16-Port 100/1000Base-X SFP + 8-Port 10/100/1000Base-T L2/L4 Managed Metro Ethernet Switch

Multiple SFP Fiber Port Switch for Growing Long-Reach Networking of Enterprise, Telecoms and Campus

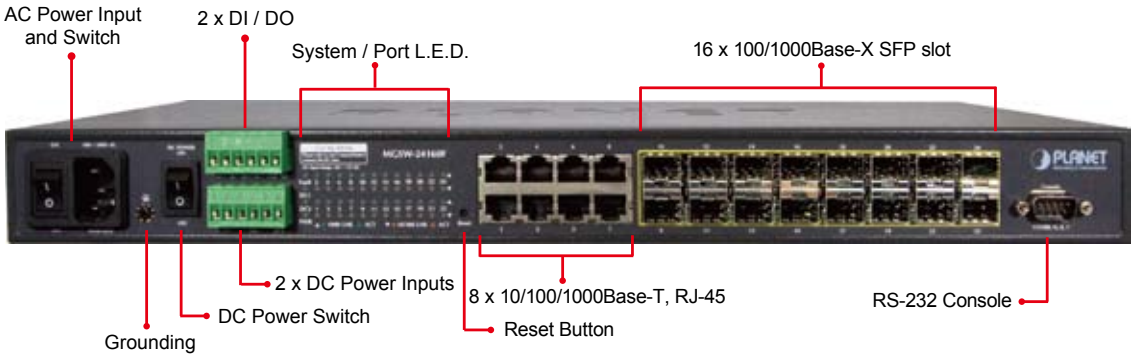
The MGSW-24160F is implemented with advanced management functions, and provides **16 100/1000Mbps dual speed SFP Fiber** ports and **8 10/100/1000Mbps TP** ports delivered in a rugged strong case. It is capable of providing non-blocking switch fabric and wire-speed throughput as high as **48 Gbps** in the temperature range from **-10 to 60 Degree C** without any packet loss and CRC error, which greatly simplifies the tasks of upgrading the enterprise LAN for catering to increasing bandwidth demands. The MGSW-24160F is specially designed for service provider to deliver profitable Ethernet network. Furthermore, it adopts "Front Access" design for easy technician wiring and maintenance of the MGSW-24160F in the cabinet.

AC and DC Redundant Power to Ensure Continuous Operation

The MGSW-24160F is equipped with one **100~240V AC** power supply unit and one additional **36~72V DC** power supply unit for redundant power supply installation. A redundant power system is also provided to enhance the reliability with either AC or DC power supply unit. Redundant Power Systems are specifically designed to handle the demands of high tech facilities requiring the highest power integrity. Furthermore, with the 36~72V DC power supply implemented, the MGSW-24160F can be applied as the telecom level device.

Digital Input and Digital Output for External Alarm

The MGSW-24160F helps the network administrators efficiently manage the unexpected network situations by providing Digital Input and Digital Output for external alarm device on the front panel. The Digital Input can be used to detect and log the status of the external devices such as door intrusion detector. The Digital Output could be used to send alarm whenever the MGSW-24160F has port link down or power failure.



Cost-effective IPv6 Managed Gigabit Switch Solution

Nowadays, the need of IP Address increases owing to lots of electronic products or mobile devices able to access to the Internet. 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, the MGSW-24160F supports both IPv4 and IPv6 management functions. It can work with both original IPv4 network structure and the new network structure (IPv6) in the future. With friendly management interface and plenty of management functions included, the MGSW-24160F Managed Gigabit Switch is the best choice for you to build the IPv6 FTTx edge service and for Industrial Ethernet applications to connect with IPv6 network.

Layer 2 / Layer 4 Full-functioned Managed Switch for Building Automation Networking

The MGSW-24160F Managed Metro Ethernet Switch is ideal for applications in the factory data centers and distributions. It provides advanced Layer 2 to Layer 4 data switching and redundancy, Quality of Service traffic control, network access control and authentication, and Secure Management features to protect customer's industrial network connectivity with reliable switching recovery capability that is suitable for implementing fault tolerant and mesh network architectures.

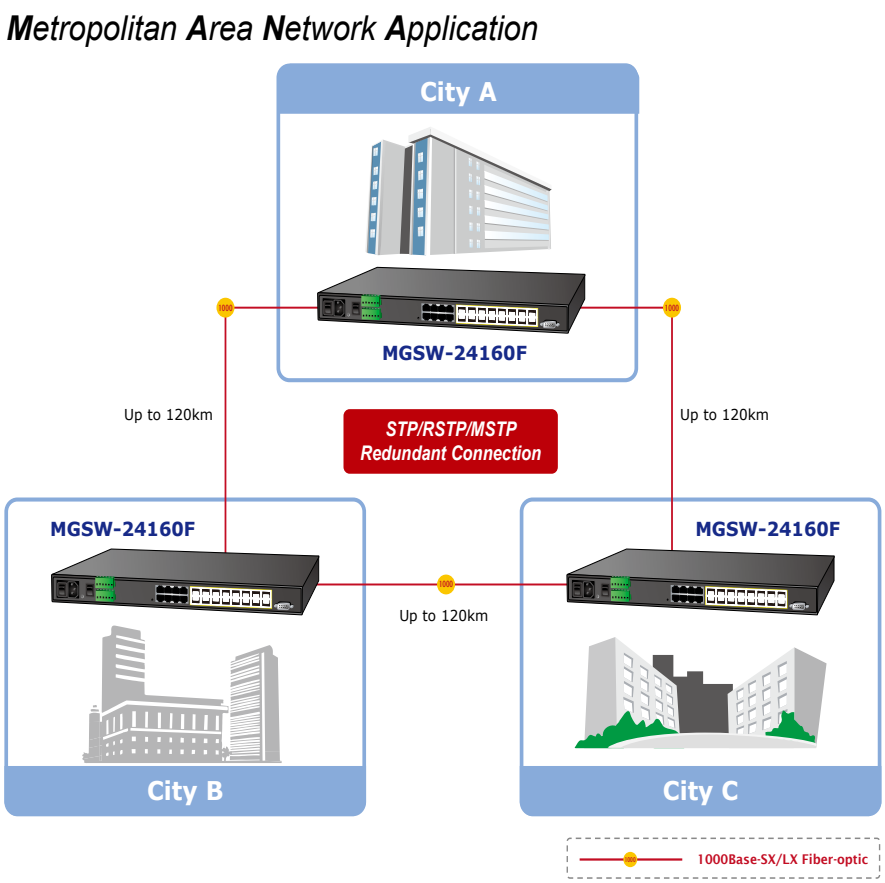
Powerful Security

The MGSW-24160F offers comprehensive Access Control List (ACL) for enforcing security to the edge. Its protection mechanisms also comprise of Port-Based 802.1x and MAC-Based user and device authentication. The port-security function effectively limits the numbers of clients pass through, so that network administrators can now construct highly secured corporate networks with time and effort considerably less than before.

APPLICATIONS

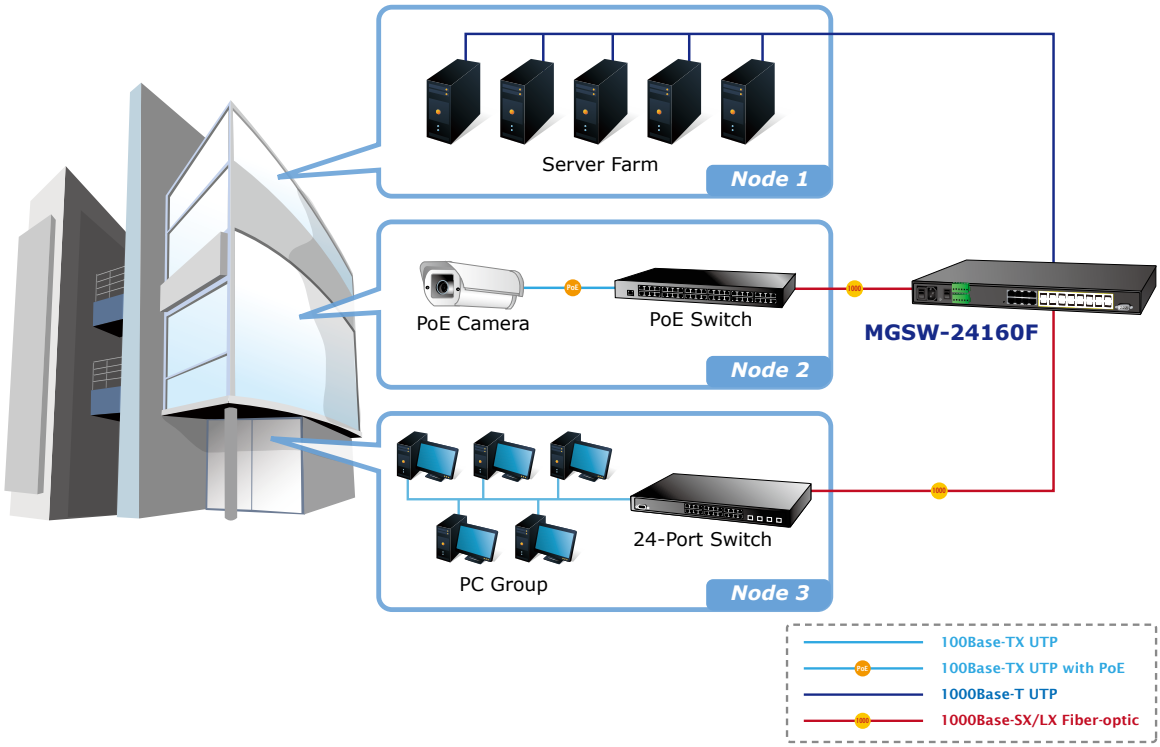
Optimized Design for Metropolitan Area Network

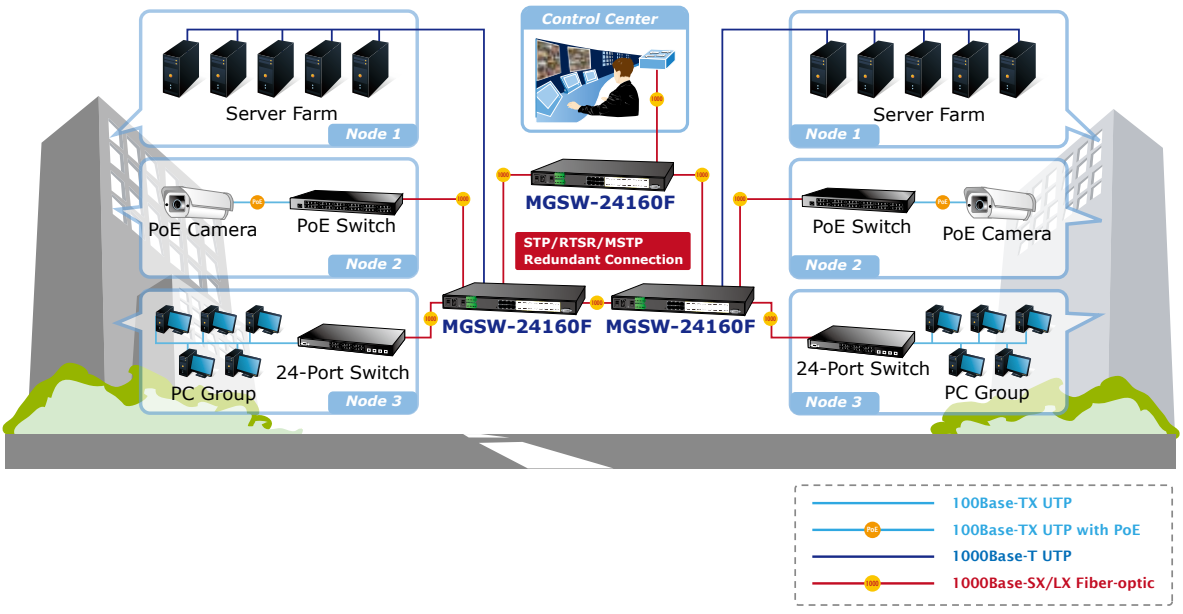
By means of improving the technology of Optical Fiber Ethernet with high-flexible, high-extendable and easy-installation features, the MGSW-24160F offers up to 1Gbps data exchange speed via Optical Fiber interface and the transmission distance extends to 120km. The MGSW-24160F is the ideal solution for service providers such as ISP and Telecom to build Metropolitan Area Network (MAN) based on Fiber technology to the WAN Internet Service.



Excellent Solution of Core / Department Switch

The MGSW-24160F is an excellent choice of core layer switch for a Gigabit network. With 24 10/100/1000Mbps ports, the MGSW-24160F is able to connect up to 24 edge switches in the Ethernet environment. Moreover, it also provides 48 Gigabit per second switch fabric and high bandwidth for backbone connection.

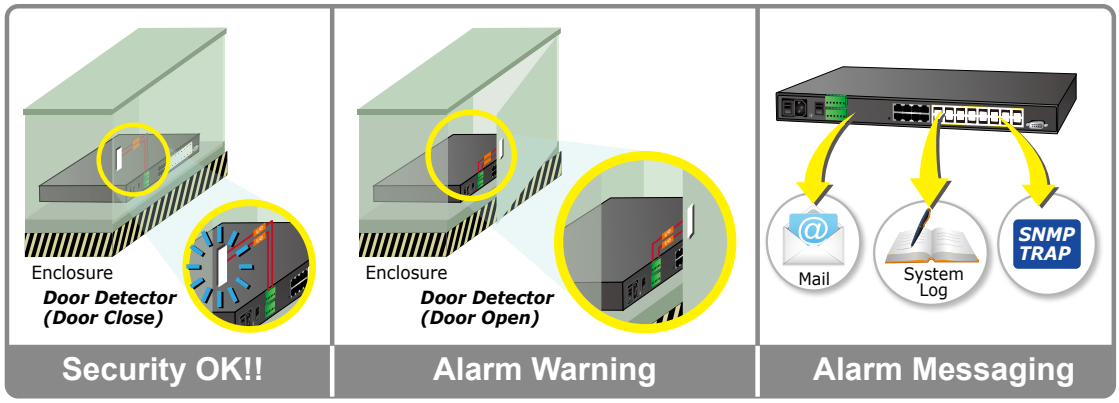




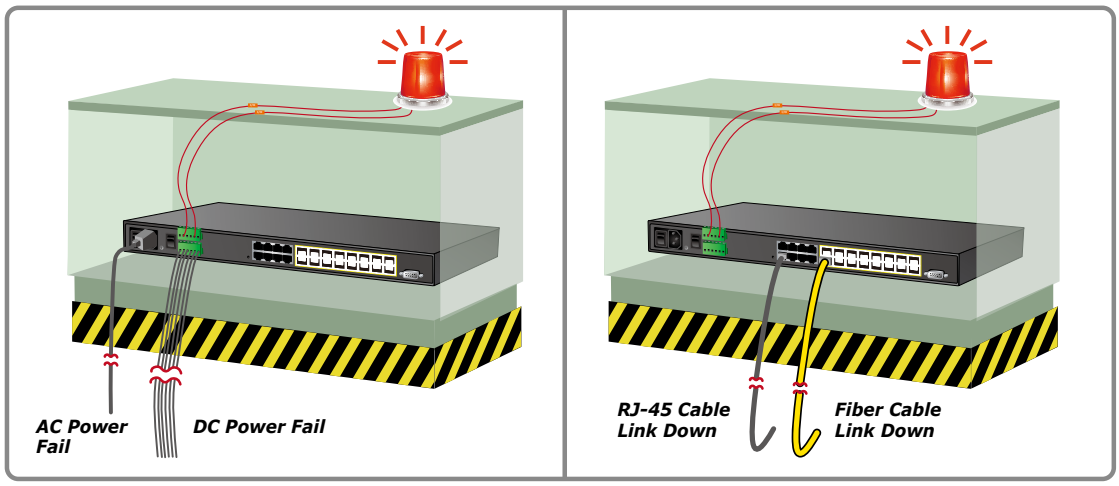
Enhanced Protection via Digital Input and Digatal Output Features

The MGSW-24160F features digital input and digital output functions that greatly help the administrator efficiently react to the emergency events. The digital input can be setup to indicate urgent events and send the messages or alarm to the network system once the urgent event detected by the external device such as door or windows open detecter. The digital output function can define the immediate response such as port failed or power failed to the related urgent events.

Digital Input



Digital Output



Key Features

PHYSICAL PORT

- 16 100/1000Base-X SFP mini-GBIC slots from port 9 to port 24
- 8-Port 10/100/1000Base-T Gigabit Ethernet RJ-45
- RS-232 DB9 console interface for Switch basic management and setup

HARDWARE CONFORMANCE

- 36 to 72V DC, redundant power with polarity reverse protect function
- -10 to 60 Degree C operating temperature
- 19-inch Rack-mountable
- Relay alarm for port breakdown, power failure
- Two Thermal FAN built in

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, broadcast storm control and runt/CRC filtering eliminate erroneous packets to optimize the network bandwidth
- Storm Control support
  - Broadcast / Multicast / Unknown-Unicast
- Supports VLAN
  - IEEE 802.1Q Tagged VLAN
  - Up to 255 VLANs groups, out of 4094 VLAN IDs
  - Provider Bridging (VLAN Q-in-Q) support (IEEE 802.1ad)
  - Private VLAN Edge (PVE)
  - 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 12 trunk groups, up to 16 ports per trunk group
  - Up to 32Gbps 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
- 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
- Multicast VLAN Registration (MVR) support

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 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

REDUNDANT POWER SYSTEM

- 100~240V AC / 36~72V DC Dual power redundant
- Active-active redundant power failure protection
- Backup of catastrophic power failure on one supply
- Fault tolerance and resilience

DIGITAL INPUT / DIGITAL OUTPUT

- 2 Digital Input (DI)
- 2 Digital Output (DO)
- Integrates sensors into auto alarm system
- Transfers alarm to IP network via email and SNMP trap

SPECIFICATION

Product	16-Port 100/1000Base-X SFP + 8-Port 10/100/1000Base-T L2/L4 Managed Metro Ethernet Switch
Model	MGSW-24160F
Hardware Specification	
SFP/mini-GBIC Slots	16 1000Base-SX/LX/BX SFP interfaces, from port 9 to port 16 Compatible with 100Base-FX SFP
NTSC	Frequency: 15,734 Hz (H), 60 Hz (V), Pixels: 811 (H) x 508 (V)
Copper Ports	8 10/ 100/1000Base-T RJ-45 Auto-MDI/MDI-X ports
Console Port	1 x RS-232 DB9 serial port (115200, 8, N, 1)
Switch Processing Scheme	Store-and-Forward
Switch Throughput@64Bytes	35.7Mpps
Switch Fabric	48Gbps / 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 seconds: System reboot > 10 seconds: Factory Default
Dimension (W x D x H)	440 x 200 x 44.5 mm, 1U high
Weight	3kg
LED	Power, DC1, DC2, Fault, Link/Act and speed per Gigabit port
Power Consumption	Max. 45 Watts / 154.4 BTU (AC)
Power Requirement – AC	AC 100~240V, 50/60Hz 0.75A
Power Requirement – DC	-48V DC @ 1.1A, Range: -36V ~ -72V DC
DI/DO	2 Digital Input (DI): Level 0: -30~0V Level 1: 0~30V Max. input current: 8mA 2 Digital Output (DO): Open collector to 30VDC, 200mA
Layer 2 Function	
Port Configuration	Port disable / enable Auto-Negotiation 10/100/1000Mbps full and half duplex mode selection Flow Control disable / enable Bandwidth control on each port Power saving mode control
Port Status	Display each port's speed duplex mode, link status, Flow control status Auto negotiation status, trunk status
VLAN	802.1Q Tagged Based VLAN Port-Based VLAN Q-in-Q Private VLAN Edge (PVE) Up to 256 VLAN groups, out of 4094 VLAN IDs
Port trunking	IEEE 802.3ad LACP / Static Trunk 12 groups of 16-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 Policy-Based QoS
IGMP Snooping	IGMP (v1/v2) Snooping, up to 255 multicast Groups IGMP Querier mode support
Access Control List	IP-Based ACL / MAC-Based ACL Up to 256 entries

Management	
Basic Management Interfaces	Console, Telnet, Web Browser, SNMPv1, v2c and v3
Secure Management Interface	SSH, SSL, SNMP v3
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) 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	
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
Stability	IEC60068-2-32 (Free fall) IEC60068-2-27 (Shock) IEC60068-2-6 (Vibration)
Environment	
Operating	Temperature: -10 ~ 60 Degree C for DC power input -10 ~ 60 Degree C for AC power input Relative Humidity: 5 ~ 95% (non-condensing)
Storage	Temperature: -10 ~ 70 Degree C Relative Humidity: 5 ~ 95% (non-condensing)

ORDERING INFORMATION

MGSW-24160F	16-Port 100/1000Base-X SFP + 8-Port 10/100/1000Base-T L2/L4 Managed Metro Ethernet Switch

PLANET Technology Corporation
11F., No.96, Minquan Rd., Xindian Dist., New Taipei City 231, Taiwan (R.O.C.)
Tel: 886-2-2219-9518 Fax: 886-2-2219-9528
Email: sales@planet.com.tw www.planet.com.tw