16-Port Web Smart Gigabit Ethernet Switch with 2 Shared SFP Interfaces

High-Performance and Cost-Effective Gigabit Solution for Enterprise Backbone and Data Center Networking

The PLANET GSW-1602SF is the Layer 2 Web Smart 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 32Gbps switching fabric. The powerful features of QoS and network security enables GSW-1602SF to offer effective data traffic control for ISPs and Enterprises, such as VoIP, video streaming and multicast applications. The GSW-1602SF provides 16 10/100/1000Mbps Gigabit Ethernet ports with 2 shared Gigabit SFP slots. It is capable to provide the non-blocking switch fabric and wire-speed throughput as high as 32Gbps, which greatly simplifies the tasks of upgrading the LAN for catering to increasing bandwidth demands. It is ideal for the core layer of campus, enterprise networks and the aggregation layer of IP metropolitan networks.

Robust Layer 2 Features

The GSW-1602SF 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, Rapid Spanning Tree protocol, IEEE 802.1p QoS, bandwidth control , IGMP Querier / Snooping and Link Layer Discovery Protocol (LLDP) . The GSW-1602SF provides IEEE 802.1Q Tagged VLAN allowing maximally up to 256 VLAN groups. Via aggregation of supporting ports, the GSW-1602SF allows the operation of a high-speed trunk combining multiple ports. It enables maximum up to 8 groups of 8 ports for trunking and supports fail-over and 802.3ad LACP (Link Aggregation Control Protocol).

Excellent Traffic Control

The GSW-1602SF is loaded with powerful traffic management and QoS features to enhance services offered by telecoms. The QoS features includes IEEE 802.1p 4 priority Queues / DSCP and bandwidth limiting that are particular useful for multi-tenant unit, multi business unit, Telco, or Network Service Provider applications. The GSW-1602SF 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 GSW-1602SF Web Smart Gigabit Switch is equipped with WEB and SNMP management interfaces. With the built-in Web-based management interface, the GSW-1602SF offers an easy-to-use, platform-independent management and configuration facility. The GSW-1602SF also supports standard Simple Network Management Protocol (SNMP) and can be managed via any standard-based management software. Furthermore, it provides configuration backup and restore function through web interface for quick deployment of multi-devices with the same configuration.

Powerful Security

The GSW-1602SF offers IEEE 802.1X Port-Based access control and RADIUS Server Authentication for system authentication. Its security mechanism also comprises of Filter Configuration and MAC Address Filter. The Filter Configuration provides per port Source IP filter to block unauthorized access and Static MAC Address assigns destination MAC address at specified port. With the benefit of Port-Based / IEEE 802.1Q VLAN function, network administrators can now construct highly secured corporate networks with considerably less time and effort than before.

Flexibility and Extension Solution

The two mini-GBIC slots built in the GSW-1602SF are compatible with100Base-FX / 1000Base-SX/LX and WDM SFP (Small Factor Pluggable) fiber-optic modules. The distance can be extended from 550 meters (Multi-Mode fiber) up to above 10/20/30/40/50/70/120 kilometers (Single-Mode fiber or WDM fiber). They are well suited for applications of the enterprise data centers and distributions.
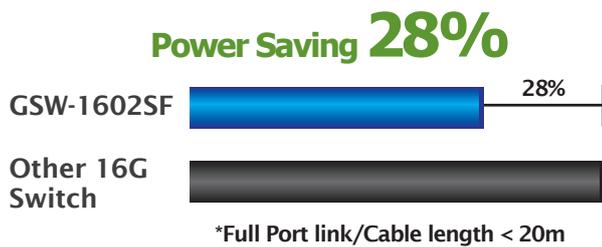
Optimal Solution for Energy-Saving and High Gigabit Performance

In line with the energy-saving trend worldwide, PLANET GSW-1602SF adopts the new generation green technology. The GSW-1602SF is upgraded from earlier version and brings both benefits of energy saving and gigabit performance. It uses new engine to provide power saving up to 28% less energy consumption without reducing the performance, and particularly offer flexible power saving mode to fill various demands. It is specially suited for enterprise and campus networking.

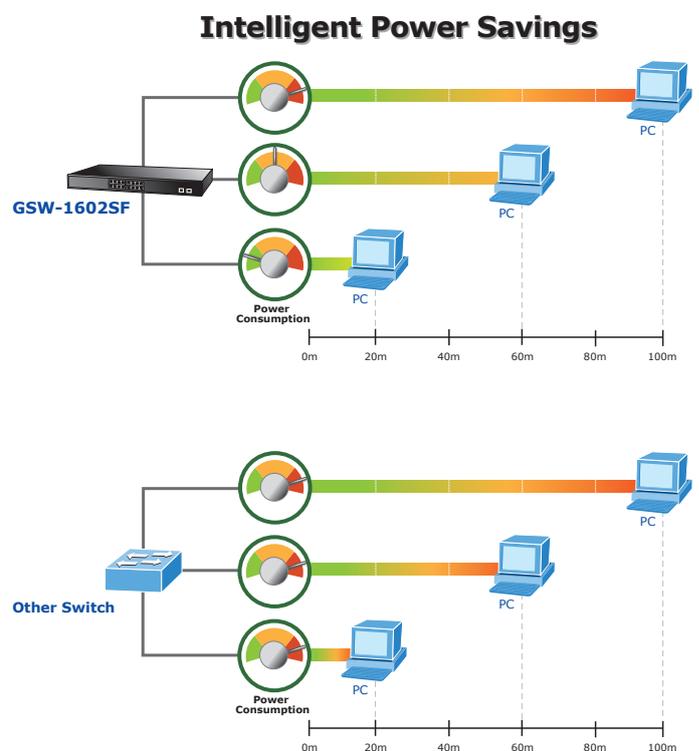The GSW-1602SF incorporates two advanced Green Networking technologies:

- Hibernation power saving modes selection

  - **Both link-up and link-down**
  - **Link-up only**
  - **Link-down only**
  - **No power saving**

- Intelligent scales power based on cable length

Power saving diagram

Power Saving 28%

GSW-1602SF — 28%

Other 16G Switch

*Full Port link/Cable length < 20m

Save 40,997 Watts yearly

Power comparison diagram

Intelligent Power Savings

GSW-1602SF

Power Consumption

0m 20m 40m 60m 80m 100m

Other Switch

Power Consumption

0m 20m 40m 60m 80m 100m

KEY FEATURES

GENERAL FEATURES

- Complies with the IEEE 802.3, IEEE 802.3u, IEEE 802.3ab, IEEE 802.3z Gigabit Ethernet standard

- 16-Port 10/100/1000Mbps Gigabit Ethernet ports

- 2-Port SFP (Small Form-factor Pluggable) for 3.3V mini GBIC module, 100Base-FX / 1000Base-SX / LX Dual mode
  - Shared with **Port-15 and Port-16**

- Auto-Negotiation and Half-Duplex / Full-Duplex modes for all 10Base-T/100Base-TX and 1000Base-T ports

- Each Switching port supports Auto-Negotiation of 10/20Mbps, 100/200Mbps and 1000/2000Mbps

- Auto-MDI/MDI-X detection on each RJ-45 port, supporting CSMA/CD protocol

- 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

- 8K MAC address table, automatic source address learning and ageing

- 32Gbps switch fabric, non-blocking switch architecture

- 9K Jumbo Frame support at all speed (10/100/1000Mbps)

LAYER 2 FEATURES

- Supports VLANs
  - Port-Based VLAN
  - IEEE 802.1Q tag-based VLAN
  - Q-in-Q tunneling
  - Up to 256 VLANs groups, out of 4094 VLAN IDs

- Supports Link Aggregation
  - up to 8 trunk groups
  - up to 8 ports per trunk group with 16Gbps bandwidth (Full Duplex Mode)
  - IEEE 802.3ad LACP (Link Aggregation Control Protocol)

- Spanning Tree Protocol
  - RSTP, IEEE 802.1w (Rapid Spanning Tree Protocol)

- Port Mirroring to monitor the incoming or outgoing traffic on a particular port

- Mini-GBIC module built-in information display

- Cable Diagnostics technology and ICMP Ping function

- Link Layer Discovery Protocol (LLDP) for discover basic information about neighboring devices on the local broadcast domain

- Green Networking for energy saving

QUALITY OF SERVICE

- 4 priority queues on all switch ports

- 8 mapping ID to 4 priority queues

- Traffic class assignment based on IEEE 802.1p tag, or DSCP field

- Multicast and Broadcast Storm Control as well as Flooding Control

- Rate Limit bandwidth control at both inband and outband in steps of 128kbps

MULTICAST

- Supports IGMP Snooping v1 and v2

- Querier mode support

- Multicast Address Table for 256 groups display

SECURITY

- IEEE 802.1X Port-Base access control, RADIUS ServerAuthentication

- Source IP filter per port to block unwanted access

- Static MAC Address assign destination MAC address at specifies port

MANAGEMENT

- PLANET Smart Discovery Utility

- Switch Management Interface
  - Web switch management
  - SNMP v1, v2c switch management

- Accesses through SNMPv1, v2c and get requests.

- Firmware upgrade through Web interface

- Configuration upload / download through Web interface

- Supports SNMPv1 with RFC-1213/1573-Interface group, Ethernet MIB

- SNMPv1 Trap

APPLICATIONS

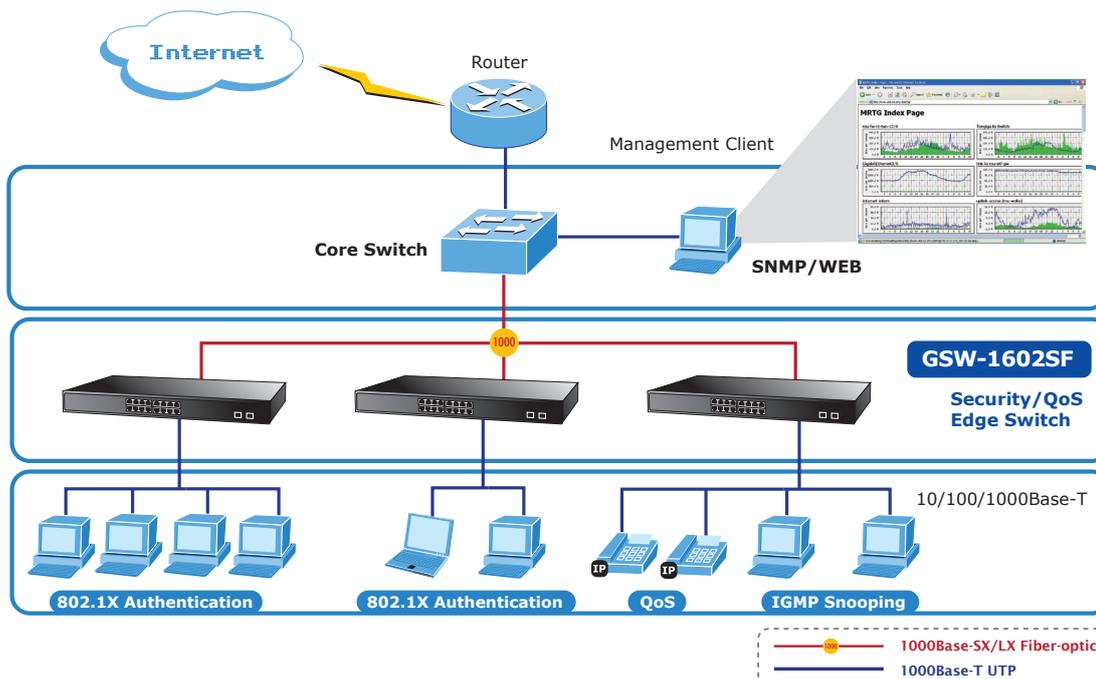### High Performance Backbone / Server Farm Switch

Gigabit Ethernet supported equipment had become the fundamental unit of Enterprises and Network servers. With up to 32 Gigabits per second of non-blocking switch fabric, the GSW-1602SF can easily provide the high bandwidth required. It can provide a local, high bandwidth and Gigabit Ethernet network for backbone of enterprises or Telecoms. With its port trunking function, a 16GB fat pipe is supported for connecting to the backbone if required. It is also ideal to act as a server farm switch connecting servers. With the two SFP ports, the GSW-1602SF provides the uplink to the edge network through Gigabit Ethernet LX/SX SFP modules.
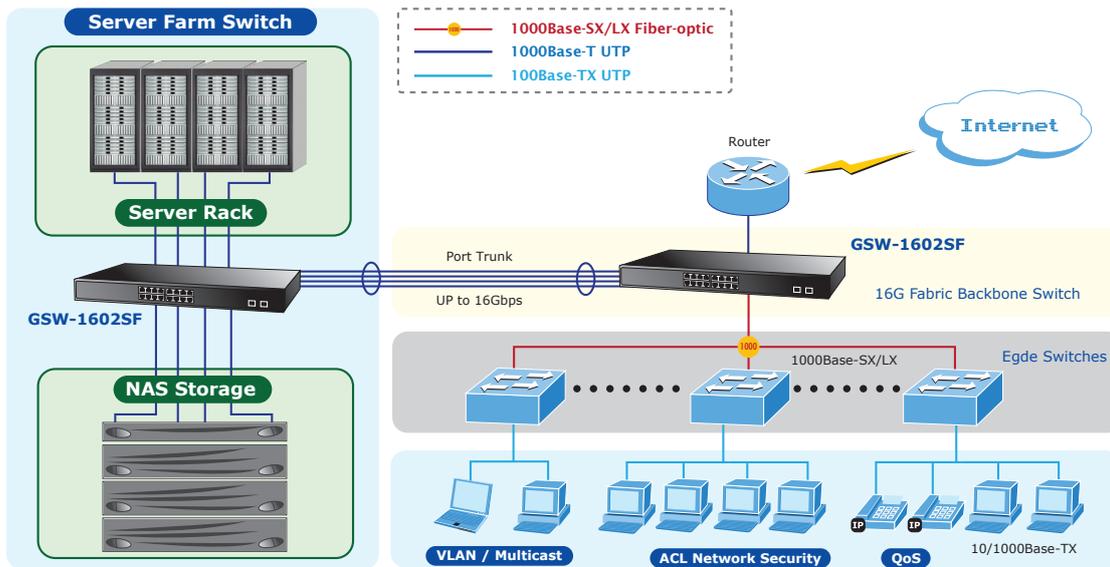
Department / Edge Security and QoS Switch

The GSW-1602SF improves the network efficiency and protects the network clients with the powerful features:
• QoS
• 802.1x Port-Based and MAC-Based network access authentication security
• Filter Configuration for source IP filter per port to block unauthorized access
• Static MAC Address assigns destination MAC address at specified port
• Multicast IGMP Snooping

SPECIFICATION

Product	16-Port Web Smart Gigabit Ethernet Switch with 2 Shared SFP Interfaces
Model	GSW-1602SF
Hardware Specification	
10/100/1000Mbps Copper Ports	16-Port Auto-MDI/MDI-X
SFP/mini-GBIC Slots	2, shared with Port-15 and Port-16, 100Base-FX / 1000Base-SX / LX Dual mode
Switch Architecture	Store-and-Forward
Switch Throughput@64Bytes	23.8Mpps
Switch Fabric	32Gbps / non-blocking
Share Data Buffer	340KB
Address Table	8K entries
Flow Control	Back pressure for Half-Duplex , IEEE 802.3x Pause Frame for Full-Duplex
Power Consumption	Max.19 Watts / 64 BTU
Dimension (W x D x H)	440 x 120 x 44 mm, 1U height
Weight	1.57kg
Power Requirement	AC 100~240V, 50/60Hz , 1A
Layer 2 Function	
Management Interface	Web Browser, SNMPv1, v2c
Firmware Upgrade	Web interface
Configuration backup and restore	Yes, through web interface
Port Configuration	- Port disable/enable - Auto-Negotiation - 10/100/1000Mbps full and half duplex mode selection - Flow Control disable / enable - Inband and outband bandwidth control - Port description - Frame Length setting
Port Statistics	Displays per port Ethernet traffic receive counter information
SFP module built-in information display	Yes
Port Mirroring	Monitor the incoming or outgoing traffic on a particular port
Link Aggregation	Supports 8 groups of 8-Port trunk, IEEE 802.3ad LACP
VLAN	Port-Based VLAN / IEEE 802.1Q Tagged Based VLAN, up to 256 VLAN groups
Rapid Spanning Tree	Yes
IGMP Snooping	IGMP Querier, IGMP (v1/v2) Snooping, up to 256 multicast Groups
QoS	4 priority queues on all switch ports, 8 mapping ID to 4 priority queues, Traffic class assignment based on IEEE 802.1p tag, or DSCP field
IEEE 802.1x Authentication	Yes
Filter Configuration	Source IP filter per port to block unauthorized access
MAC Address Filter	Static MAC Address assigns destination MAC address at specified port
Diagnostics	Cable Diagnostics technology and ICMP Ping function
Link Layer Discovery Protocol (LLDP)	Discover basic information of neighboring devices on the local broadcast domain
Green Networking	Energy save for per port link up / link down operation mode
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 — 1000Base- SX/LX IEEE 802.3ab — 1000Base-T IEEE 802.3x — Flow Control and Back pressure IEEE 802.3ad — Port trunk with LACP IEEE 802.1Q — VLAN Tagging IEEE 802.1w — Rapid spanning tree protocol IEEE 802.1p — Class of service IEEE 802.1x — Port Authentication Network Control IEEE 802.1ab — LLDP
Environmental Specification	
Operating	Temperature: 0~50 Degree C / Storage: Relative Humidity: 5~90% (non-condensing)
Storage	Temperature: -40~70 Degree C Relative Humidity: 5~90% (non-condensing)

*. The specification based on hardware version 3.0 of GSW-1602SF.

ORDERING INFORMATION

| GSW-1602SF | 16-Port Web Smart Gigabit Ethernet Switch w/2-SFP Interfaces |

AVAILABLE MODULES FOR GSW-1602SF

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
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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