

## 8-Port 10/100/1000Mbps + 2-Port 100/1000X SFP Managed Desktop Switch



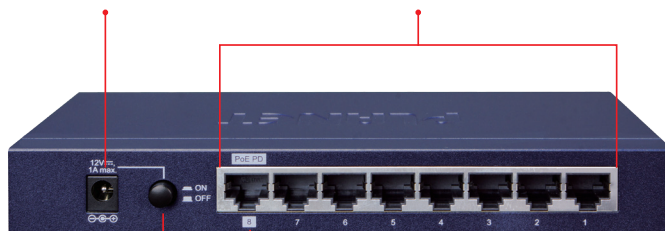
PLANET GSD-1002M is an **8-port 10/100/1000Mbps + 2-port 100/1000X SFP Managed Desktop Switch** specially designed to build a reliable full Gigabit backbone to transmit and forward data to remote network through fiber optic. It provides **8-port 10/100/1000BASE-T copper** and **2 extra 100/1000BASE-X SFP fiber optic interfaces** with dual power system. Besides support for 20Gbps switch fabric to handle extremely large amounts of video, voice and important data in a secure topology, the GSD-1002M provides user-friendly but advanced **IPv6 / IPv4 management** interfaces and abundant L2/L4 switching functions. It is the best investment for businesses/SOHOs expanding or upgrading their network infrastructure.

2 x 100/1000BASE-X SFP Slot



12V DC Socket

8 10/100/1000BASE-T RJ45 Ports



Power ON/OFF Button

1-Port **802.3af/at PoE** 48-56V DC in-line Power

### Cybersecurity Network Solution to Minimize Security Risks

The GSD-1002M supports SSHv2 and TLS 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, 802.1x port-based** network access control, **RADIUS** and **TACACS+** user accounts management, **SNMPv3** authentication, and so on to complement it as an all-security solution.

### Physical Ports

- 8 10/100/1000Mbps Gigabit Ethernet ports with auto-MDI/MDI-X supported
- 1 port (Port 8) supports 802.3af/at PoE 48-56V DC in-line power
- 2 100/1000BASE-X mini-GBIC/SFP slots

### Switching

- Hardware-based 10/100Mbps, half/full duplex and 1000Mbps full duplex mode, flow control and 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
- 10K jumbo frame
- Automatic address learning and address aging
- Supports CSMA/CD protocol

### Installation

- Dual Power Design
  - 802.3af/at PoE In
  - 12V DC power adapter acceptable

### Layer 2 Features

- 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
- Supports **VLAN**
  - IEEE 802.1Q tagged VLAN
  - Provider Bridging (VLAN Q-in-Q) support (IEEE 802.1ad)
  - Protocol VLAN
  - Voice VLAN
  - Private VLAN
  - 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**

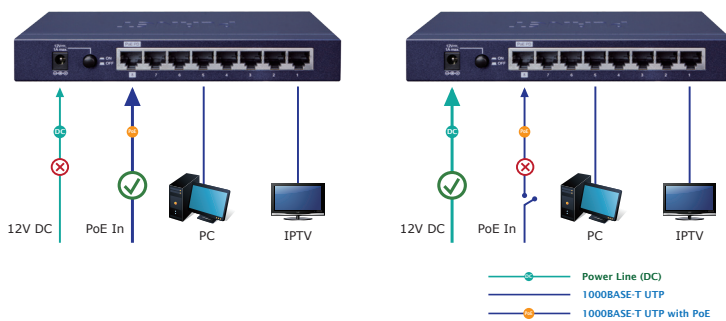
### Redundant Ring, Fast Recovery for Critical Network Applications

The GSD-1002M 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) into customer's network to enhance system reliability and uptime in various environments.

### Spanning Tree Protocol and Dual Power Input for High Availability Network System

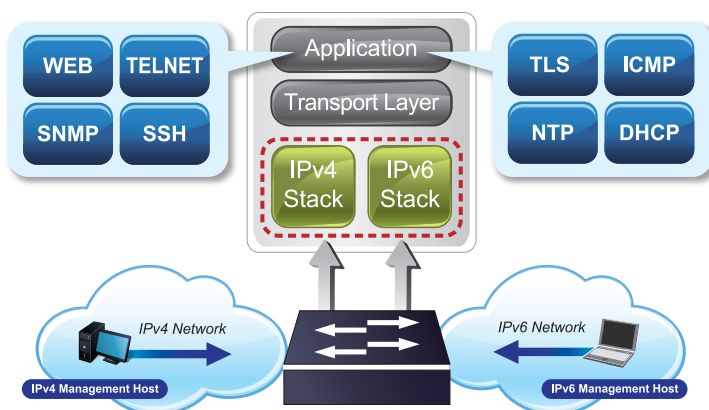
The GSD-1002M features strong rapid self-recovery capability to prevent interruptions and external intrusions. It incorporates Spanning Tree Protocol (802.1s MSTP), auto loop protection and **dual power input system (PoE In + 12V DC)** into customer's automation network to enhance system reliability and uptime. In the example below, PoE power has failed with dropped cable and DC power will run hardware failover function automatically to keep powering the switch without any loss.

#### Power Dual-Input (Auto Failover)



### IPv6/IPv4 Dual Stack Management

Supporting both IPv6 and IPv4 protocols, the GSD-1002M helps the SMBs to step in the IPv6 era with the lowest investment as its network facilities need not be replaced or overhauled if the IPv6 network is set up.



### Robust Layer 2 Features

The GSD-1002M 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 GSD-1002M 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.

- 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)

### Quality of Service

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

### Multicast

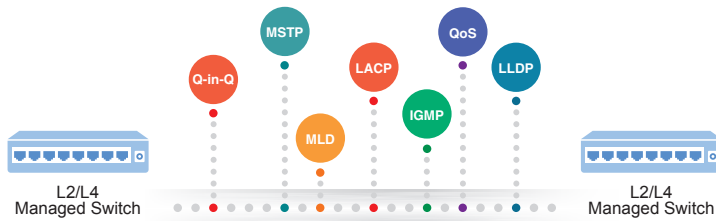
- Supports IGMP Snooping v2 and v3
- Supports MLD Snooping v1 and v2
- IGMP Querier mode support
- IGMP Snooping port filtering
- MLD Snooping port filtering

### Security

- Authentication
  - IEEE 802.1X Port-based network access authentication
  - Built-in RADIUS client to co-operate with the RADIUS servers
  - RADIUS/TACACS+ login user access authentication
- Access Control List
  - IPv4/IPv6 IP-based ACL
  - MAC-based ACL
- 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



### Efficient Traffic Control

The GSD-1002M 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 **storm control**, per port **bandwidth control**, IP DSCP QoS priority and remarking. It guarantees the best performance for VoIP and video stream transmission, and empowers the enterprises to take full advantage of the limited network resources.

### Powerful Security

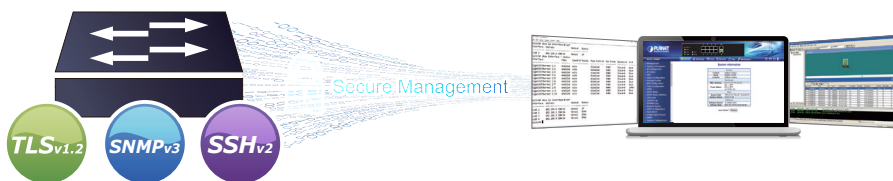
PLANET GSD-1002M offers comprehensive **IPv4/IPv6** Layer 2 to Layer 4 **Access Control List (ACL)** for enforcing security to the edge. It can be used to restrict network access by denying packets based on source and destination IP address, TCP/UDP ports or defined typical network applications. Its protection mechanism also comprises **802.1X port-based** user and device authentication, which can be deployed with RADIUS and TACACS+ to ensure the port level security and block illegal users. With the **protected port** function, communication between edge ports can be prevented to guarantee user privacy. Furthermore, Port security function allows to limit the number of network devices on a given port.

### Friendly and Secure Management

For efficient management, the GSD-1002M is equipped with Command line, Web and SNMP management interfaces.

- With the built-in **Web-based** management interface, the GSD-1002M offers an easy-to-use, platform-independent management and configuration facility.
- For **text-based** management, it can be accessed via Telnet and the console port.
- By supporting the standard SNMP protocol, the switch can be managed via any SNMP-based management software.

Moreover, the GSD-1002M offers secure remote management by supporting **SSHv2**, **TLSv1.2** and **SNMP v3** connections which encrypt the packet content at each session.



### Flexibility and Long-distance Extension Solution

The two mini-GBIC slots built in the GSD-1002M support SFP auto-detection and dual speed as it features **100BASE-FX** and **1000BASE-SX/LX SFP (Small Form-factor Pluggable)** fiber transceivers to uplink to backbone switch and monitoring center in long distance. The distance can be extended from 550 meters to 2 kilometers (multi-mode fiber) and up to above 10/20/40/60/80/120 kilometers (single-mode fiber or WDM fiber). They are well suited for applications within the enterprise data centers and distributions.

### Handheld Size for FTTD Solution

The GSD-1002M provides high-performance edge service and plug-and-play design for FTTD (Fiber to the Desktop) solutions. FTTD service is fiber optic cabling with reliable and expandable, lower-cost wiring architectures, and long distance capability. The GSD-1002M supports dual-speed, **100BASE-FX** and **1000BASE-SX/LX** SFP (Small Form-factor Pluggable) fiber-optic modules to connect fiber access point, with high flexibility to be installed in communication closet or major computer room for SMBs.

- Four RMON groups (history, statistics, alarms and events)
- SNMP trap for interface link up and link down notification
- 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 web interface
  - Dual images
  - Hardware reset button for system reboot or reset to factory default
- SNTP Network Time Protocol
- Network Diagnostic
  - ICMPv6/ICMPv4 Remote Ping
  - Cable diagnostics
- Link Layer Discovery Protocol (LLDP) and LLDP-MED
- Event message logging to remote Syslog server
- PLANET Smart Discovery Utility for deployment management
- PLANET NMS system and CloudViewer for deployment management

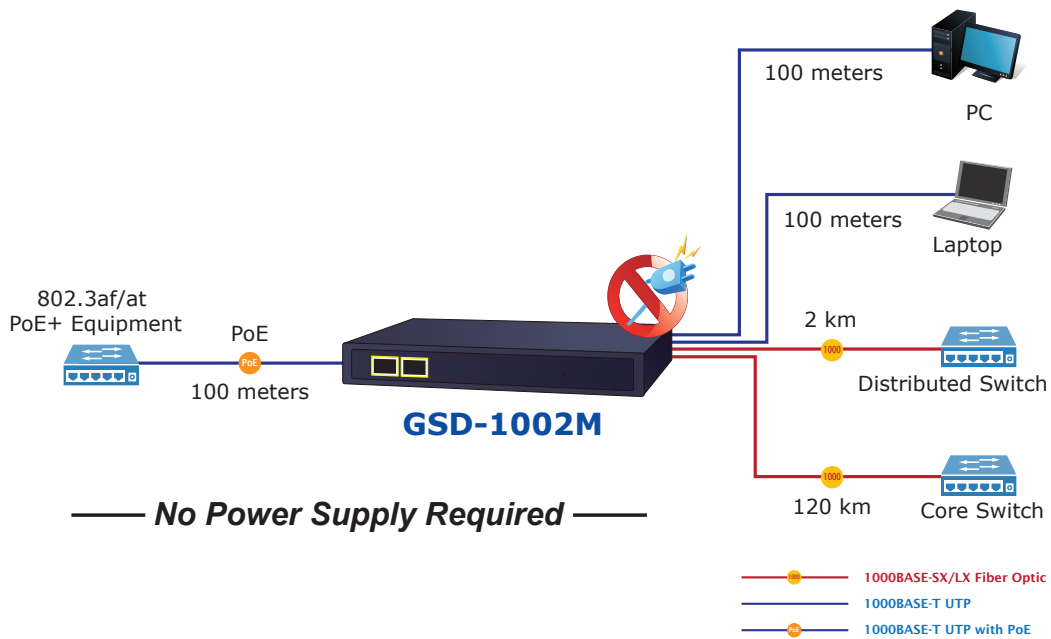
## Applications

### ITU-T G.8032 ERPS with PoE IP Surveillance System for SMBs/Workgroups

The GSD-1002M features strong rapid self-recovery capability to prevent interruptions and external intrusions. It incorporates **ITU-T G.8032 ERPS (Ethernet Ring Protection Switching)** technology into customer's automation network to enhance system reliability and uptime.

### Extending Network Infrastructure for SOHOs, SMBs and Workgroups

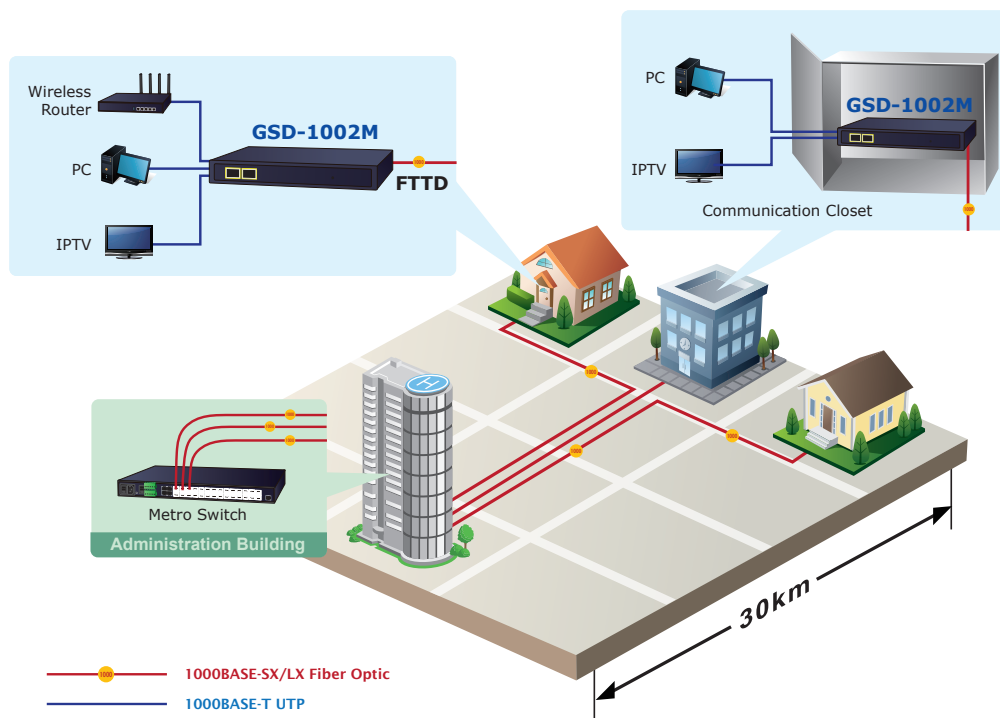
Since port 8 of the GSD-1002M provides PoE PD power in-line and 12V DC in interface, it can obtain PoE power from any 802.3af/at PoE PSE equipment. The GSD-1002M is with non-blocking design and handheld size, and extends 8-port 10/100/1000Mbps Gigabit Ethernet and 2-port extra 100BASE-FX/1000BASE-SX/LX SFP fiber-optic modules, bringing network infrastructure higher flexibility but lower in cost.



### Plug-and-Play for FTTD Solution

The GSD-1002M supports free configuration and free grounding, and provide high-performance edge service. To build the network infrastructure with an easily and quickly installed option, it can decrease attenuation and crosstalk issues for zero-loss data transfer.

## Fiber To The Desktop (FTTD) Solution



## Specifications

Product	GSD-1002M
<b>Hardware Specifications</b>	
Copper Ports	8 x 10/100/1000BASE-T RJ45 Auto-MDI/MDI-X port
SFP/mini-GBIC Slots	2 100/1000BASE-X SFP interfaces Supports 100/1000Mbps dual mode and DDM
Reset Button	< 5 sec: System reboot > 5 sec: Factory Default
LED	<b>System:</b> Power (Green) <b>10/100/1000T RJ45 Interfaces (Port 1 to Port 8):</b> 1000Mbps (Orange), LNK/ACT (Green) <b>100/1000Mbps SFP Interfaces (Port 9 to Port 10):</b> 1000Mbps (Orange), LNK/ACT (Green)
Thermal Fan	Fan-less design
Power Requirements	■ IEEE 802.3af/at PoE 48V ~ 56V DC in-line power ■ 12V DC power adapter
ESD Protection	6KV DC
Power Consumption / Dissipation	10.9 watts / 37.2 BTU
Dimensions (W x D x H)	191 x 86 x 26 mm
Weight	396g
Enclosure	Metal
<b>Switch Specifications</b>	
Switch Architecture	Store-and-Forward
Switch Fabric	20Gbps/non-blocking
Switch Throughput@64Bytes	14.8Mpps@64Bytes
Address Table	8K entries
Shared Data Buffer	4.1 megabits
Flow Control	IEEE 802.3x pause frame for full-duplex Back pressure for half-duplex
Jumbo Frame	10K bytes
<b>Layer 2 Functions</b>	
Port Mirroring	TX / RX / Both Many-to-1 monitor
VLAN	802.1Q Tagged VLAN Up to 256 VLAN groups, out of 4094 VLAN IDs 802.1ad Q-in-Q tunneling Voice VLAN Protocol VLAN Private VLAN (Protected port) GVRP
Link Aggregation	IEEE 802.3ad LACP and static trunk Supports 8 groups of 8-port trunk
Spanning Tree Protocol	STP / RSTP / MSTP
IGMP Snooping	IGMP (v2 / v3) Snooping IGMP Querier Up to 256 multicast groups
MLD Snooping	MLD (v1 / v2) Snooping, up to 256 multicast groups
QoS	8 mapping ID to 8 level priority queues - Port Number - 802.1p priority - 802.1Q VLAN tag - DSCP field in IP Packet Traffic classification based, Strict priority and WRR
Ring	Supports ERPS, and complies with ITU-T G.8032
<b>Security Functions</b>	
Access Control List	IPv4/IPv6 IP-based ACL/MAC-based ACL
Port Security	IEEE 802.1X – Port-based authentication 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
Enhanced Security	DHCP Snooping and DHCP Option82 STP BPDU guard, BPDU filtering and BPDU forwarding DoS attack prevention ARP inspection IP source guard
<b>Management Functions</b>	
Basic Management Interfaces	Web browser/Telnet/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/CloudViewer
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
<b>Standards Conformance</b>	
Regulatory Compliance	FCC Part 15 Class B, 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 IEEE 802.3af (Power over Ethernet) IEEE 802.3at (High Power over Ethernet) RFC 768 UDP RFC 783 TFTP RFC 793 TCP RFC 791 IP RFC 792 ICMP RFC 2068 HTTP RFC 1112 IGMP version 1 RFC 2236 IGMP version 2 RFC 3376 IGMP version 3 RFC 2710 MLD version 1 RFC 3810 MLD version 2 ITU G.8032 ERPS Ring
<b>Environment</b>	
Operating	Temperature: 0 ~ 50 degrees C Relative Humidity: 5 ~ 95% (non-condensing)
Storage	Temperature: -20 ~ 70 degrees C Relative Humidity: 5 ~ 95% (non-condensing)

## Ordering Information

GSD-1002M

8-Port 10/100/1000Mbps + 2-Port 100/1000X SFP Managed Desktop Switch

## Available 1000Mbps Modules

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

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)		1000	WDM(LC)	Single Mode	10km	1550nm	1310nm	0 ~ 60 degrees C
MGB-LA20(V2)	YES	1000	WDM(LC)	Single Mode	20km	1310nm	1550nm	0 ~ 60 degrees C
MGB-LB20(V2)		1000	WDM(LC)	Single Mode	20km	1550nm	1310nm	0 ~ 60 degrees C
MGB-LA40(V2)	YES	1000	WDM(LC)	Single Mode	40km	1310nm	1550nm	0 ~ 60 degrees C
MGB-LB40(V2)		1000	WDM(LC)	Single Mode	40km	1550nm	1310nm	0 ~ 60 degrees C
MGB-LA80	YES	1000	WDM(LC)	Single Mode	80km	1490nm	1550nm	0 ~ 60 degrees C
MGB-LB80		1000	WDM(LC)	Single Mode	80km	1550nm	1490nm	0 ~ 60 degrees C

## Available 100Mbps Modules

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

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