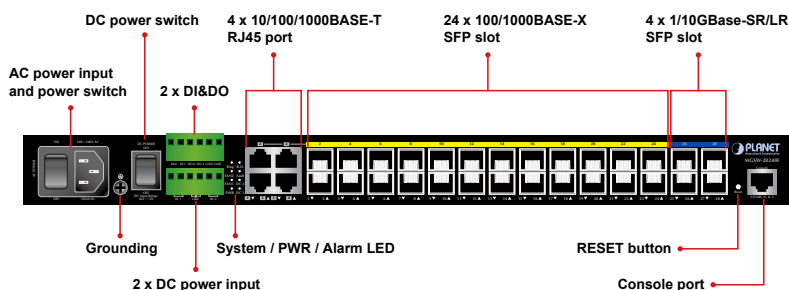


L3 24-Port 100/1000BASE-X SFP + 4-Port 10G SFP+ Metro Ethernet Switch



10Gbps Fiber Ports and Multiple Dual Speed Fiber Ports Deliver High-speed Networking

PLANET MGSW-28240F L3 24-Port 100/1000BASE-X SFP + 4-Port 10G SFP+ Metro Ethernet Switch is specially designed for service providers and enterprises to deliver high-speed networking over longer distances. Its SFP ports can be connected to various fiber and Ethernet cables to extend switching functionality throughout the network. The MGSW-28240F is capable of providing non-blocking switch fabric and wire-speed throughput as high as 128Gbps in the temperature range from -10 to 60 degrees C without any packet loss and cyclic redundancy check (CRC) error. It greatly simplifies the tasks of upgrading the enterprise LAN for catering to increasing bandwidth demands.



Layer 3 Routing Support

The MGSW-28240F enables the administrator to conveniently boost network efficiency by configuring Layer 3 IPv4/IPv6 VLAN static routing manually, and the IPv4 **OSPFv2** (Open Shortest Path First) settings automatically. The OSPF is an interior dynamic routing protocol for autonomous system based on link state. The protocol creates a database for link state by exchanging link states among Layer 3 switches, and then uses the Shortest Path First algorithm to generate a route table based on that database.

Physical Port

- 24 100/1000BASE-X SFP mini-GBIC/SFP ports
- 4 10/100/1000BASE-T RJ45 ports, shared with Port-1 to Port-4
- 4 10GBASE-SR/LR SFP+ slots, compatible with 1000BASE-SX/LX/BX SFP
- 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 polarity reverse protect function
- 19-inch rack-mountable design
- IP30 metal case
- -10 to 60 degrees C operating temperature

Digital Input and 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

Layer 3 IP Routing Features

- IP dynamic routing protocol supports OSPFv2
- Routing interface provides per VLAN routing mode
- Supports maximum 128 static routes and route summarization

Layer 2 Features

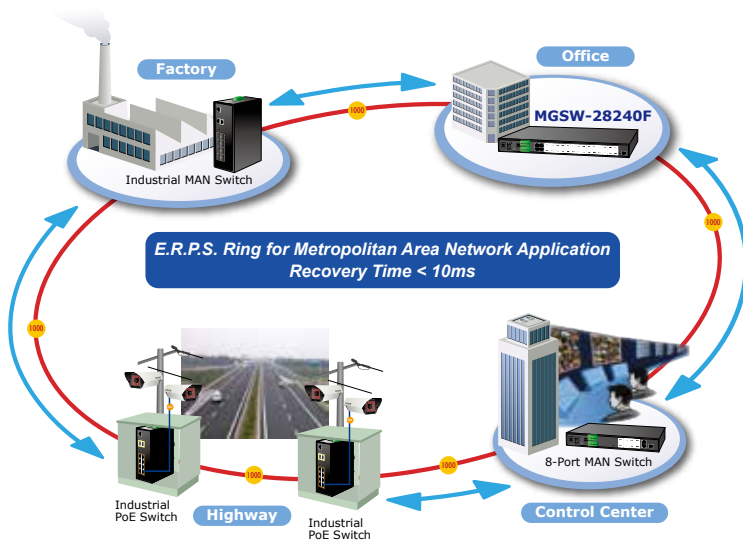
- Store-and-forward architecture with runt/CRC filtering that eliminates erroneous packets to optimize the network bandwidth
- Storm control support
 - Broadcast/Multicast/Unknown unicast
- Supports **VLAN**
 - IEEE 802.1Q tagged VLAN

Cybersecurity Network Solution to Minimize Security Risks

The cybersecurity feature included to protect the switch management in a mission-critical network virtually needs no effort and cost to install. For efficient management, the MGSW-28240F is equipped with console, web and SNMP management interfaces. With the built-in web-based management interface, the MGSW-28240F offers an easy-to-use, platform-independent management and configuration facility. The MGSW-28240F supports SNMP and it can be managed via any management software based on the standard SNMP protocol. For reducing product learning time, the MGSW-28240F offers Cisco-like command via Telnet or console port and customer doesn't need to learn new command from these switches. Moreover, the MGSW-28240F offers remote secure management by supporting SSH, SSL and SNMP v3 connection which can encrypt the packet content at each session.

Redundant Ring, Fast Recovery for Critical Network Applications

The MGSW-28240F 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, Spanning Tree Protocol (802.1s MSTP), and **redundant power** input system into customer's industrial automation network to enhance system reliability and uptime in harsh factory environments. In a certain, simple Ring network, the recovery time of data link can be as fast as 10ms.



1588 Time Protocol and Front-access Interface Design

The MGSW-28240F is ideal for telecom and carrier Ethernet applications, supporting MEF service delivery and timing over packet solutions for IEEE 1588 and synchronous Ethernet. The Switch comes with a user-friendly front-access design to help technicians improve wiring and installation efficiency, whereas, in the traditional design, the power socket, console port and even some extension module were always placed on the rear of the product. When technicians are installing or maintaining the older switch model on the rack, they have to be careful with other surrounding online devices as the rear-end of the product cannot be seen clearly. With the front-access design, technicians can avoid messing with other nearby devices.

- Up to 256 VLANs groups, out of 4096 VLAN IDs
- Provides Bridging (VLAN Q-in-Q) support (IEEE 802.1ad)
- Private VLAN Edge (PVE)
- Protocol-based VLAN
- MAC-based VLAN
- IP subnet-based VLAN
- Voice VLAN
- GVRP
- Supports **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), spanning tree by VLAN
 - BPDU Guard
- Supports **Link Aggregation**
 - 802.3ad Link Aggregation Control Protocol (LACP)
 - Cisco ether-channel (static trunk)
 - Maximum 14 trunk groups, with 16 ports for each trunk group
 - Up to 32Gbps bandwidth (full duplex mode)
- Provides port mirror (many-to-1)
- Port mirroring monitors the incoming or outgoing traffic on a particular port
- Loop protection to avoid broadcast loops
- Supports ERPS (Ethernet Ring Protection Switching)
- IEEE 1588 and Synchronous Ethernet network timing

Quality of Service

- Ingress Shaper and Egress Rate Limit per port bandwidth control
- 8 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 on the switch port
- DSCP remarking

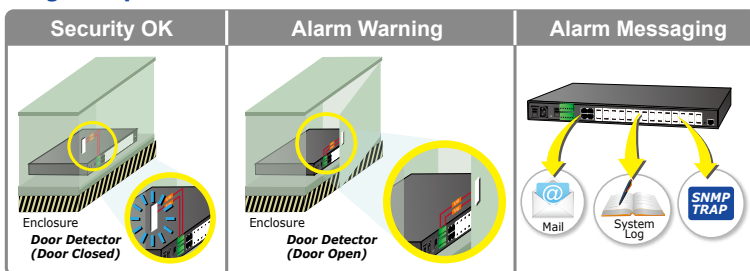
AC and DC Redundant Power to Ensure Continuous Operation

The MGSW-28240F possesses a **100~240V AC** power supply and dual **36~60V DC** power supply utilized as redundant power supply to ensure its continuous operation. Its redundant power system is specifically designed to handle the demands of high-tech facilities requiring the highest power integrity. Furthermore, with the 36~60V DC power supply implemented, the MGSW-28240F can be applied as the **telecom level** device and placed in almost any difficult environment.

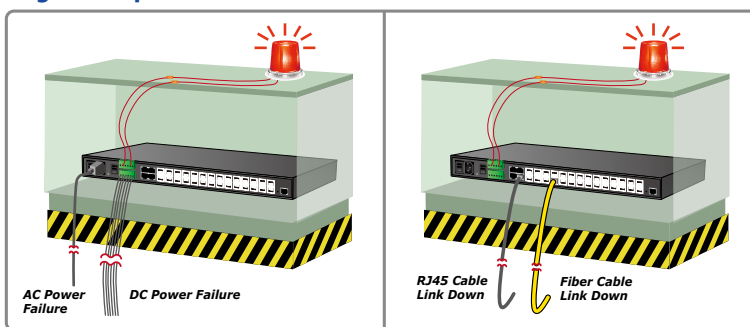
Digital Input and Digital Output for External Alarm

The MGSW-28240F 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-28240F has port link-down or power failure.

Digital Input

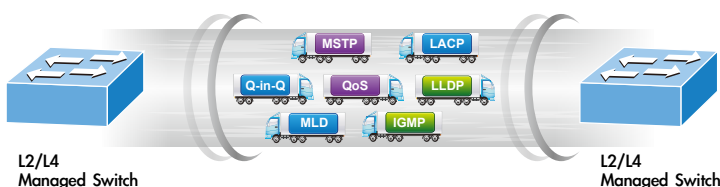


Digital Output



IPv6/IPv4 Dual Stack and Layer 2 Capability

Supporting both IPv6 and IPv4 protocols, the MGSW-28240F helps data centers, campuses, telecoms, and more to experience the IPv6 era with the lowest investment as its network facilities need not be replaced or overhauled if the IPv6 FTTx edge network is set up. The MGSW-28240F can be programmed for advanced switch management functions such as dynamic port link aggregation, **Q-in-Q VLAN**, private VLAN, **Multiple Spanning Tree Protocol (MSTP)**, Layer 2 to Layer 4 QoS, bandwidth control and **IGMP/MLD Snooping**. Via the link aggregation of supporting ports, the MGSW-28240F allows the operation of a high-speed trunk to combine with multiple fiber ports and supports fail-over as well.



Multicast

- Supports IGMP snooping v1, v2 and v3
- Supports MLD snooping v1 and v2
- Querier mode support
- IGMP snooping port filtering
- MLD snooping port filtering
- MVR (Multicast VLAN Registration)

Security

- Authentication
 - IEEE 802.1x port-based/MAC-based network access authentication
 - IEEE 802.1x authentication with guest VLAN
 - Built-in RADIUS client to cooperate with the RADIUS servers
 - RADIUS/TACACS+ users access authentication
- Access Control List
 - IP-based Access Control List (ACL)
 - MAC-based Access Control List (ACL)
- Source MAC/IP address binding
- **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
- IP address access management to prevent unauthorized intruder

Management

- IPv4 and IPv6 dual stack management
- Switch Management Interfaces
 - Console/Telnet command line interface
 - Web switch management
 - SNMP v1, v2c, and v3 switch management
 - SSH/SSL secure access
- **IPv6** address/NTP management
- Built-in Trivial File Transfer Protocol (TFTP) client
- BOOTP and DHCP for IP address assignment
- System Maintenance
 - Firmware upload/download via HTTP/TFTP
 - Reset button for system reboot or reset to factory default
 - Dual images
- DHCP relay and option 82
- User privilege levels control
- NTP (Network Time Protocol)

Powerful Security

The MGSW-28240F offers a 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** and **MAC-based** user, and device authentication. With the **private VLAN** function, communication between edge ports can be prevented to ensure user privacy. The MGSW-28240F also provides **DHCP Snooping**, **IP Source Guard** and **Dynamic ARP Inspection** functions to prevent IP snooping from attack and discard ARP packets with invalid MAC address. The network administrators can now construct highly-secure corporate networks with considerably less time and effort than before.

Excellent Traffic Control

The MGSW-28240F is loaded with powerful traffic management and QoS features to enhance connection services by telecoms and ISPs. The QoS features include wire-speed Layer 4 traffic classifiers and bandwidth limit that are particularly useful for multi-tenant units, multi-business units, Telco and network service providers' applications. It also empowers the industrial environment to take full advantage of the limited network resources and guarantees the best performance in VoIP and video conferencing transmission.

Flexible and Extendable 10Gb Ethernet Solution

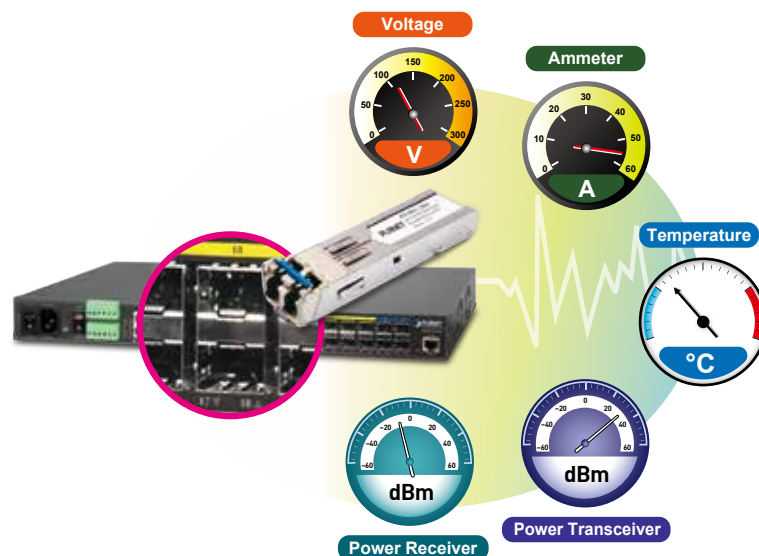
10G Ethernet is a big leap in the evolution of Ethernet. Each of the 10G SFP+ slots in the MGSW-28240F supports **dual speed** and **10GBASE-SR/LR** or **1000BASE-SX/LX**. With its 4-port, 10G Ethernet link capability and additional 4-port 1G Ethernet link capability, the administrator now can flexibly choose the suitable SFP/SFP+ transceiver according to the transmission distance or the transmission speed required to extend the network efficiently. The MGSW-28240F provides broad bandwidth and powerful processing capacity.

Intelligent SFP Diagnosis Mechanism

The MGSW-28240F supports SFP-DDM (Digital Diagnostic Monitor) function that greatly helps network administrator to easily monitor real-time parameters of the SFP, such as optical output power, optical input power, temperature, laser bias current, and transceiver supply voltage.

- Link Layer Discovery Protocol (LLDP) and LLDP-MED
- Network diagnostic
 - SFP-DDM (Digital Diagnostic Monitor)
 - Cable diagnostic technology provides the mechanism to detect and report potential cabling issues
 - ICMPv6/ICMPv4 remote ping
- SMTP/Syslog remote alarm
- Four RMON groups (history, statistics, alarms and events)
- SNMP trap for interface link up and link down notification
- System Log
- PLANET Smart Discovery Utility for deployment management

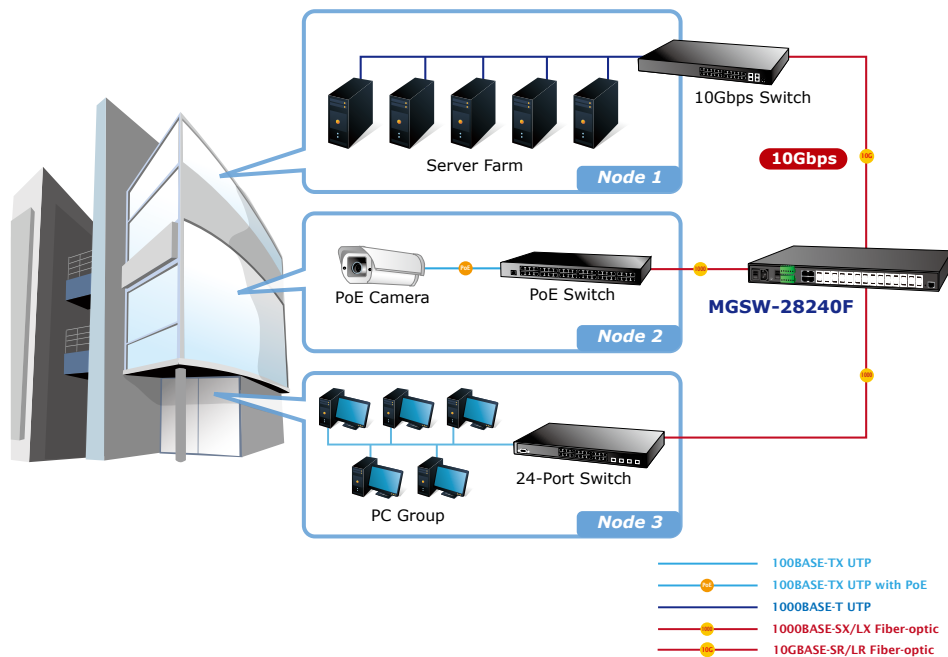
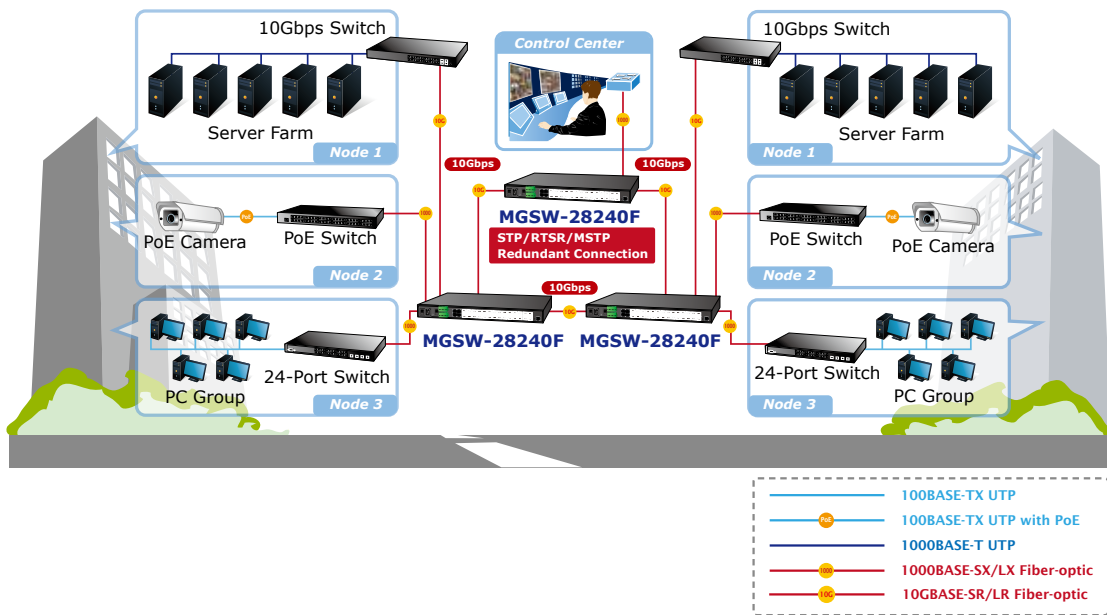
Digital Diagnostic Monitor (DDM)



Applications

Excellent Solution to Core/Department Network

The MGSW-28240F is an excellent choice of core layer switch for a Gigabit network. With 24 10/100/1000Mbps ports, the MGSW-28240F is able to connect up to 24 edge switches in the Ethernet environment. Moreover, it also provides 128 Gigabit per second switch fabric and high bandwidth for backbone connection.



Specifications

Model	MGSW-28240F
Hardware version	3
Hardware Specifications	
Copper Ports	4 10/100/1000BASE-T RJ45 auto-MDI/MDI-X ports, shared with Port-1 to Port-4
SFP/mini-GBIC Slots	24 100/1000BASE-X SFP interfaces, Compatible with 100BASE-FX SFP transceiver
SFP+ Slots	4 10GbBASE-SR/LR SFP+ interfaces (Port-25 to Port-28) Compatible with 1000BASE-SX/LX/BX SFP transceiver
Console	1 x RS232-to-RJ45 serial port (115200, 8, N, 1)
Switch Architecture	Store-and-Forward
Switch Fabric	128Gbps/non-blocking
Throughput	95.2Mpps@64Bytes
Address Table	16K entries, automatic source address learning and aging
Shared Data Buffer	32M bits
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
Dimensions (W x D x H)	440 x 200 x 44.5 mm, 1U height
Weight	2.935kg
LED	System: AC (Green), DC1 (Green), DC2 (Green), Fault (Red) Ring (Green), R.O. (Green) 10/100/1000T RJ45 Interfaces (Port 1 to Port 4): 1000Mbps LNK/ACT (Green) 10/100Mbps LNK/ACT (Amber) 100/1000Mbps SFP Combo Interfaces (Port 21 to Port 24): 1000Mbps LNK/ACT (Green) 100Mbps LNK/ACT (Amber) 1/10Gbps SFP+ Interfaces (Port 25 to Port 28): 10Gbps LNK/ACT (Green) 1Gbps LNK/ACT (Amber)
Power Consumption	AC input: Max. 36.5 watts/125.2 BTU DC input: Max. 38.7 watts/132.7 BTU
Power Requirements – AC	AC 100~240V, 50/60Hz 1A
Power Requirements – DC	DC 36~60V, 1.2A
DI and DO	2 digital input (DI): Level 0: -24~2.1V Level 1: 2.1~24V Max. input current: 10mA 2 digital output (DO): Open collector to 24VDC, 100mA
EFT Protection	6KV DC
ESD Protection	6KV DC
Layer 2 Management Functions	
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, flow control status, auto-negotiation status, trunk status
Port Mirroring	TX/RX/Both Many-to-1 monitor
VLAN	802.1Q tagged VLAN Q-in-Q tunneling Private VLAN Edge (PVE) MAC-based VLAN Protocol-based VLAN Voice VLAN IP Subnet-based VLAN MVR (Multicast VLAN registration) Up to 256 VLAN groups, out of 4096 VLAN IDs GVRP

Link Aggregation	IEEE 802.3ad LACP/static trunk 14 trunk groups with 16 port per trunk group	
Spanning Tree Protocol	IEEE 802.1D Spanning Tree Protocol IEEE 802.1w Rapid Spanning Tree Protocol IEEE 802.1s Multiple Spanning Tree Protocol	
QoS	Traffic classification based, strict priority and WRR 8-level priority for switching: - Port number - 802.1p priority - 802.1Q VLAN tag - DSCP/ToS field in IP packet	
IGMP Snooping	IGMP (v1/v2/v3) snooping, up to 255 multicast groups IGMP querier mode support	
MLD Snooping	MLD (v1/v2) snooping, up to 255 multicast groups MLD querier mode support	
Access Control List	IP-based ACL/MAC-based ACL Up to 256 entries	
Bandwidth Control	Per port bandwidth control Ingress: 100Kbps~1000Mbps Egress: 100Kbps~1000Mbps	
Layer 3 Functions		
IP Interfaces	Max. 128 VLAN interfaces	
Routing Table	Max. 128 routing entries	
Routing Protocols	IPv4 hardware static routing IPv6 hardware static routing OSPFv2 dynamic routing	
Management		
Basic Management Interfaces	Console; Telnet; Web browser; SNMP v1, v2c	
Secure Management Interfaces	SSH, SSL, SNMPv3	
SNMP MIBs	RFC 1213 MIB-II RFC 1493 Bridge MIB RFC 1643 Ethernet MIB RFC 2863 Interface MIB RFC 2665 Ether-Like MIB RFC 2819 RMON MIB (Group 1, 2, 3 and 9) RFC 2737 Entity MIB RFC 2618 RADIUS Client MIB	RFC 2863 IF-MIB RFC 2933 IGMP-STD-MIB RFC 3411 SNMP-Frameworks-MIB RFC 4292 IP Forward MIB RFC 4293 IP MIB RFC 4836 MAU-MIB IEEE 802.1X PAE LLDP
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 802.3ae 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 802.1X 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 v1 RFC 2236 IGMP v2 RFC 2328 OSPF v2 RFC 3376 IGMP v3 RFC 2710 MLD v1 RFC 3810 MLD v2 ITU G.8032 Ethernet Ring Protection Switching
Environment		
Operating	Temperature: -10 ~ 60 degrees C for AC power input -40 ~ 75 degrees C for DC power input Relative Humidity: 5 ~ 95% (non-condensing)	
Storage	Temperature: -40 ~ 80 degrees C Relative Humidity: 5 ~ 95% (non-condensing)	

Ordering Information

MGSW-28240F

L3 24-Port 100/1000BASE-X SFP + 4-Port 10G SFP+ Metro Ethernet Switch

Related Products

MGSW-24160F	16-Port 100/1000BASE-X SFP + 8-Port 10/100/1000BASE-T L2/L4 Managed Metro Ethernet Switch
MGSD-10080F	8-Port 100/1000X SFP + 2-Port 10/100/1000T Managed Metro Ethernet Switch

Available Modules for MGSW-28240F

10Gigabit Ethernet Transceiver (10GBASE-X SFP+)

Model	Speed (Mbps)	Connector Interface	Fiber Mode	Distance	Wavelength (nm)	Operating Temp.
MTB-RJ	10G	Copper	--	30m	--	0 ~ 70 degrees C
MTB-SR	10G	LC	Multi Mode	300m	850nm	0 ~ 60 degrees C
MTB-LR	10G	LC	Single Mode	10km	1310nm	0 ~ 60 degrees C
MTB-TSR	10G	LC	Multi Mode	300m	850nm	-40 ~ 75 degrees C
MTB-TLR	10G	LC	Single Mode	10km	1310nm	-40 ~ 75 degrees C

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

Model	Speed (Mbps)	Connector Interface	Fiber Mode	Distance	Wavelength (TX)	Wavelength (RX)	Operating Temp.
MTB-LA20	10G	WDM(LC)	Single Mode	20km	1270nm	1330nm	0 ~ 60 degrees C
MTB-LB20	10G	WDM(LC)	Single Mode	20km	1330nm	1270nm	0 ~ 60 degrees C
MTB-LA40	10G	WDM(LC)	Single Mode	40km	1270nm	1330nm	0 ~ 60 degrees C
MTB-LB40	10G	WDM(LC)	Single Mode	40km	1330nm	1270nm	0 ~ 60 degrees C
MTB-LA60	10G	WDM(LC)	Single Mode	60km	1270nm	1330nm	0 ~ 60 degrees C
MTB-LB60	10G	WDM(LC)	Single Mode	60km	1330nm	1270nm	0 ~ 60 degrees C

Gigabit Ethernet Transceiver (1000BASE-X SFP)

Model	DDM	Speed (Mbps)	Connector Interface	Fiber Mode	Distance	Wavelength (nm)	Operating Temp.
MGB-GT	--	1000	Copper	--	100m	--	0 ~ 60 degrees C
MGB-SX(V2)	YES	1000	LC	Multi Mode	550m	850nm	0 ~ 60 degrees C
MGB-SX2(V2)	YES	1000	LC	Multi Mode	2km	1310nm	0 ~ 60 degrees C
MGB-LX(V2)	YES	1000	LC	Single Mode	20km	1310nm	0 ~ 60 degrees C
MGB-L40	YES	1000	LC	Single Mode	40km	1310nm	0 ~ 60 degrees C
MGB-L80	YES	1000	LC	Single Mode	80km	1550nm	0 ~ 60 degrees C
MGB-L120(V2)	YES	1000	LC	Single Mode	120km	1550nm	0 ~ 60 degrees C
MGB-TSX	YES	1000	LC	Multi Mode	550m	850nm	-40 ~ 75 degrees C
MGB-TSX2	YES	1000	LC	Multi Mode	2km	1310nm	-40 ~ 75 degrees C
MGB-TLX(V2)	YES	1000	LC	Single Mode	20km	1310nm	-40 ~ 75 degrees C
MGB-TL40	YES	1000	LC	Single Mode	40km	1310nm	-40 ~ 75 degrees C
MGB-TL80	YES	1000	LC	Single Mode	80km	1550nm	-40 ~ 75 degrees C

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

Model	DDM	Speed (Mbps)	Connector Interface	Fiber Mode	Distance	Wavelength (TX)	Wavelength (RX)	Operating Temp.
MGB-LA10(V2)	YES	1000	WDM(LC)	Single Mode	10km	1310nm	1550nm	0 ~ 60 degrees C
MGB-LB10(V2)						1550nm	1310nm	
MGB-LA20(V2)	YES	1000	WDM(LC)	Single Mode	20km	1310nm	1550nm	0 ~ 60 degrees C
MGB-LB20(V2)						1550nm	1310nm	
MGB-LA40(V2)	YES	1000	WDM(LC)	Single Mode	40km	1310nm	1550nm	0 ~ 60 degrees C
MGB-LB40(V2)						1550nm	1310nm	
MGB-LA80	YES	1000	WDM(LC)	Single Mode	80km	1490nm	1550nm	0 ~ 60 degrees C
MGB-LB80						1550nm	1490nm	
MGB-TLA10(V2)	YES	1000	WDM(LC)	Single Mode	10km	1310nm	1550nm	-40 ~ 75 degrees C
MGB-TLB10(V2)						1550nm	1310nm	
MGB-TLA20	YES	1000	WDM(LC)	Single Mode	20km	1310nm	1550nm	-40 ~ 75 degrees C
MGB-TLB20						1550nm	1310nm	
MGB-TLA40	YES	1000	WDM(LC)	Single Mode	40km	1310nm	1550nm	-40 ~ 75 degrees C
MGB-TLB40						1550nm	1310nm	
MGB-TLA80	YES	1000	WDM(LC)	Single Mode	80km	1490nm	1550nm	-40 ~ 75 degrees C
MGB-TLB80						1550nm	1490nm	

Fast Ethernet Transceiver (100BASE-X SFP)

Model	Speed (Mbps)	Connector Interface	Fiber Mode	Distance	Wavelength (nm)	Operating Temp.
MFB-FX	100	LC	Multi Mode	2km	1310nm	0 ~ 60 degrees C
MFB-F20	100	LC	Single Mode	20km	1310nm	0 ~ 60 degrees C
MFB-F40	100	LC	Single Mode	40km	1310nm	0 ~ 60 degrees C
MFB-F60	100	LC	Single Mode	60km	1310nm	0 ~ 60 degrees C
MFB-F120	100	LC	Single Mode	120km	1310nm	0 ~ 60 degrees C
MFB-TFX	100	LC	Multi Mode	2km	1310nm	-40 ~ 75 degrees C
MFB-TF20	100	LC	Single Mode	20km	1310nm	-40 ~ 75 degrees 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	100	WDM(LC)	Single Mode	20km	1310nm	1550nm	0 ~ 60 degrees C
MFB-FB20	100	WDM(LC)	Single Mode	20km	1550nm	1310nm	0 ~ 60 degrees C
MFB-TSA	100	WDM(LC)	Multi Mode	2km	1310nm	1550nm	-40 ~ 75 degrees C
MFB-TSB	100	WDM(LC)	Multi Mode	2km	1550nm	1310nm	-40 ~ 75 degrees C
MFB-TFA20	100	WDM(LC)	Single Mode	20km	1310nm	1550nm	-40 ~ 75 degrees C
MFB-TFB20	100	WDM(LC)	Single Mode	20km	1550nm	1310nm	-40 ~ 75 degrees C
MFB-TFA40	100	WDM(LC)	Single Mode	40km	1310nm	1550nm	-40 ~ 75 degrees C
MFB-TFB40	100	WDM(LC)	Single Mode	40km	1550nm	1310nm	-40 ~ 75 degrees C