

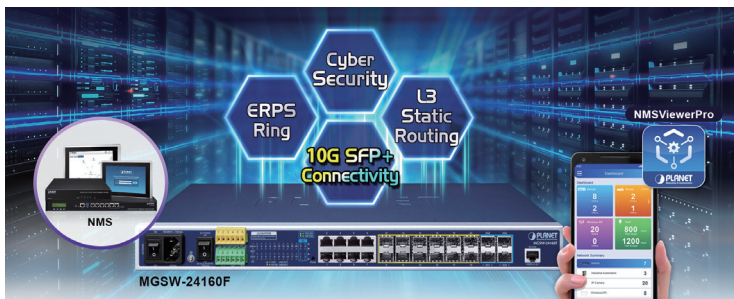
L2+ 8-Port 10/100/1000T + 12-Port 100/1000X SFP+ 4-Port 10G SFP+ Managed Metro Ethernet Switch



High-Performance Switch for Enterprise and Telecom Infrastructure

Upgrades

PLANET MGSW-24160F is a high-performance network switch perfect for enterprises and telecoms. It features **IPv4 Layer 3 static routing** and robust L2/L4 switching capabilities, along with **8-Port 10/100/1000BASE-T, 12-Port 100/1000X SFP, and 4-Port 10G SFP+** configurations. Enclosed in a rugged case, it ensures stable operation with a non-blocking fabric and wire-speed throughput of up to **120Gbps**, maintaining flawless performance from **0 to 60 degrees C**. Designed with **"Front Access,"** it allows easy maintenance when installed in cabinets, ideal for networks needing bandwidth upgrades.



High Performance 10Gbps Ethernet Capacity

The four SFP+ ports built in the MGSW-24160F boasts a high-performance switch architecture that is capable of providing non-blocking switch fabric and wire-speed throughput as high as up to **120Gbps**, which greatly simplifies the tasks of upgrading the LAN for catering to increasing bandwidth demands. Each of the SFP+ ports supports **4 speeds, 10GBASE-SR/LR, 2500BASE-X, 1000BASE-SX/LX and 100BASE-FX**, meaning the administrator now can flexibly choose the suitable SFP/SFP+ transceiver according to the transmission distance or the transmission speed required to extend the network efficiently.

Physical Port

- **8 10/100/1000BASE-T** Gigabit Ethernet RJ45 ports
- **12 100/1000BASE-X** mini-GBIC/SFP slots
- **4 10GBASE-SR/LR SFP+** slots, backward compatible with **100/1G/2.5GBASE-X SFP** transceivers
- **RJ45 to RS232 DB9** console interface for basic management and setup.

Hardware Conformance

- One 100 to 240V AC or dual 36 to 60V DC power input, redundant power with reverse polarity protection
 - Active-active redundant power failure protection
 - Backup of catastrophic power failure on one supply
 - Fault tolerance and resilience
- 19-inch rack-mountable design
- IP30 metal case
- Relay alarm for port breakdown, power failure
- Two built-in thermal fans
- Supports EFT protection for 6KV DC power and 6KV DC Ethernet ESD protection
- 0 to 60 degrees C operating temperature for AC/DC power input

Digital Input and Digital Output

- 2 digital input (DI)
- 2 digital output (DO)
- Integrate sensors into auto alarm system
- Transfer alarm to IP network via SNMP trap

Switching

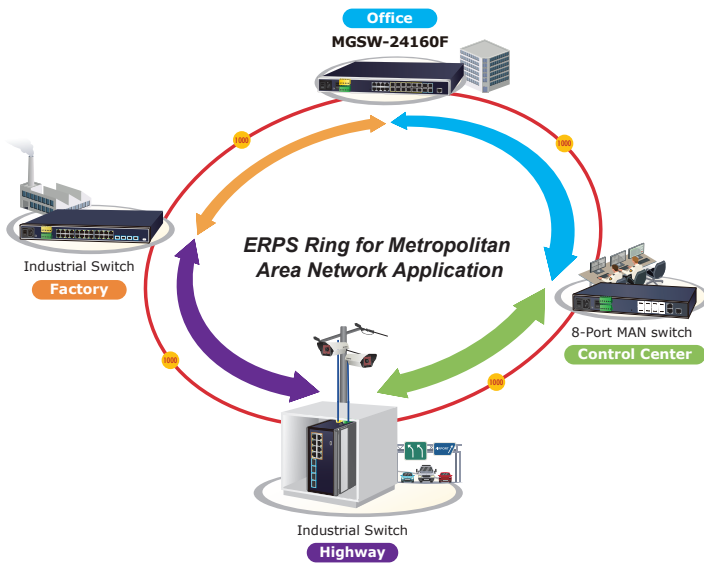
- Hardware-based 10/100Mbps (half/full duplex), 1000Mbps (full duplex mode), auto-negotiation, and auto MDI/MDI-X
- Features Store-and-Forward mode with wire-speed filtering and forwarding rates
- IEEE 802.3x flow control for full duplex operation and back pressure for half duplex operation
- 16K MAC address table size
- 12K jumbo frame
- Automatic address learning and address aging
- Supports CSMA/CD protocol

Layer 2 Features

- Prevents packet loss with back pressure (half-duplex) and IEEE 802.3x pause frame flow control (full-duplex)

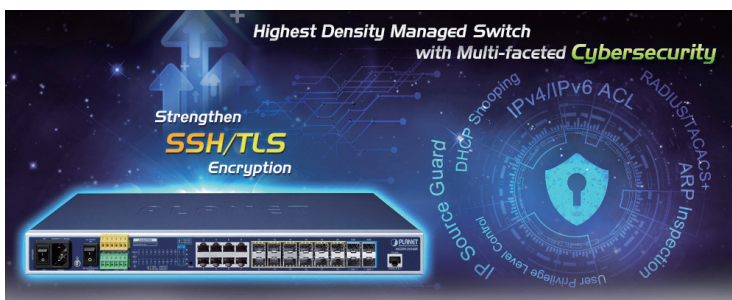
Redundant Ring, Fast Recovery for Critical Network Applications

The MGSW-24160F supports redundant ring technology and features strong, rapid self-recovery capability to prevent interruptions and external intrusions. It incorporates advanced **ITU-T G.8032 ERPS (Ethernet Ring Protection Switching)** technology and **Spanning Tree Protocol (802.1s MSTP)** into customer's network to enhance system reliability and uptime in harsh environments.



Cybersecurity Network Solution to Minimize Security Risks

The MGSW-24160F supports SSHv2 and TLSv1.2 protocols to provide strong protection against advanced threats. It includes a range of cybersecurity features such as **DHCP Snooping**, **IP Source Guard**, **Dynamic ARP Inspection Protection**, **RADIUS** and **TACACS+** user accounts management, **SNMPv3** authentication, and so on to complement it as an all-security solution.



Digital Input and Digital Output for External Alarm

The MGSW-24160F supports Digital Input and Digital Output through a terminal block located on its **front panel**. This external alarm enables users to use Digital Input to detect and log external device status (such as door intrusion detector), and send event alarm to the administrators. The Digital Output could be used to alarm the administrators if the MGSW-24160F port shows link down, link up or power failure.

- High performance Store and Forward architecture, broadcast storm control, and runt/CRC filtering that eliminates erroneous packets so as to optimize the network bandwidth
- Supports **VLAN**
 - IEEE 802.1Q tagged VLAN
 - Provider Bridging (VLAN Q-in-Q, IEEE 802.1ad) support
 - Protocol VLAN
 - Voice VLAN
 - Private VLAN (Protected port)
 - 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
- Supports ERPS (Ethernet Ring Protection Switching)
- Link Layer Discovery Protocol (LLDP)

Layer 3 IP Routing Features

- Supports maximum 32 static routes and route summarization

Quality of Service

- Ingress/Egress Rate Limit per port bandwidth control
- Traffic classification
 - IEEE 802.1p CoS
 - TOS/DSCP/IP Precedence of IPv4/IPv6 packets
- Strict priority and Weighted Round Robin (WRR) CoS policies

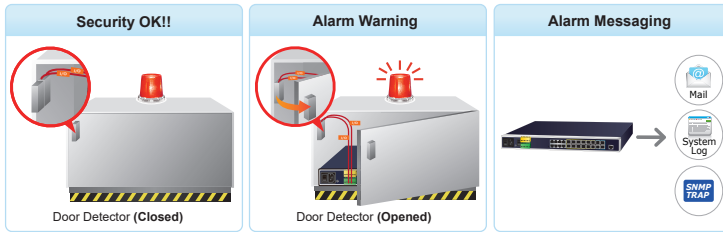
Multicast

- Supports IPv4 IGMP snooping v2 and v3
- Supports IPv6 MLD snooping v1, v2
- IGMP querier mode support
- IGMP snooping port filtering
- MLD snooping port filtering

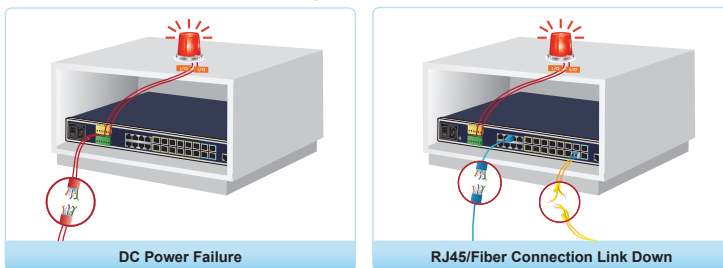
Security

- Storm Control support
 - Broadcast / Multicast / Unknown Unicast
- Authentication
 - Built-in RADIUS client to co-operate with the RADIUS servers
 - DHCP Option 82

Digital Input



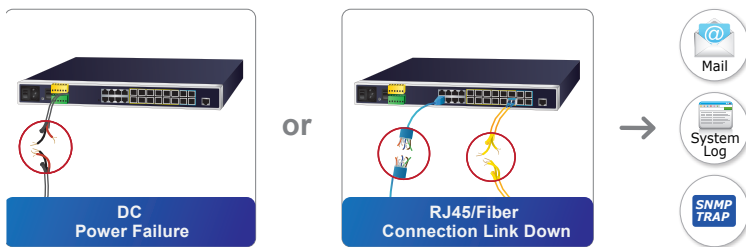
Digital Output



Effective Alarm Alert for Better Protection

The MGSW-24160F incorporates a Fault Alarm feature that promptly notifies users of any issues with the switches. This valuable feature eliminates the need for users to spend time locating the problem, resulting in significant time and human resource savings.

Fault Alarm Feature



Layer 3 IPv4 and IPv6 VLAN Routing for Secure and Flexible Management

The MGSW-24160F switch not only provides ultra high transmission performance, and excellent Layer 2 and Layer 4 technologies, but also Layer 3 IPv4/IPv6 VLAN routing feature which allows to cross over different VLANs and different IP addresses for the purpose of having a highly-secure, flexibly-managed and simple networking application.

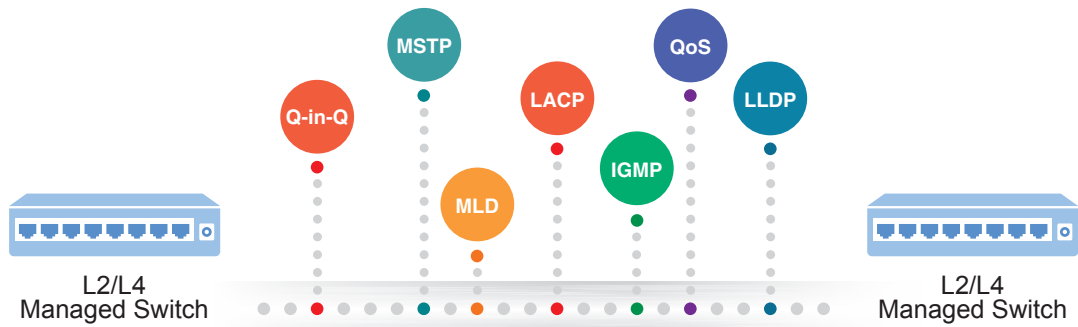
- RADIUS/TACACS+ login user access authentication
- Access Control List
 - IPv4/IPv6 IP-based ACL
 - IPv4/IPv6 IP-based ACE
 - MAC-based ACL
 - MAC-based ACE
- MAC Security
 - Static MAC
 - MAC Filtering
- Port Security for Source MAC address entries filtering
- DHCP Snooping to filter distrusted DHCP 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

Management

- IPv4 and IPv6 dual stack management
- Switch Management Interface
 - Web switch management
 - Console/Telnet Command Line Interface
 - SNMP v1 and v2c switch management
 - SSHv2, TLSv1.2 and SNMP v3 secure access
- SNMP Management
 - SNMP trap for interface Link Up and Link Down notification
 - Four RMON groups (history, statistics, alarms, and events)
- 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 HTTP/TFTP
 - Dual Images
 - Hardware reset button for system reboot or reset to factory default
- SNTP Network Time Protocol
- Network Diagnostic
 - Cable Diagnostics
 - ICMPv6/ICMPv4 Remote Ping
 - SFP-DDM (Digital Diagnostic Monitor)
- Link Layer Discovery Protocol (LLDP) Protocol and LLDP-MED
- Event message logging to remote Syslog server
- PLANET Smart Discovery Utility for deployment management
- PLANET NMS system and NMSViewerPro/CloudViewerPro App for deployment management

Robust Layer 2 Features

The MGSW-24160F can be programmed for advanced switch management functions such as dynamic port link aggregation, 802.1Q VLAN and **Q-in-Q VLAN**, **Multiple Spanning Tree protocol (MSTP)**, loop and **BPDU guard**, **IGMP snooping**, and MLD snooping. Via the link aggregation, the MGSW-24160F allows the operation of a high-speed trunk to combine with multiple ports, and supports fail-over as well. Also, the **Link Layer Discovery Protocol (LLDP)** is the Layer 2 protocol included to help discover basic information about neighboring devices on the local broadcast domain.



Efficient Traffic Control

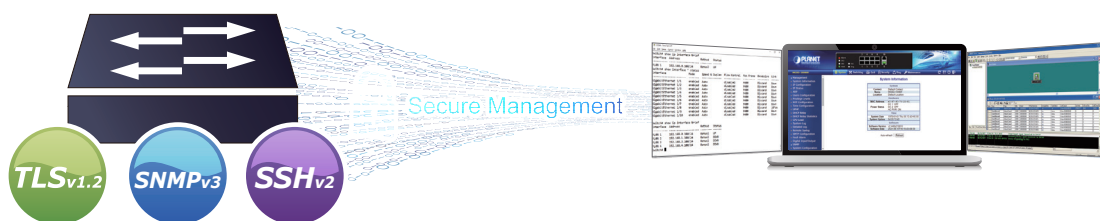
The MGSW-24160F is loaded with robust QoS features and powerful traffic management to enhance services to business-class data, voice, and video solutions. The functionality includes **broadcast/multicast/unicast storm control**, **per port bandwidth control**, **802.1p/CoS/IP DSCP QoS priority and remarking**. It guarantees the best performance in VoIP and video stream transmission, and empowers the enterprises to take full advantage of the limited network resources.

User-friendly Management Interfaces

For efficient management, the MGSW-24160F is equipped with **console**, **Web** and **SNMP** management interfaces.

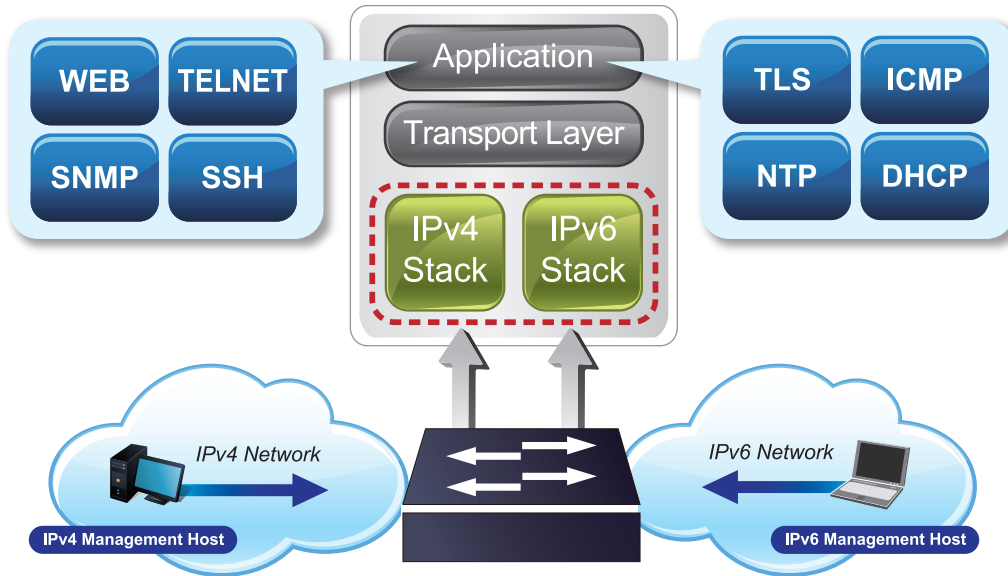
- With the built-in **Web-based** management interface, the MGSW-24160F offers an easy-to-use, platform-independent management and configuration facility.
- For **text-based** management, the switches can be accessed via Telnet and the console port.
- For standard-based monitor and management software, it offers SNMPv3 connection which encrypts the packet content at each session for secure remote management.

Moreover, the MGSW-24160F offers secure remote management by supporting **SSHv2**, **TLSv1.2** and **SNMP v3** connections which encrypt the packet content at each session.



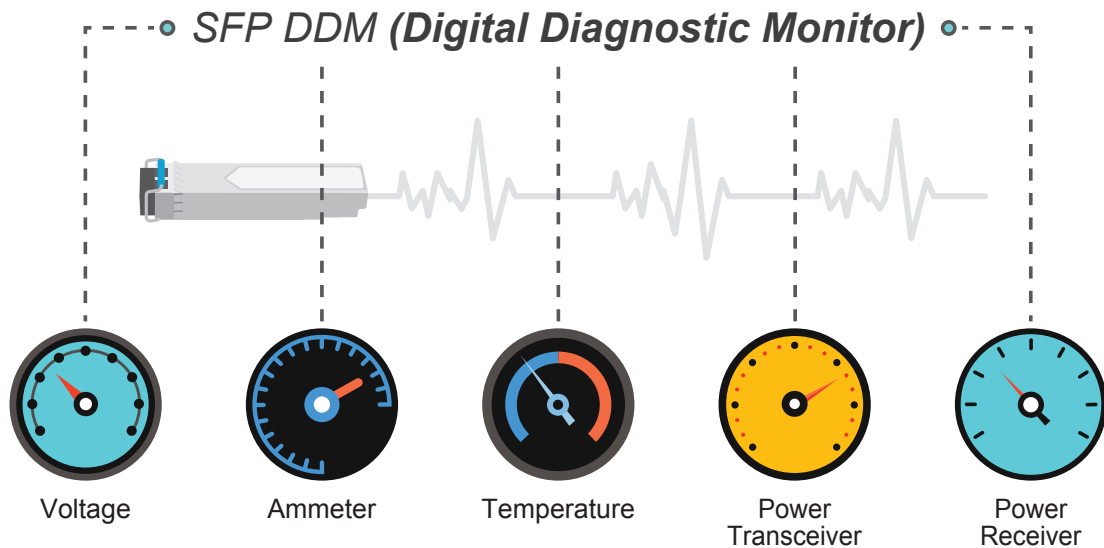
IPv4 and IPv6 VLAN Routing for Secure and Flexible Management

To help customers stay on top of their businesses, the MGSW-24160F not only provides ultra high transmission performance and excellent Layer 2 technologies, but also offers IPv4/IPv6 VLAN routing feature which allows to cross over different VLANs and different IP addresses for the purpose of having a highly-secure, flexible management and simpler networking application.



Intelligent SFP Diagnosis Mechanism

The MGSW-24160F supports **SFP-DDM (Digital Diagnostic Monitor)** function that greatly helps network administrator to easily monitor real-time parameters of the SFP and SFP+ transceivers, such as optical output power, optical input power, temperature, laser bias current, and transceiver supply voltage.



Redundant AC/DC Power Supply to Ensure Continuous Operation

The MGSW-24160F is particularly equipped with one **100–240V AC power supply** unit and one **36–60V DC power supply** unit to provide an enhanced reliable and scalable redundant power supply. The continuous power system is specifically designed to fulfill the demands of high-tech facilities requiring the highest power integrity. With the 36–60V DC power supply, the MGSW-24160F is able to act as a telecom-level device that can be located in the electronic room.

Remote Management Solution

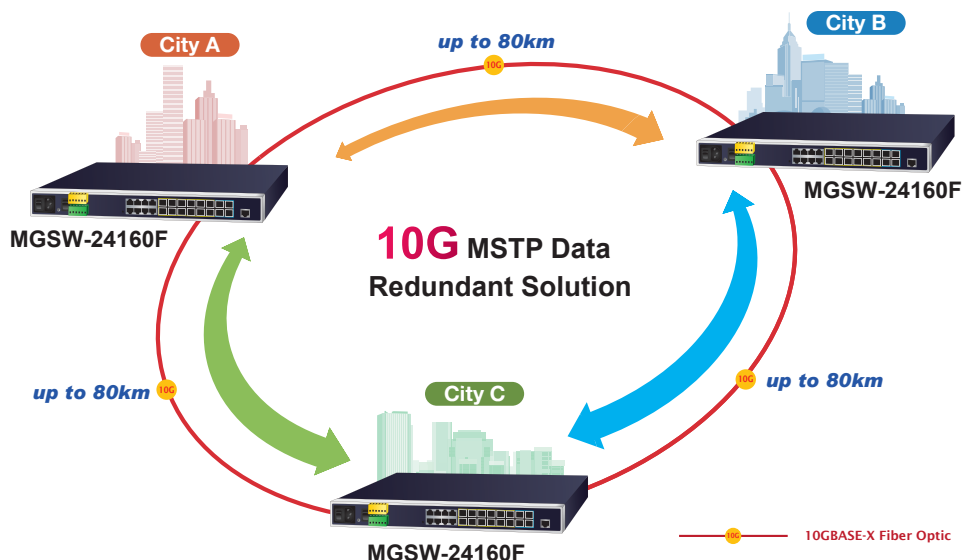
PLANET's **Universal Network Management System (UNI-NMS)**, **NMSViewerPro** and **CloudViewerPro app** provide robust support for IT staff in effectively managing and monitoring all network devices, including the MGSW-24160F, from remote locations. Tailored for deployment in both enterprises and industries where the MGSW-24160F is utilized remotely, these systems enable the identification of bugs or faulty conditions without the need for on-site visits. With PLANET's Remote Management Solution, businesses of all types can now be swiftly and efficiently managed through a unified platform, streamlining operational oversight.



Applications

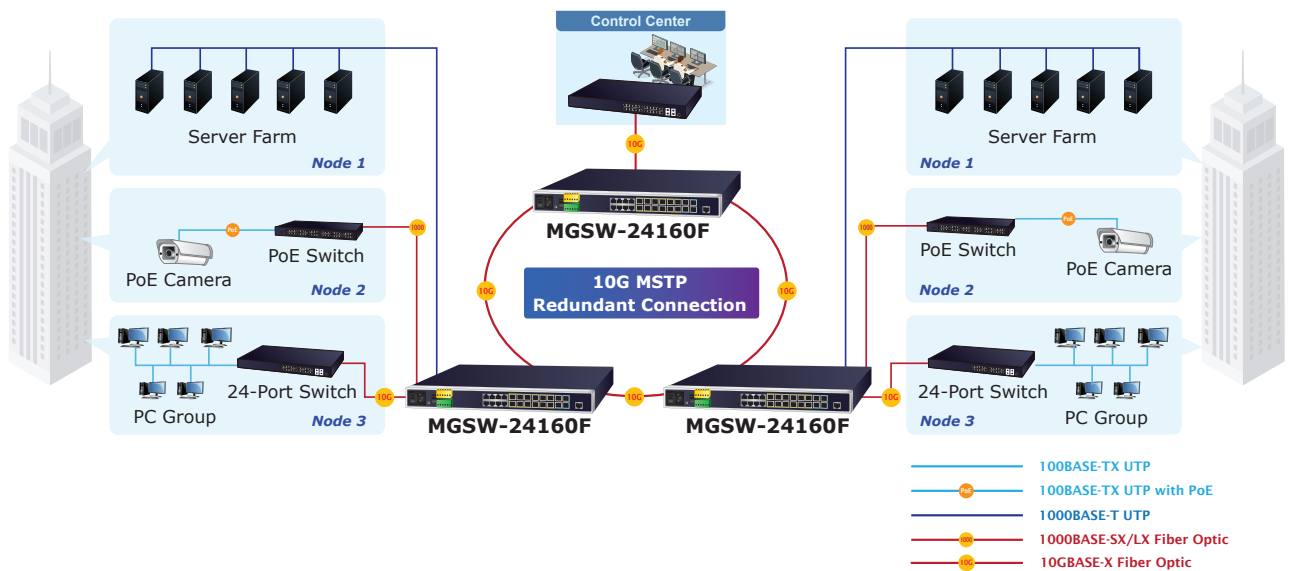
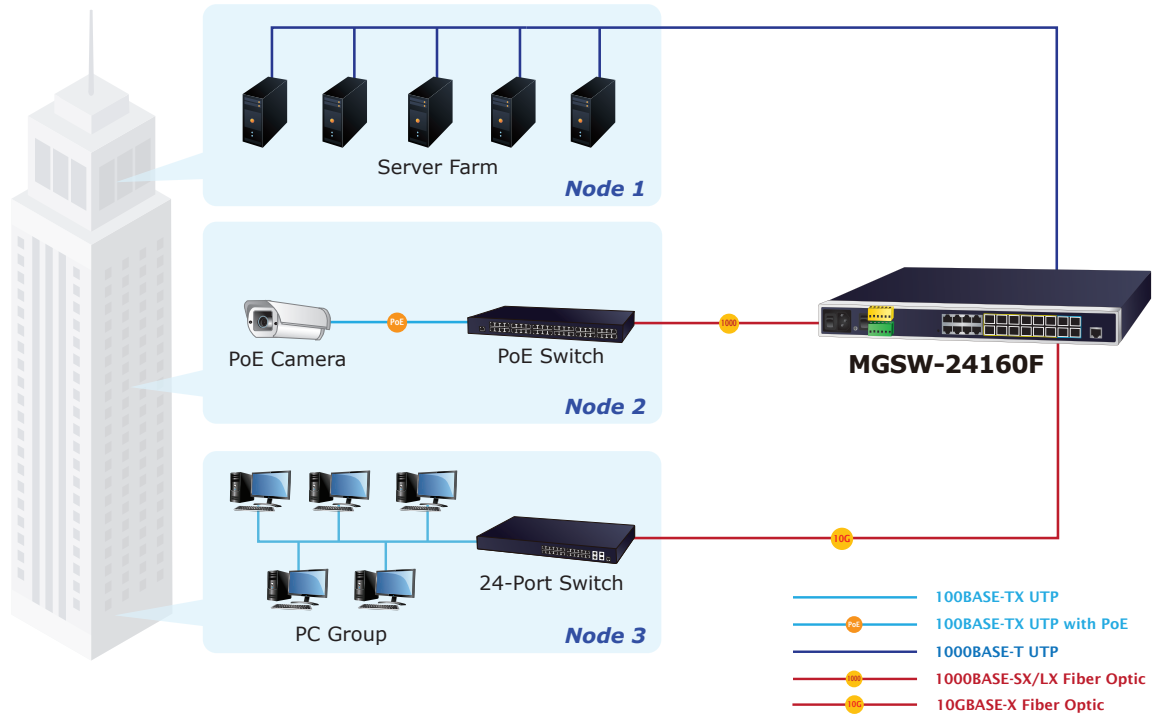
Optimized Design for Metropolitan Area Network

By means of improving the technology of Optical Fiber Ethernet with highly-flexible, highly-extendable and easy-to-install features, the MGSW-24160F offers up to **10Gbps data exchange speed** via Optical Fiber interface and the transmission distance extends to 80km. The MGSW-24160F is the ideal solution for service providers such as ISP and telecom to build Metropolitan Area Network (MAN) based on the fiber technology to the WAN Internet Service.



Excellent Solution to Core/Department Switch

The MGSW-24160F is an excellent choice of core layer switch for a Gigabit network. With 24 multi-gigabit ports, the MGSW-24160F is able to connect up to 24 edge switches in the Ethernet environment. Moreover, it also provides 120 Gigabit per second switch fabric and high bandwidth for backbone connection.



Specifications

Product	MGSW-24160F
Hardware Specifications	
Hardware Version	4.0
Copper Ports	8 10/100/1000BASE-T RJ45 auto-MDI/MDI-X ports (Ports 1 to 8)
SFP Ports	12 100/1000BASE-X SFP interfaces (Ports 9 to 20) Compatible with 100BASE-FX SFP transceivers
SFP+ Ports	4 10GBASE-SR/LR SFP+ interfaces (Ports XG1 to XG4) Backward compatible with 100M/1G/2.5GBASE-SX/LX/BX transceivers
Console	1 x RS232-to-RJ45 serial port (115200, 8, N, 1)
Reset Button	< 5 sec: System reboot > 5 sec: Factory default
Terminal Block	Removable 6-pin terminal block - Pin 1/2 for Power 1; Pin 3/4 for fault alarm; Pin 5/6 for Power 2 Removable 6-pin terminal block for DI/DO interface - Pin 1/2 for DI 1 & 2, Pin 3/4 for DO 1 & 2, Pin 5/6 for GND
Alarm	One relay output for port breakdown and power failure. Alarm relay current carry ability: 1A @ 24V AC
Digital Input (DI)	2 digital input (DI) - Level 0: -24V~2.1V ($\pm 0.1V$) - Level 1: 2.1V~24V ($\pm 0.1V$) - Input load to 24V DC, 10mA max.
Digital Output (DO)	2 digital output (DO) - Open collector to 24V DC, 100mA max.
Enclosure	IP30 metal case
Installation	Rack-mount kit
Dimensions (W x D x H)	440 x 200 x 44.5 mm, 1U height
Weight	2756g
Power Requirements	DC: 36-60V, 1.5A (max.) AC: 100~240V, 50/60Hz, 1.5A (max.)
Power Consumption/ Dissipation	DC: Max. 13.6 watts / 46.5 BTU (system on) Max. 38.4 watts / 131.1 BTU (Full loading) AC: Max. 11.2 watts / 38.3 BTU (system on) Max. 45.6 watts / 155.6 BTU (Full loading)
EFT Protection	6KV DC
ESD Protection	6KV DC
Fan	2 smart fans
LED	System: DC1 (Green) DC2 (Green) AC (Green) Alarm (Red) Per 10/100/1000T RJ45: Up: 1000 LNK/ACT (Green) Down: 10/100 LNK/ACT (Amber) Per 100/1G SFP Interface: Up: 1000 LNK/ACT (Green) Down: 100 LNK/ACT (Amber) Per 10G SFP+ Interface: Up: 1G/2.5G LNK/ACT (Green) Down: 100/10G LNK/ACT (Amber)
Switching Specifications	
Switch Architecture	Store-and-forward
Switch Fabric	120Gbps/non-blocking
Switch Throughput@64Bytes	89.28Mpps @64Bytes
Address Table	16K MAC address table with auto learning function
Shared Data Buffer	12Mbits
Flow Control	IEEE 802.3x pause frame for full duplex Back pressure for half duplex
Jumbo Frame	12KBytes
Layer 2 Functions	
Port Mirroring	TX/RX/both Many-to-1 monitor Up to 4 sessions

VLAN	802.1Q tag-based VLAN 802.1ad Q-in-Q tunneling (VLAN stacking) Voice VLAN Protocol VLAN Private VLAN (Protected port) GVRP Up to 256 VLAN groups, out of 4094 VLAN IDs
Link Aggregation	IEEE 802.3ad LACP/Static Trunk - Static Port Trunking, (Max. 8 groups with 8 ports for each group) - Dynamic LACP (Max. 8 groups with 8 ports for each group)
Spanning Tree Protocol	IEEE 802.1D Spanning Tree Protocol (STP) IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) IEEE 802.1s Multiple Spanning Tree Protocol (MSTP) STP BPDU Guard, BPDU Filtering and BPDU Forwarding
IGMP Snooping	IPv4 IGMP (v1/v2/v3) Snooping IGMP Querier Up to 256 multicast groups
MLD Snooping	IPv6 MLD snooping v2, v3, up to 256 multicast groups
QoS	8 mapping ID to 8 level priority queues - Port number - 802.1p priority - 802.1Q VLAN tag - DSCP/IP precedence of IPv4/IPv6 packets Traffic classification based, strict priority and WRR Ingress/Egress Rate Limit per port bandwidth control
Ring	Supports ERPS, and complies with ITU-T G.8032 Recovery time < 450ms
Layer 3 Functions	
IP Interfaces	Max. 128 VLAN interfaces
Routing Table	Max. 32 routing entries
Routing Protocols	IPv4 hardware static routing
Security Functions	
Access Control List	IPv4/IPv6 IP-based ACL/MAC-based ACL IPv4/IPv6 IP-based ACE/MAC-based ACE Max. 256 ACL entries
Port Security	Built-in RADIUS client to co-operate with RADIUS server RADIUS/TACACS+ user access authentication
MAC Security	IP-MAC port binding MAC filter Static MAC address, max. 256 static MAC entries
Enhanced Security	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	Console/ Telnet/ Web browser/ SNMP v1, v2c
Secure Management Interfaces	SSHv2, TLS v1.2, SNMP v3
System Management	Firmware upgrade by HTTP/TFTP protocol through Ethernet network LLDP protocol SNTP PLANET Smart Discovery Utility PLANET NMS System, NMSViewerPro and CloudViewerPro App
Event Management	Remote/Local Syslog System log
SNMP MIBs	RFC 1213 MIB-II RFC 1215 Generic Traps RFC 1493 Bridge MIB RFC 2674 Bridge MIB Extensions RFC 2737 Entity MIB (Version 2) RFC 2819 RMON (1, 2, 3, 9) RFC 2863 Interface Group MIB RFC 3635 Ethernet-like MIB

Standards Conformance		
Regulatory 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 802.3bz 2.5GBASE-X IEEE 802.3ae 10Gb/s Ethernet 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 802.1ab LLDP IEEE 802.3az Energy Efficient Ethernet (EEE) RFC 768 UDP RFC 783 TFTP RFC 791 IP RFC 792 ICMP RFC 2068 HTTP RFC 1112 IGMP v1 RFC 2236 IGMP v2 RFC 3376 IGMP v3 RFC 2710 MLD v1 RFC 3810 MLD v2 ITU-T G.8032 ERPS Ring
Environment		
Operating	Temperature: 0 ~ 60 degrees C for AC/DC power input Relative Humidity: 5 ~ 95% (non-condensing)	
Storage	Temperature: -10 ~ 70 degrees C Relative Humidity: 5 ~ 95% (non-condensing)	

Ordering Information

MGSW-24160F	L2+ 8-Port 10/100/1000T + 12-Port 100/1000X SFP+ 4-Port 10G SFP+ Managed Metro Ethernet Switch
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Related PoE Products

MGSD-10080F	L2+ 6-Port 100/1000X SFP + 2-Port 1G/2.5G SFP + 2-Port 10/100/1000T Managed Metro Ethernet Switch
MGS-6320-2T6S2X	L3 2-Port 100/1000T + 2-Port 100/1000X SFP + 4-Port 2.5G SFP + 2-Port 10G SFP+ Metro Ethernet Switch
MGSW-28240F	L3 14-Port 100/1G SFP with 4 shared 10/100/1000T + 10-Port 1G/2.5G SFP + 4-Port 10G SFP+ Metro Ethernet Switch
GS-5220-16S8CR	L2+ 24-Port 100/1000X SFP + 8-Port Shared TP Managed Switch

Available SFP/SFP+ Modules

10 Gigabit Ethernet Transceiver (10GBASE-T)

Model	Speed (Mbps)	Connector Interface	Fiber Mode	Distance	Wavelength	Operating Temp.
MTB-RJ	10G	Copper	--	30m	--	0 ~ 70°C

10 Gigabit Ethernet Transceiver (10GBASE-SX/LX SFP+)

Model	Speed (Mbps)	Connector Interface	Fiber Mode	Distance	Wavelength	Operating Temp.
MTB-SR	10G	Dual LC/UPC	Multi-Mode	300m	850nm	0 ~ 60°C
MTB-SR2	10G	Dual LC/UPC	Single Mode	2km	1310nm	0 ~ 60°C
MTB-LR	10G	Dual LC/UPC	Single Mode	10km	1310nm	0 ~ 60°C
MTB-LR20	10G	Dual LC/UPC	Single Mode	20km	1310nm	0 ~ 60°C
MTB-LR40	10G	Dual LC/UPC	Single Mode	40km	1310nm	0 ~ 60°C
MTB-LR60	10G	Dual LC/UPC	Single Mode	60km	1550nm	0 ~ 60°C
MTB-LR80	10G	Dual LC/UPC	Single Mode	80km	1550nm	0 ~ 60°C

10 Gigabit Ethernet Transceiver (10GBASE-BX, Single Fiber Bi-directional SFP+)

Model	Speed (Mbps)	Connector Interface	Fiber Mode	Distance	Wavelength (TX)	Wavelength (RX)	Operating Temp.
MTB-LA10	10G	Simplex LC/UPC	Single Mode	10km	1270nm	1330nm	0 ~ 60°C
MTB-LB10	10G	Simplex LC/UPC	Single Mode	10km	1330nm	1270nm	0 ~ 60°C
MTB-LA20	10G	Simplex LC/UPC	Single Mode	20km	1270nm	1330nm	0 ~ 60°C
MTB-LB20	10G	Simplex LC/UPC	Single Mode	20km	1330nm	1270nm	0 ~ 60°C
MTB-LA40	10G	Simplex LC/UPC	Single Mode	40km	1270nm	1330nm	0 ~ 60°C
MTB-LB40	10G	Simplex LC/UPC	Single Mode	40km	1330nm	1270nm	0 ~ 60°C
MTB-LA60	10G	Simplex LC/UPC	Single Mode	60km	1270nm	1330nm	0 ~ 60°C
MTB-LB60	10G	Simplex LC/UPC	Single Mode	60km	1330nm	1270nm	0 ~ 60°C
MTB-LA70	10G	Simplex LC/UPC	Single Mode	70km	1270nm	1330nm	0 ~ 60°C
MTB-LB70	10G	Simplex LC/UPC	Single Mode	70km	1330nm	1270nm	0 ~ 60°C

2.5 Gigabit Ethernet Transceiver (2500BASE-SX/LX SFP)

Model	Speed (Mbps)	Connector Interface	Fiber Mode	Distance	Wavelength	Operating Temp.
MGB-2GSR	2.5G	Dual LC/UPC	Multi-Mode	300m	850nm	0 ~ 70°C
MGB-2GLR2	2.5G	Dual LC/UPC	Single Mode	2km	1310nm	0 ~ 70°C
MGB-2GLR20	2.5G	Dual LC/UPC	Single Mode	20km	1310nm	0 ~ 70°C

2.5 Gigabit Ethernet Transceiver (2500BASE-BX, Single Fiber Bi-directional SFP)

Model	Speed (Mbps)	Connector Interface	Fiber Mode	Distance	Wavelength (TX)	Wavelength (RX)	Operating Temp.
MGB-2GLA20	2.5G	Simplex LC/UPC	Single Mode	20km	1310nm	1550nm	0 ~ 70°C
MGB-2GLB20	2.5G	Simplex LC/UPC	Single Mode	20km	1550nm	1310nm	0 ~ 70°C

Gigabit Ethernet Transceiver (1000BASE-T)

Model	Speed (Mbps)	Connector Interface	Fiber Mode	Distance	Wavelength	Operating Temp.
MGB-GT	1G	Copper	--	100m	--	0 ~ 60°C

Gigabit Ethernet Transceiver (1000BASE-SX/LX SFP)

Model	Speed (Mbps)	Connector Interface	Fiber Mode	Distance	Wavelength	Operating Temp.
MGB-SX	1G	Dual LC/UPC	Multi-Mode	550m	850nm	0 ~ 60°C
MGB-SX2	1G	Dual LC/UPC	Multi-Mode	2km	1310nm	0 ~ 60°C
MGB-LX	1G	Dual LC/UPC	Single Mode	20km	1310nm	0 ~ 60°C
MGB-L40	1G	Dual LC/UPC	Single Mode	40km	1310nm	0 ~ 60°C
MGB-L80	1G	Dual LC/UPC	Single Mode	80km	1550nm	0 ~ 60°C
MGB-L120	1G	Dual LC/UPC	Single Mode	120km	1550nm	0 ~ 60°C

Gigabit Ethernet Transceiver (1000BASE-BX, Single Fiber Bi-directional SFP)

Model	Speed (Mbps)	Connector Interface	Fiber Mode	Distance	Wavelength (TX)	Wavelength (RX)	Operating Temp.
MGB-LA10	1G	Simplex LC/UPC	Single Mode	10km	1310nm	1550nm	0 ~ 60°C
MGB-LB10	1G	Simplex LC/UPC	Single Mode	10km	1550nm	1310nm	0 ~ 60°C
MGB-LA20	1G	Simplex LC/UPC	Single Mode	20km	1310nm	1550nm	0 ~ 60°C
MGB-LB20	1G	Simplex LC/UPC	Single Mode	20km	1550nm	1310nm	0 ~ 60°C
MGB-LA40	1G	Simplex LC/UPC	Single Mode	40km	1310nm	1550nm	0 ~ 60°C
MGB-LB40	1G	Simplex LC/UPC	Single Mode	40km	1550nm	1310nm	0 ~ 60°C
MGB-LA80	1G	Simplex LC/UPC	Single Mode	80km	1490nm	1550nm	0 ~ 60°C
MGB-LB80	1G	Simplex LC/UPC	Single Mode	80km	1550nm	1490nm	0 ~ 60°C

Fast Ethernet Transceiver (100BASE-FX SFP)

Model	Speed (Mbps)	Connector Interface	Fiber Mode	Distance	Wavelength	Operating Temp.
MFB-FX	100M	LC	Multi-Mode	2km	1310nm	0 ~ 60°C
MFB-F20	100M	LC	Single Mode	20km	1310nm	0 ~ 60°C
MFB-F40	100M	LC	Single Mode	40km	1310nm	0 ~ 60°C
MFB-F60	100M	LC	Single Mode	60km	1310nm	0 ~ 60°C

Fast Ethernet Transceiver (100BASE-BX, Single Fiber Bi-directional SFP)

Model	Speed (Mbps)	Connector Interface	Fiber Mode	Distance	Wavelength (TX)	Wavelength (RX)	Operating Temp.
MFB-FA20	100M	WDM/ Bidi LC	Single Mode	20km	1310nm	1550nm	0 ~ 60°C
MFB-FB20	100M	WDM/ Bidi LC	Single Mode	20km	1550nm	1310nm	0 ~ 60°C