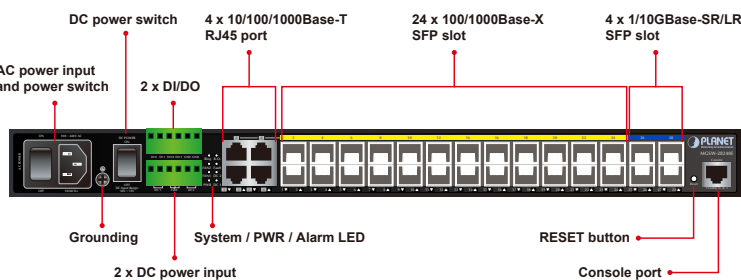


# 24-Port 100/1000BASE-X SFP with 4-Port 10G SFP+ L2/L4 Managed Metro Ethernet Switch



## 10Gbps Ultra High Speed Switch with Multiple SFP Fiber Ports is Great for All Long-Reach Applications

The MGSW-28240F is specially designed for service providers to deliver profitable Ethernet network. It is equipped with advanced management functions and provides 24 100/1000Mbps dual speed SFP Fiber ports, 4 10Gbps SFP Fiber ports, and 4 10/100/1000Mbps TP/SFP combo ports delivered in a rugged strong case. 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 CRC error. It greatly simplifies the tasks of upgrading the enterprise LAN for catering to increasing bandwidth demands.



## 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, the MGSW-28240F provides broad bandwidth and powerful processing capacity. In addition, the MGSW-28240F provides 24 mini-GBIC slots, which supports Dual-speed, 100BASE-FX and 1000BASE-SX/LX SFP (Small Form-factor Pluggable) fiber-optic modules. With the 4 10Gbps SFP Fiber ports and 24 Gigabit dual speed SFP Fiber ports support, the MGSW-28240F enables the administrator to flexibly choose the suitable SFP transceiver in the light of the transmission distance or the transmission speed required to extend the network efficiently. It is suitable for metropolitan networks and wide area networks.

### Physical Port

- 24-port 100/1000BASE-X SFP mini-GBIC slot
- 4 shared 10/100/1000BASE-T RJ45 ports
- 4-port 1G/10G SFP+ slot
- RS232 RJ45 console interface for switch basic management and setup

### Hardware Conformance

- 36 to 60V DC, redundant power with polarity reverse protect function
- -10 to 60 degrees C operating temperature
- 19-inch rack-mountable
- Fault relay alarm for port breakdown, power failure
- Two built-in thermal fans

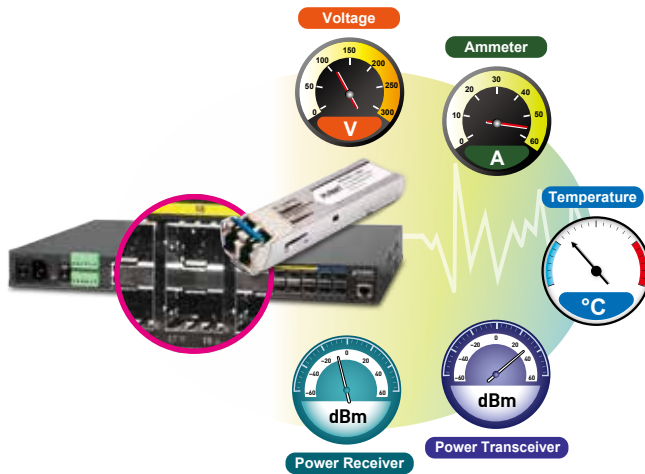
### Layer 2 Features

- 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

**Intelligent SFP Diagnosis Mechanism**

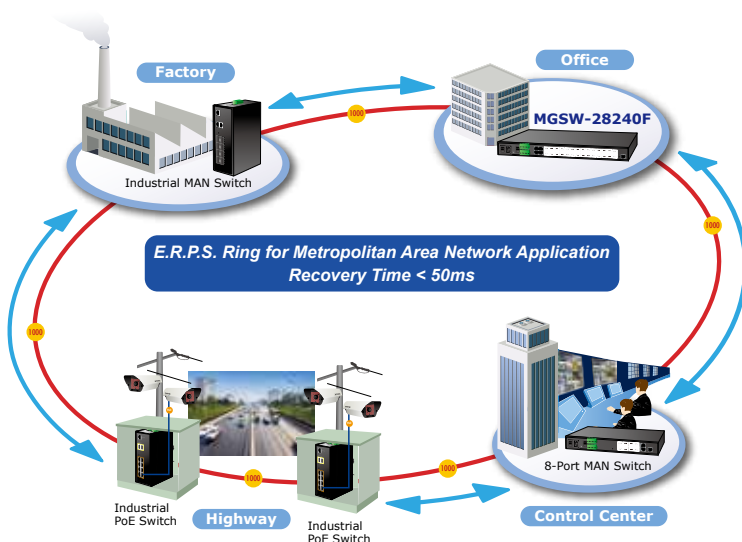
The MGSW-28240F supports SFP-DDM (Digital Diagnostic Monitor) function that greatly helps network administrator to easily monitor real-time parameters of the SFP, such as optical output power, optical input power, temperature, laser bias current, and transceiver supply voltage.

**Digital Diagnostic Monitor (DDM)**



**Optimized Design for MAN Redundant Ring, Fast Recovery for Surveillance or Industrial System**

The MGSW-28240F supports redundant ring technology and features strong rapid self-recovery capability to prevent interruptions and external intrusions. It incorporates ITU-G.8032 Ethernet Ring Protection Switching technology, Multiple Spanning Tree Protocol (802.1s MSTP), and redundant power supply system into customer's industrial automation or surveillance network to enhance system reliability and uptime in harsh factory environments. The MGSW-28240F also protects customer's industrial network connectivity with switching recovery capability that is used for implementing fault tolerant ring and mesh network architectures. If the Industrial network is interrupted accidentally, the fault recovery times can be less than 50ms to quickly bring the network back to normal operation.



- 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

### *Front-access Interface Design Improves Efficiency of Installation and Maintenance*

The MGSW-28240F is with user-friendly front-access design to help improve technician 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 technician is installing or maintaining the product on the rack, they have to be careful because they may not see the rear-end of the product. It is very dangerous to the other on-line devices. Now, the front-access design helps technician avoid this situation, and install or operate the MGSW-28240F very easily.

### *Digital Input/Output Design Helps to Efficiently React to the Emergency Events*

The MGSW-28240F helps the administrator to efficiently react to the emergency events by offering digital input and digital output interface. The digital input can be set up to indicate urgent events, and send the messages or alarm to the network system, such as door open detector or windows open detector. The digital output function can define the immediate response such as port failure or power failure to the related urgent event.

### *AC and DC Redundant Power to Ensure Continuous Operation*

To enhance the operation reliability and flexibility, the MGSW-28240F is equipped with one 100~240V AC power supply unit and two additional 36~60V DC power input connectors for redundant power supply installation. The Redundant Power Systems are 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 that could be located in the electronic room.

### *Cost-effective IPv6 Managed Gigabit Switch Solution*

Faced with the increasingly large number of IP cameras and wireless APs getting deployed in all kinds of applications, more and more network equipment comes with IPv6 protocol for next generation networking. The MGSW-28240F supports both the original IPv4 network structure as well as the new IPv6 protocol. With easy and friendly management interfaces and plenty of management functions included, the MGSW-28240F is the best choice for enterprises, and IP Surveillance and Wireless service providers to connect with IPv6 network.

### *Layer2/Layer4 Full-functioned Managed Switch for Building Automation Networking*

The MGSW-28240F 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-28240F offers comprehensive Access Control List (ACL) for enforcing security to the edge. Its protection mechanisms also comprise Port-based 802.1x and MAC-based user and device authentication. The port-security function effectively limits the number of client passes through, so that network administrators can now construct highly secured corporate networks with time and effort considerably less than before.

- Dynamic ARP Inspection discards ARP packets with invalid MAC address to IP address binding
- IP Source Guard prevents IP spoofing attack
- 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)
- IPv6 IP Address/NTP/DNS management
- Built-in Trivial File Transfer Protocol (TFTP) client
- 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 deploying management
- ICMPv6

### Redundant Data Protection

- ITU-T G.8032 Ethernet Ring Protection Switching

### Redundant Power System

- 100~240V AC/36~60V DC dual power redundant
- Active-active redundant power failure protection
- Backup of catastrophic power failure on one supply
- Fault tolerance and resilience

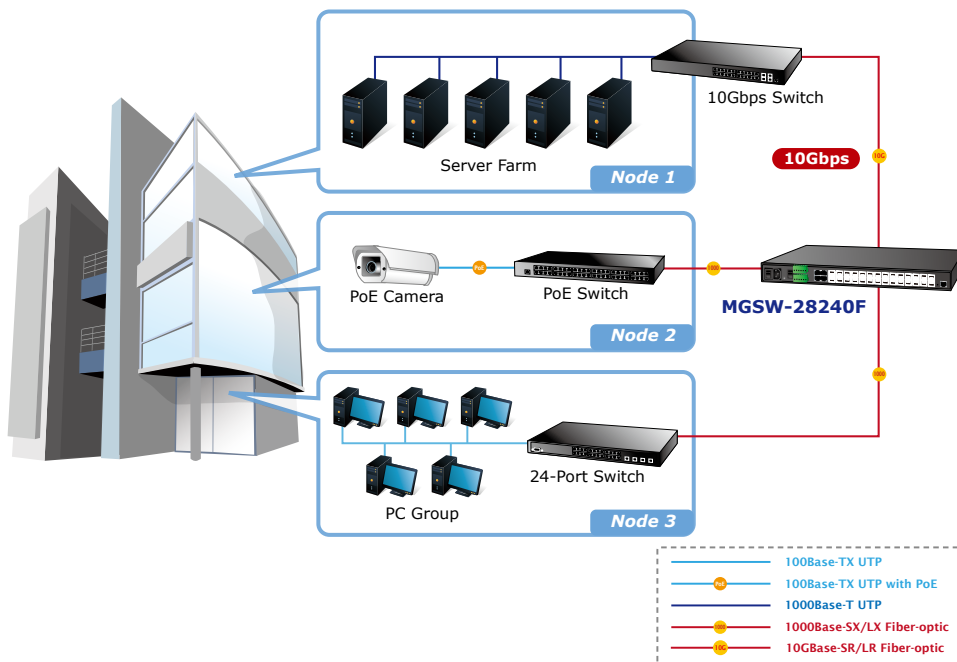
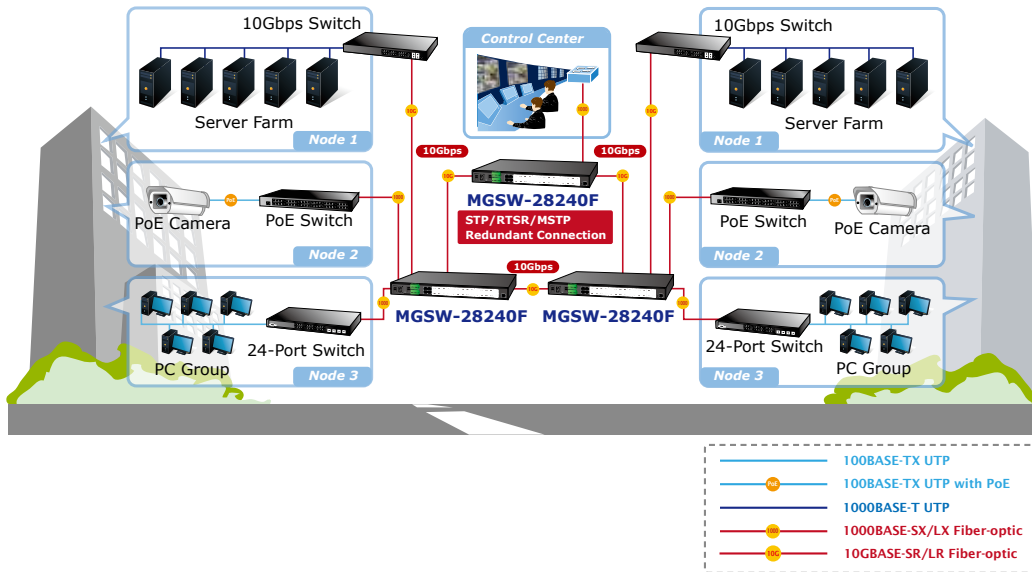
### Digital Input/Digital Output

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

## Applications

### Excellent Solution to Core/Department Network

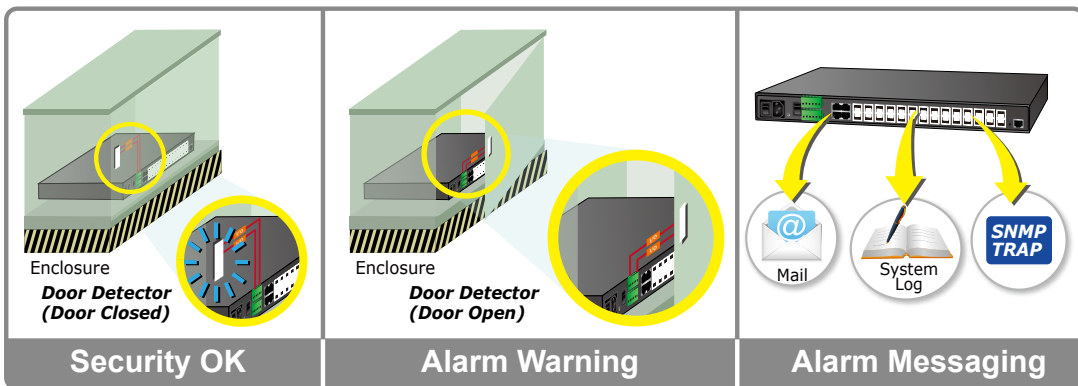
The MGSW-28240F is an excellent choice of core layer switch for a Gigabit network. With 24 10/100/1000Mbps ports, the MGSW-28240F is able to connect up to 24 edge switches in the Ethernet environment. Moreover, it also provides 128 Gigabit per second switch fabric and high bandwidth for backbone connection.



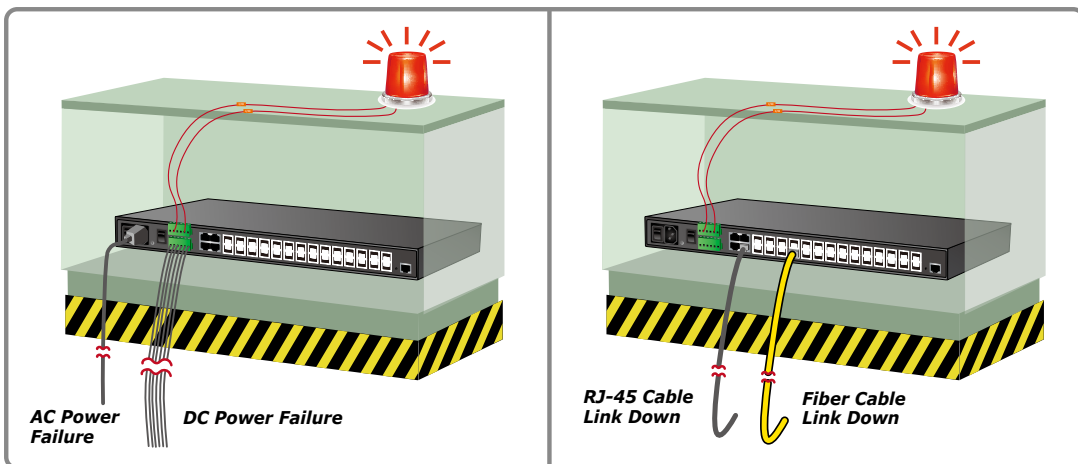
*Enhanced Protection via Digital Input and Digital Output Features*

The MGSW-28240F features digital input and digital output functions that greatly help the administrator efficiently react to the emergency events. The digital input can be set up 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 detector. The digital output function can define the immediate response such as port failure or power failure to the related urgent events.

### Digital Input



### Digital Output



## Specifications

Model	MGSW-28240F
<b>Hardware Specifications</b>	
SFP/mini-GBIC Slots	24 1000BASE-SX/LX/BX SFP interfaces (Compatible with 100BASE-FX SFP Transceiver)
10Gbps Fiber Ports	4 1/10GBASE-SR/LR SFP+ slots
Copper Ports	4 10/100/1000BASE-T TP/SFP combo ports
Console Port	1 x RS232 RJ45 serial port (115200, 8, N, 1)
Thermal Fan	2 Thermal Fans
Switch Processing Scheme	Store-and-Forward
Switch Throughput@64Bytes	95.2Mpps
Switch Fabric	128Gbps/non-blocking
Address Table	16K entries, automatic source address learning and ageing
Share data Buffer	32Mbits
Flow Control	IEEE 802.3x pause frame for full-duplex Back pressure for half-duplex
Jumbo Frame	10K bytes
Reset Button	< 5 seconds: system reboot > 10 seconds: factory default
Dimensions (W x D x H)	440 x 200 x 44.5 mm, 1U height
Weight	2.935kg
LED	Power, DC1, DC2, Fault, Ring, R.O., Link/Act and speed per Gigabit port
Power Consumption	57 watts/195.56 BTU (AC) maximum 57.6 watts/197.62 BTU (DC) maximum
Power Requirement – AC	AC 100~240V, 50/60Hz 1.5A
Power Requirement – DC	-36V DC @ 1.6A, Range: -36V ~ -60V DC
DI/DO	2 Digital Input (DI): Level 0: -24~2.4V (± 0.1V) Level 1: 2.4~24V (± 0.1V) Input Load Current: 10mA max. 2 Digital Output (DO): Open collector to 24VDC, 100mA max. load
<b>Layer 2 Function</b>	
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/v3) Snooping, up to 255 multicast groups IGMP querier and fast Leave mode support
Access Control List	IP-based ACL/MAC-based ACL Up to 256 entries
<b>Management</b>	
Basic Management Interfaces	Console, Telnet, Web Browser, SNMP v1, v2c and v3
Secure Management Interface	SSH, SSL, SNMP v3

SNMP MIBs	<p>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, 2)  RFC-2737 Entity MIB  RFC-2618 RADIUS Client MIB  RFC3411 SNMP-Frameworks-MIB  IEEE 802.1X PAE  LLDP  MAU-MIB</p>
<b>Standards Conformance</b>	
Regulation Compliance	FCC Part 15 Class A, CE
Standards Compliance	<p>IEEE 802.3 10BASE-T  IEEE 802.3u 100BASE-TX/100BASE-FX  IEEE 802.3z Gigabit SX/LX  IEEE 802.3ab Gigabit 1000BASE-T  IEEE 802.3ae 10 Gigabit 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  ITU G.8032 Ethernet Ring Protection Switching  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  RFC 3376 IGMP version 3</p>
<b>Environment</b>	
Operating	<p>Temperature: -10 ~ 60 degrees C for DC power input  0 ~ 50 degrees C for AC power input  Relative Humidity: 5 ~ 95% (non-condensing)</p>
Storage	<p>Temperature: -10 ~ 70 degrees C  Relative Humidity: 5 ~ 95% (non-condensing)</p>

## Ordering Information

MGSW-28240F	24-Port 100/1000X SFP + 4-Port 10G SFP+ L2/L4 Managed Metro Switch
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## Available SFP/SFP+ Transceiver for MGSW-28240F

### 10Gbps SFP+ Transceivers

MTB-LR	1-Port 10GBASE-LR SFP+ Fiber optical module 10KM
MTB-SR	1-Port 10GBASE-SR SFP+ Fiber optical module 300M
CB-DASFP-0.5M	10G SFP+ Direct Attached Copper Cable – 0.5M

### 1Gbps SFP Transceivers

MGB-GT	SFP-Port 1000BASE-T Module 100M
MGB-SX	SFP-Port 1000BASE-SX mini-GBIC module 550M
MGB-LX	SFP-Port 1000BASE-LX mini-GBIC module 10KM
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
MGB-TLX	SFP-Port 1000BASE-LX mini-GBIC module 10KM (-40~75°C)
MGB-TSX	SFP-Port 1000BASE-SX mini-GBIC module 550M (-40~75°C)
MGB-TL30	SFP-Port 1000BASE-LX mini-GBIC module 30KM (-40~75°C)
MGB-TL70	SFP-Port 1000BASE-LX mini-GBIC module 70KM (-40~75°C)

### 100Mbps SFP Transceivers

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
MFB-TFX	SFP-Port 100BASE-FX Transceiver (1310nm) 2KM (-40~75°C)
MFB-TF20	SFP-Port 100BASE-FX Transceiver (1310nm) 20KM (-40~75°C)