

# 8-Port 10/100Mbps + 2G TP / SFP Combo Managed Switch



## Layer 2 / Layer 4 Managed Switch for Enterprise and Campus Networking

PLANET's FGSD-1022 is an 8-Port 10/100Mbps Fast Ethernet Switch with 2-Port Gigabit TP/ SFP Combo interfaces, which boasts a high-performing switch architecture. The FGSD-1022 is capable of providing non-blocking switch fabric and wire-speed throughput as high as 5.6 Gbps, which greatly simplifies the tasks of upgrading the LAN that satisfies an increase in bandwidth demands. Its two built-in Gigabit Ethernet uplink ports also offer incredible extensibility, flexibility and connectivity to the core switch or servers.

### Full-Functioned / Robust Layer2 Features

The FGSD-1022 can be programmed for basic switch management functions such as port speed configuration, Port aggregation, VLAN, Spanning Tree protocol, QoS, bandwidth control and IGMP Snooping. It provides IEEE 802.1Q Tagged VLAN and the VLAN groups and the device allows a maximum of 256 VLAN groups. Via the aggregation of supporting ports. The FGSD-1022 allows the operation of high-speed trunk combining multiple ports. A maximum of up to 8 ports can be assigned for 13 trunk groups. The device supports fail-over as well.

- 802.1Q VLAN
- IGMP Snooping
- 802.1s Multiple Spanning Tree
- TOS/DSCP QoS
- SNMP and SNMP Trap
- DHCP Relay & DHCP Option 82
- Access Control List
- 802.1X Authentication / RADIUS
- SSL

### Excellent Traffic Control

PLANET's FGSD-1022 is loaded with powerful traffic management and QoS features to enhance services offered by Service Providers. The functionality includes QoS features such as wire-speed Layer 4 traffic classifiers and bandwidth limiting applications that are particular useful for multi-tenant units, multi-business units, Telco, or Network Service Providers. It also empowers enterprises to take full advantage of their limited network resources and guarantees the best performance in VoIP and Video conferencing transmission.

### Easy To Use, Powerful Management

For efficient management, the FGSD-1022 is equipped with console, WEB and SNMP management interfaces. With its built-in Web-based management interface, the FGSD-1022 offers an easy-to-use, platform-independent management and configuration facility. It supports standard Simple Network Management Protocol (SNMP) and can be managed via any standard-based management software. For text-based management, the FGSD-1022 can be accessed via Telnet and the console port. In addition, the FGSD-1022 offers secure remote management by supporting SSL connections that encrypt packet content at each session.

### Powerful Security

PLANET's FGSD-1022 offers comprehensive Access Control List (ACL) for enforcing maximum security. Its protection mechanism also comprises IEEE 802.1x Port-based Authentication, Web Authentication, User Authentication, and Device Authentication. The Port-Security limits the numbers of clients that pass through so that network administrators can now construct highly secure corporate networks in considerably less time with less effort.

### Flexibility and Extension Solution

The two mini-GBIC slots 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 cable) up to 10/30/50/70/120 kilometers (Single-Mode fiber or WDM fiber cable). They are well suited for applications within the enterprises data centers or distributions data link.

## KEY FEATURES

### PHYSICAL PORT

- 8-Port 10/100TX Fast Ethernet ports
- 2 10/100/1000T TP combo interfaces
- 2 mini-GBIC/SFP slots, shared with Port-9 and Port-10
- Reset button for system management
- 1 RS-232 male DB9 console interface for Switch basic management and setup

### LAYER 2 FEATURES

- Prevents packet loss Flow Control:
  - IEEE 802.3x FAUSE Frame flow control for Full-Duplex mode
  - Back-Pressure Flow Control in Half-Duplex mode
- High performance of Store-and-Forward architecture, runt/CRC filtering eliminate erroneous packets to optimize the network bandwidth
- Broadcast / Multicast / Unicast storm control
- 8K MAC address table, automatic source address learning and ageing
- Supports VLAN
  - IEEE 802.1Q Tag-based VLAN
  - Port-Based VLAN
  - Q-in-Q tunneling
  - GVRP for dynamic VLAN Management
  - Private VLAN Edge (PVE / Protected Port )
- Supports Link Aggregation
  - up to 13 trunk groups
  - up to 8 ports per trunk group with 1.6Gbps bandwidth (Full Duplex Mode)
  - IEEE 802.3ad LACP (Link Aggregation Control Protocol)
  - Cisco ether-channel (Static Trunk)
- Spanning Tree Protocol
  - STP, IEEE 802.1D (Classic Spanning Tree Protocol)
  - MSTP, IEEE 802.1s (Multiple Spanning Tree Protocol, spanning tree by VLAN)
- Port Mirroring to monitor the incoming or outgoing traffic on a particular port

### QUALITY OF SERVICE

- 4 priority queues on all switch ports
- Traffic classification:
  - IEEE 802.1p CoS
  - IP TOS / DSCP to 802.1p priority mapping
  - Port-Based priority

- Strict priority and Weighted Round Robin (WRR) CoS policies
- Supports QoS and In/Out bandwidth control on each port
- In/Out rate limit control on each port

### MULTICAST

- Supports IGMP Snooping v1 and v2
- IGMP Snooping v2 fast leave
- Querier mode support

### SECURITY

- IEEE 802.1x Port-Based network access control protocol
- RADIUS users access authentication
- L3 / L4 Access Control List (ACL)
- Source IP-MAC / Port-Binding
- Port Security for Source MAC address entries filtering

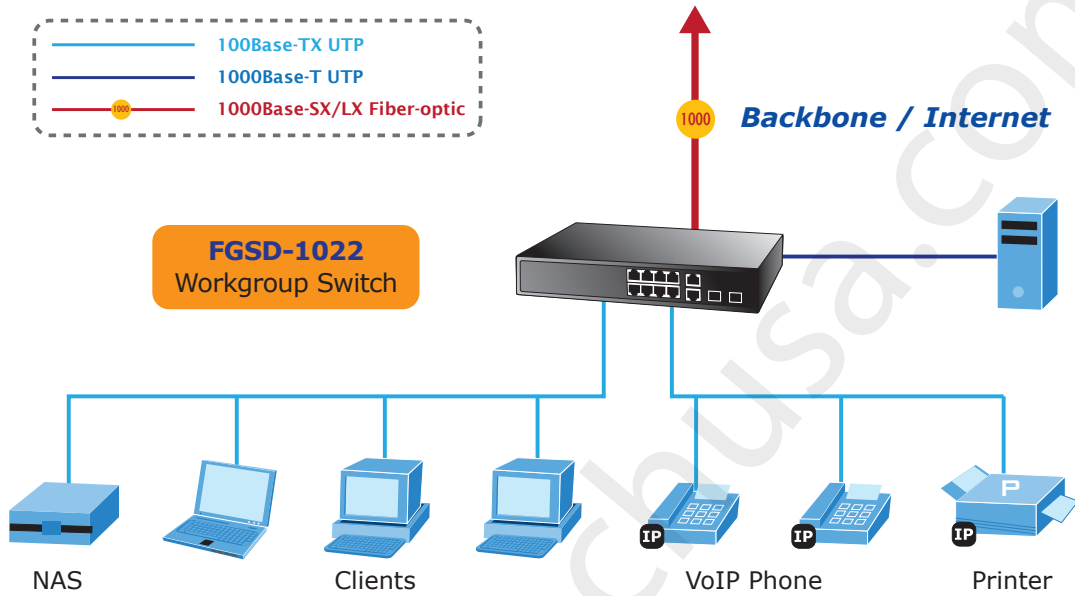
### MANAGEMENT

- Switch Management Interface
  - Telnet Command Line Interface
  - Web switch management
  - SNMP v1, v2c, v3 switch management
  - SSL secure management
- DHCP client for IP address assignment
- DHCP Option82 and DHCP Relay
- Link Layer Discovery Protocol (LLDP) for easy network management
- Built-in Trivial File Transfer Protocol (TFTP) client
- Firmware upgrade via TFTP or HTTP
- Configuration restore / backup via TFTP or HTTP
- Event message logging to remote Syslog server
- Four RMON groups 1, 2, 3, 9 (history, statistics, alarms, and events)
- SNMP trap for interface Link Up and Link Down notification
- Supports Ping function

**APPLICATIONS**

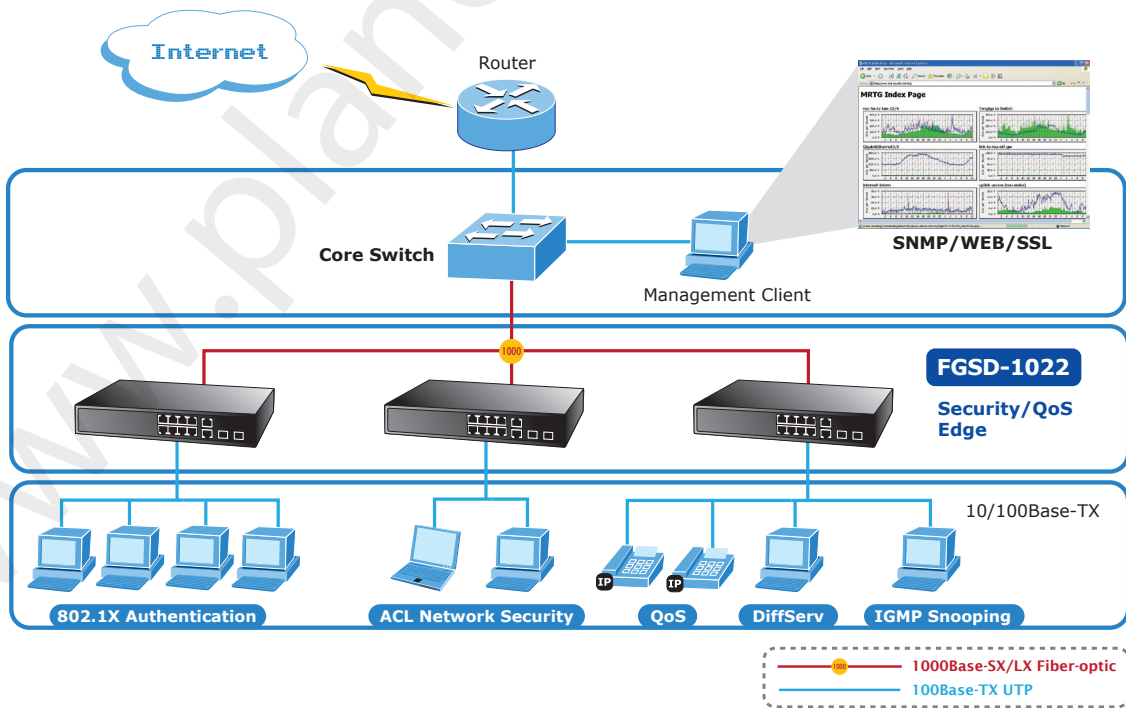
**Department/ Workgroup Switch**

The FGSD-1022 connects up to 8 workstations in an Ethernet environment, two of which their SFP Mini-GBIC interfaces uplink to a department backbone. In addition, the Switch provides 5.6 Gigabit per second switch fabric and high bandwidth for backbone connection.



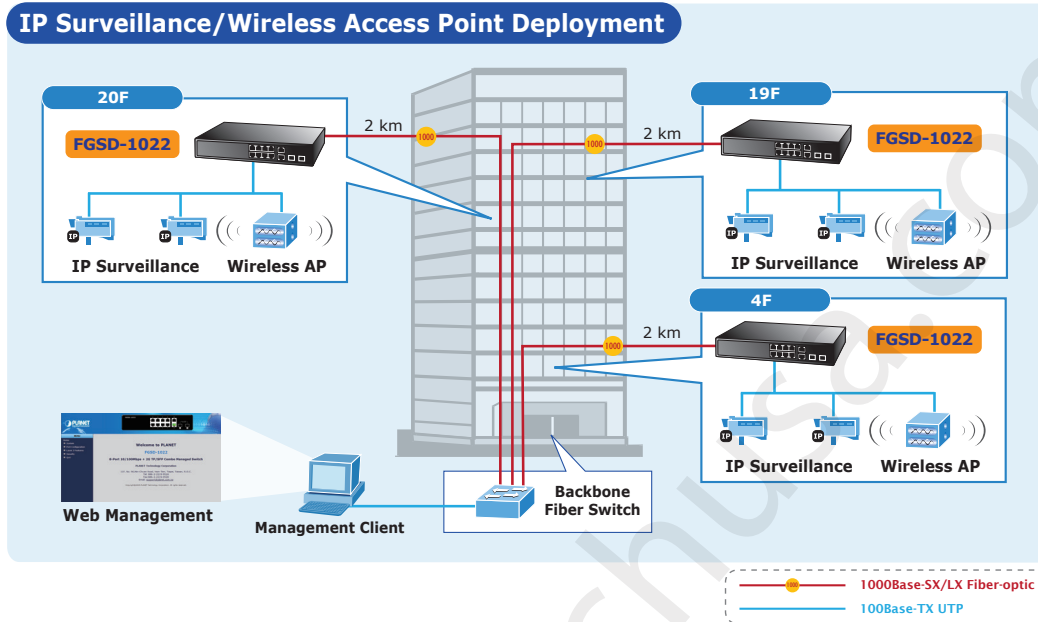
**Enterprise Security and QoS Edge Switch**

With the IEEE 802.1x Network access authentication, MAC/IP/Protocol Access Control list and Port Security, administrators can limit the number of MAC address to be passed through one specific port. The IGMP Snooping and QoS features in the FGSD-1022 improves network efficiency and protects network clients.



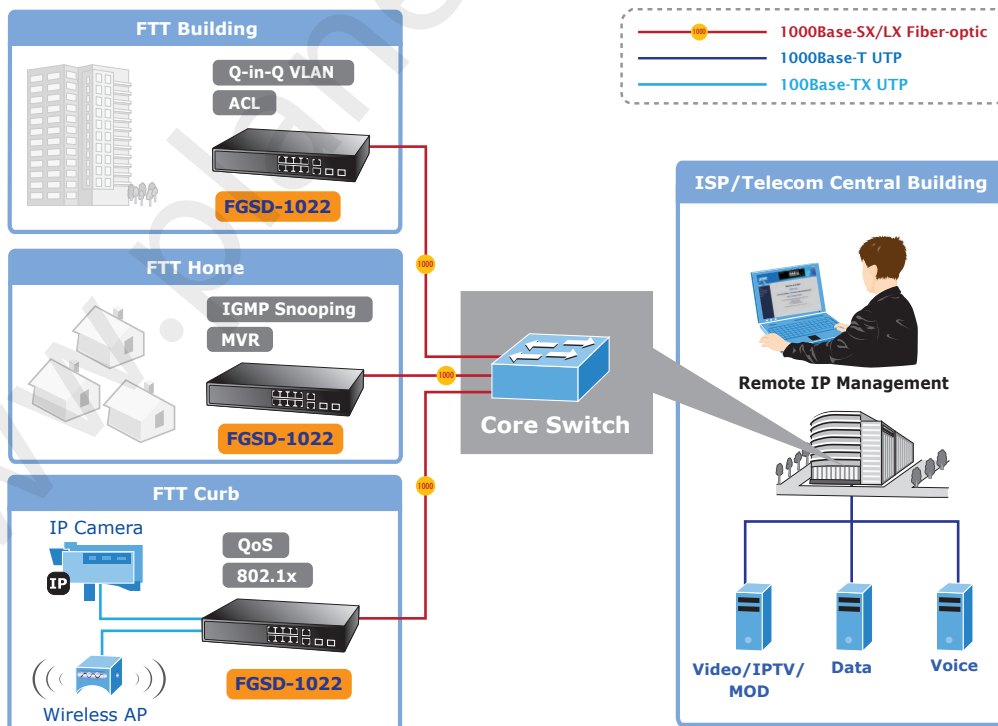
**MTU Switch**

In an MTU/MDU application, the advanced functionality of the FGSD-1022 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 FGSD-1022 one of the best and most cost-effective Switch solutions for Multi-tenant service providers.



**FTTx Edge Switch**

With the mini-GBIC 1000Base-SX/LX SFP (Small Form Factor Pluggable) interface, the deployment distance of the FGSD-1022, a high-performance edge device for FTTx solutions, can be extended from 550 meters (Multi-mode fiber) up to above 10/20/30/40/50/70/120 kilometers (Single-mode fiber). To build a network solution of FTTH (Fiber to the Home), FTTC (Fiber to the Curb), FTTB (Fiber to the Building) for ISPs or FTTB (Fiber to the Building) for enterprises, the various distances of SFP (Small-Form Factor Pluggable) and Bidi (WDM) transceivers are optional for customers. For security applications, the 8 copper ports can be configured with VLAN settings and connect to different units in locations such as offices, houses and departments.



## SPECIFICATION

Product	8-Port 10/100Mbps + 2 Gigabit TP / SFP Managed Switch
Model	FGSD-1022
<b>Hardware Specification</b>	
10/100Mbps Copper Ports	8 10/ 100Base-TX RJ-45 Auto-MDI/MDI-X ports
1000Mbps Copper Ports	2 10/100/1000Base-T RJ-45 Auto-MDI/MDI-X ports
SFP/mini-GBIC Slots	2 1000Base-SX/LX/BX, shared with Port-9~Port-10
Switch Architecture	Store-and-Forward
Switch Fabric	5.6Gbps / non-blocking
Switch Throughput	4.16Mpps @64Bytes
Address Table	8K entries
Share Data Buffer	2 Mbits
Maximum Frame Size	9K Bytes
Flow Control	Back pressure for Half-Duplex IEEE 802.3x Pause Frame for Full-Duplex
LED	Power (Green) Link/Activity (Green) 1000 LNK / ACT(Green) 10/100 LNK / ACT(Orange)
Reset Button	< 1-5 seconds: System reboot > 10 seconds: Factory Default
<b>Layer 2 Function</b>	
Management Interface	Console, Telnet, Web Browser, SSL, SNMPv1, v2c, v3
Port Configuration	Port disable/enable Auto-negotiation 10/100/1000Mbps full and half duplex mode selection Flow Control disable / enable
Port Status	Display each port's speed duplex mode, link status and Flow control status. Auto negotiation status, trunk status.
Port Mirroring	TX / RX / Both 1 to 1 monitor
Bandwidth Control	Ingress / Egress Rate Control • Allow to configure per 128Kbps
VLAN	IEEE 802.1Q Tag-based VLAN, up to 255 VLANs groups, out of 4041 VLAN IDs Port-based VLAN Q-in-Q tunneling GVRP for VLAN Management, up to 128 dynamic VLAN entries Private VLAN Edge(PVE / Protected port) with two protected port groups
Link Aggregation	Static Port Trunk IEEE 802.3ad LACP (Link Aggregation Control Protocol) Supports 13 groups of 8-Port trunk support
QoS	4 priority queue Traffic classification based on: - Port priority - 802.1p priority - DSCP/TOS field in IP Packet
IGMP Snooping	IGMP (v1/v2) Snooping, up to 256 multicast Groups
Access Control List	IP-Based Layer 3 / Layer 4 ACL Up to 220 ACL rule entries
SNMP MIBs	RFC-1213 MIB-II RFC-2863 Interface MIB RFC-2665 EtherLike MIB RFC-1493 Bridge MIB RFC-2819 RMON MIB (Group 1, 2, 3,9) RFC-2737 Entity MIB

Standards Conformance		
Regulation Compliance	FCC Part 15 Class A, CE	
Standards Compliance	IEEE 802.3	10Base-T
	IEEE 802.3u	100Base-TX
	IEEE 802.3ab	1000Base-T
	IEEE 802.3z	1000Base-SX/LX
	IEEE 802.3x	Flow Control and Back pressure
	IEEE 802.3ad	Port trunk with LACP
	IEEE 802.1D	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
	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	

### ORDERING INFORMATION

FGSD-1022	8-Port 10/100Mbps + 2 Gigabit TP / SFP combo Managed Switch
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### AVAILABLE MODULES FOR FGSD-1022

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

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