 550m (-40~75 degrees C)
MGB-TLX	SFP-Port 1000Base-LX mini-GBIC module - 10km (-40~75 degrees C)
MGB-TL30	SFP-Port 1000Base-LX mini-GBIC module - 30km (-40~75 degrees C)
MGB-TL70	SFP-Port 1000Base-LX mini-GBIC module - 70km (-40~75 degrees C)

Available 100Base-FX Module for GSD-1020S

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-GSD-1020S