

Industrial 6-Port 100/1000X SFP + 2-Port 1G/2.5G SFP + 2-Port 10/100/1000T Managed Switch



Switch with Multiple SFP Fiber Ports for Growing Long-Reach Industrial and Telecom Networks

PLANET IGS-10080MFT is an Industrial 10-Port Full Gigabit Managed Ethernet Switch specially designed to build a full Gigabit backbone to transmit reliable, high-speed data in heavy industrial demanding environments and to forward data to remote networks through fiber optic cabling. It features two 100/1000/2500BASE-X ports, six 100/1000BASE-X SFP fiber optic ports, and two extra 10/100/1000BASE-T copper interfaces delivered in an IP30 rugged case with redundant power system. Within such favorable enclosure, it provides user-friendly yet advanced IPv6/IPv4 management interfaces, abundant L2/L4 switching functions and Layer 3 static routing capability. The IGS-10080MFT can operate stably under the temperature range from -40 to 75 degrees C and allows either DIN-rail or wall mounting for efficient use of cabinet space.



Cybersecurity Network Solution to Minimize Security Risks

The IGS-10080MFT 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**, **ARP Inspection** Protection, **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 Port

- 10/100/1000BASE-T Ethernet ports (Ports 1 to 2)
- 2 100/1000/2500BASE-X SFP ports (Ports 3 to 4)
- 6 100/1000BASE-X SFP ports (Ports 5 to 10)

Industrial Case and Installation

- · Redundant power design
 - 12 to 48V DC, redundant power with reverse polarity protection
 - AC 24V power adapter acceptable
 - Backup of catastrophic power failure on one supply
 - Fault tolerance and resilience
- IP30 aluminum case
- · DIN-rail and wall-mount designs
- · Supports 6000 VDC Ethernet ESD protection
- · 40 to 75 degrees C operating temperature

Industrial Protocol

- · Modbus TCP for real-time monitoring in SCADA system
- IEEE 1588v2 PTP Transparent clock mode (Precision Time Protocol)

Layer 2 Features

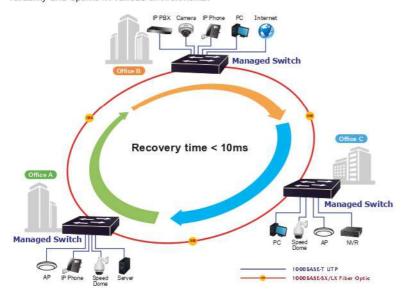
- Prevents packet loss with back pressure (half-duplex) and IEEE 802.3x pause frame flow control (full-duplex)
- High performance of Store-and-Forward architecture, and runt/ CRC filtering eliminates erroneous packets to optimize the network bandwidth
- · Storm Control support
 - Broadcast/Multicast/Unicast
- · Supports VLAN
 - IEEE 802.1Q tagged VLAN
 - Up to 4K VLANs groups, out of 4094 VLAN IDs
 - Provider Bridging (VLAN Q-in-Q) support (IEEE 802.1ad)
 - Private VLAN Edge (PVE)
 - Protocol-based VLAN
 - MAC-based VLAN
 - Voice VLAN
 - GVRP (GARP VLAN Registration Protocol)
- 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





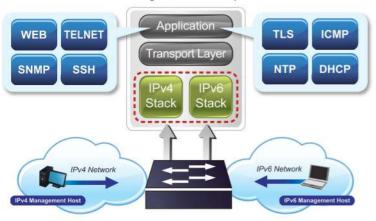
Redundant Ring, Fast Recovery for Critical Network Applications

The IGS-10080MFT 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 various environments.



IPv6/IPv4 Dual Stack Management

Supporting both IPv6 and IPv4 protocols, the IGS-10080MFT helps the SMBs to step in the IPv6 era with the lowest investment as their network facilities need not be replaced or overhauled if the IPv6 FTTx edge network is set up.



- · Supports Link Aggregation
 - 802.3ad Link Aggregation Control Protocol (LACP)
 - Cisco ether-channel (static trunk)
- · Provides port mirror (many-to-1)
- Port mirroring to monitor the incoming or outgoing traffic on a particular port
- · Loop protection to avoid broadcast loops
- Supports G.8032 ERPS (Ethernet Ring Protection Switching)
- Compatible with Cisco uni-directional link detection(UDLD) that monitors a link between two switches and blocks the ports on both ends of the link if the link fails at any point between the two devices

Layer 3 IP Routing Features

· Supports maximum 32 static routes and route summarization

Quality of Service

- Ingress Shaper and Egress Rate Limit per port bandwidth control
- · 8 priority gueues on all switch ports
- Traffic classification
 - IEEE 802.1p CoS
 - IP TOS/DSCP/IP precedence
 - 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

Multicast

- · Supports IPv4 IGMP snooping v1, v2 and v3
- · Supports IPv6 MLD snooping v1 and v2
- · Querier mode support
- · IPv4 IGMP snooping port filtering
- · IPv6 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
 - Guest VLAN assigns clients to a restricted VLAN with limited services
- · Access Control List
 - IP-based Access Control List (ACL)



SMTP/SNMP Trap Event Alert

The IGS-10080MFT provides event alert function to help to diagnose the abnormal device owing to whether or not there is a break of the network connection, or the rebooting response.

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

To help customers stay on top of their businesses, the IGS-10080MFT not only provides ultra high transmission performance and excellent Layer 2 technologies, but also IPv4/IPv6 software 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.

Robust Layer 2 Features

The IGS-10080MFT can be programmed for advanced switch management functions such as dynamic port link aggregation, 802.1Q VLAN, Q-in-Q VLAN, Multiple Spanning Tree Protocol (MSTP), Loop and BPDU Guard, IGMP Snooping, and MLD Snooping. Via the link aggregation, the IGS-10080MFT allows the operation of a high-speed trunk to combine with multiple ports such as a 16Gbps fat pipe, 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 IGS-10080MFT 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.

Powerful Security

PLANET IGS-10080MFT 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 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. The network administrators can now construct highly-secure corporate networks with considerably less time and effort than before.

- 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 and Telnet Command Line Interface
 - HTTP web switch management
 - SNMP v1 and v2c switch management
 - SSHv2, TLSv1.2 and SNMP v3 secure access
- · SNMP Management
 - Four RMON groups (history, statistics, alarms, and events)
 - SNMP trap for interface Link Up and Link Down notification
- . IPv6 IP address/NTP/DNS management
- · Built-in Trivial File Transfer Protocol (TFTP) client
- · BOOTP and DHCP for IP address assignment
- · System Maintenance
 - Firmware upload/download via HTTP
 - Reset button for system reboot or reset to factory default
 - Dual images
- · DHCP Relay
- · DHCP Option 82
- DHCP Server
- · User Privilege levels control
- · Network Time Protocol (NTP)
- 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
- System Log
- · PLANET Smart Discovery Utility for deployment management
- PLANET NMS system and CloudViewer for deployment management



User-friendly and Secure Management

For efficient management, the IGS-10080MFT is equipped with web, Telnet and SNMP management interfaces.

- With the built-in **Web-based** management interface, the IGS-10080MFT 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.
- By supporting the standard SNMP, the switches can be managed via any standard management software

Moreover, the IGS-10080MFT offers secure remote management by supporting SSHv2, TLSv1.2 and SNMP v3 connections which encrypt the packet content at each session



Modbus TCP Provides Flexible Network Connectivity for Factory Automation

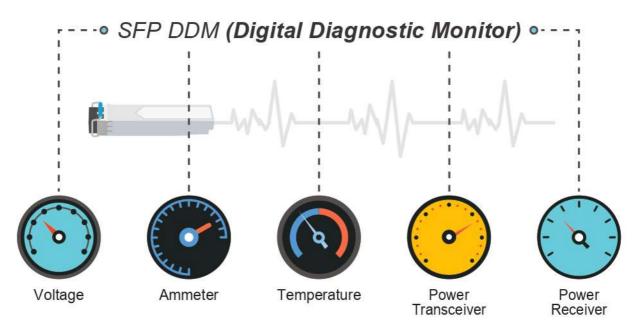
With the supported **Modbus TCP/IP** protocol, the IGS-10080MFT can easily integrate with **SCADA** systems, **HMI** systems and other data acquisition systems in factory floors. It enables administrators to remotely monitor the industrial Ethernet switch's operating information, port information and communication status, thus easily achieving enhanced monitoring and maintenance of the entire factory.

Flexibility and Long-distance Extension Solution

The IGS-10080MFT's 8 built-in mini-GBIC slots support triple-speed 100/1000/2500BASE-X SFP (small form-factor pluggable) fiber-optic modules on port 3 and port 4, while ports 5 to 10 support dual-speed 100/1000BASE-X SFP (small form-factor pluggable) fiber-optic modules, the distance can be extended from 300 meters to 2 kilometers (multi-mode fiber) and to 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.

Intelligent SFP Diagnosis Mechanism

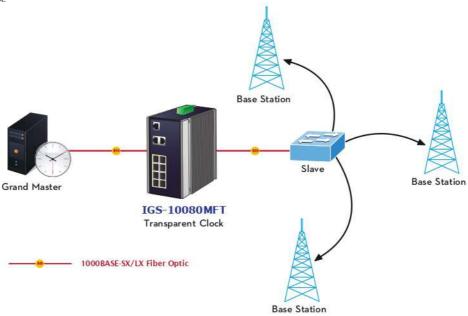
The IGS-10080MFT supports **SFP-DDM** (**Digital Diagnostic Monitor**) function that can easily monitor real-time parameters of the SFP for the network administrator, such as optical output power, optical input power, temperature, laser bias current, and transceiver supply voltage.





1588 Time Protocol for Industrial Computing Networks

The IGS-10080MFT is ideal for telecom and carrier Ethernet applications, supporting MEF service delivery and timing over packet solutions for IEEE 1588 and synchronous Ethernet.



Environmentally Hardened Design

With the IP30-rated industrial aluminum case, the IGS-10080MFT provides a high level of immunity against electromagnetic interference and heavy electrical surges which are usually found on plant floors or in curb-side traffic control cabinets. It also possesses an integrated power supply source with a wide range of voltages (12 to 48V DC or 24V AC) for worldwide high availability applications requiring dual or backup power inputs. Being able to operate under the temperature range from -40 to 75 degrees C, the IGS-10080MFT can be placed in almost any difficult environment.



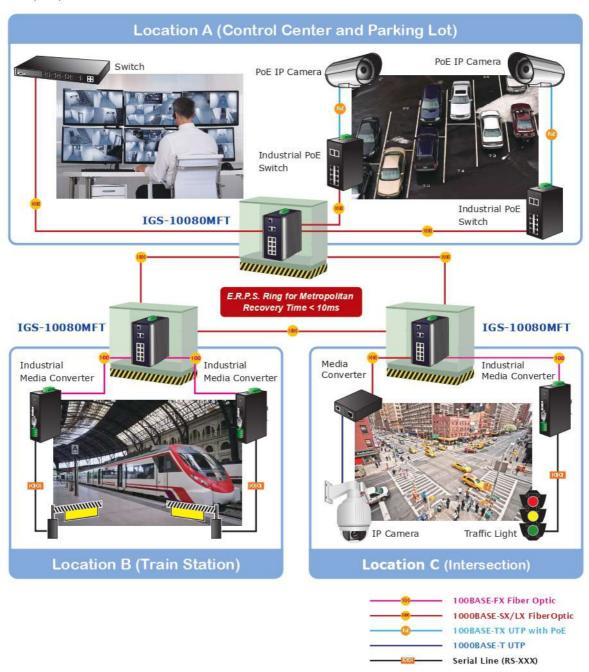
Applications

Industrial Area Manageable Switch for Data Collection and Forwarding

The IGS-10080MFT offers **high performance and high reliability** to make sure the continuous industrial operation in harsh environments such as transportation, factory floors, outdoors, and the places with extreme low or high temperatures. With a non-blocking design and desktop size, the installation of the IGS-10080MFT is easy and helpful to build up a Gigabit high-bandwidth switched network quickly.

FTTx/MAN Edge Switch

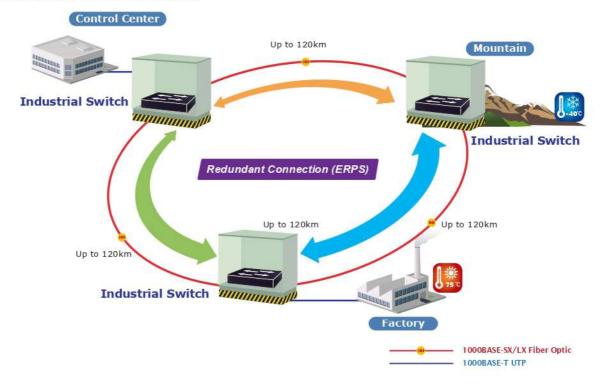
The IGS-10080MFT offers up to 2.5Gbps data exchange speed via Optical Fiber interface and the transmission distance can be extended to 120km. The IGS-10080MFT is the ideal solution for internet service providers and telecoms to build metropolitan area network (MAN) based on fiber technology to the wide area network (WAN).





ITU-T G.8032 ERPS Makes Data Transmission Uninterrupted

The IGS-10080MFT 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. Applying the IEEE 802.3at Power over Ethernet standard, the IGS-10080MFT can directly connect with any IEEE 802.3at end-nodes like PTZ (pan, tilt & zoom) network cameras and speed dome cameras. The IGS-10080MFT can easily help system integrators with the available network infrastructure to build wireless AP, IP camera and VoIP systems where power can be centrally controlled.





Specifications

| Product | IGS-10080MFT |
|-----------------------------|--|
| Hardware Specifications | |
| Copper Ports | 2 10/100/1000BASE-T Ethernet interfaces (Ports 1 to 2) |
| SFP/mini-GBIC Slots | 2 100/1000/2500BASE-X mini-GBIC SFP ports (Ports 3 to 4) 6 100/1000BASE-X mini-GBIC SFP ports (Ports 5 to 10) |
| SDRAM | 128Mbytes |
| lash Memory | 64Mbytes |
| | < 5 sec: System reboot |
| Reset Button | > 5 sec: Factory default |
| SD Protection | 6KV DC |
| FT Protection | 6KV DC |
| Inclosure | IP30 aluminum metal case |
| nstallation | DIN rail kit and wall-mount |
| | 76.8 x 107.3 x 152 mm |
| Dimensions (W x D x H) | |
| Veight | 1036g |
| Power Requirements | DC 12 to 48V, AC 24V Power Adapter |
| ower Consumption | 13.92 Watts/47.76BTU (Full loading) |
| LED Indicator | System: Power 1 (Green) Power 2 (Green) Alarm (Red) Ring (Green) R.0. (Green) Per 10/100/1000T RJ45 Ports (Port 1 to port 2): 10/100 LNK/ACT (Amber) 1000 LNK/ACT (Green) Per 100/1000/2500BASE-X SFP Interface (Port 3 to port 4): 100 LNK/ACT (Amber) 16/2.5G LNK/ACT (Green) Per 100/1000BASE-X SFP Interface (Port 5 to port 10): 100 LNK/ACT (Amber) 1000 LNK/ACT (Green) |
| Switching Specifications | |
| Switch Architecture | Store-and-Forward |
| Switch Fabric | 26Gbps/non-blocking |
| hroughput | 19.34Mpps@ 64 bytes packet |
| Address Table | 8K entries, automatic source address learning and aging |
| Shared Data Buffer | |
| Shared Data Buller | 512 Kbytes |
| Flow Control | IEEE 802.3x pause frame for full duplex Back pressure for half duplex |
| umbo Frame | 9K bytes |
| ayer 2 Management Functions | |
| Port Configuration | Port disable/enable Auto-negotiation 10/100/1000Mbps full and half duplex mode selection Flow control disable/enable Power saving mode control |
| Port Status | Display each port's speed duplex mode, link status, flow control status, auto negotiation status, trunk status |
| ort Mirroring | TX/RX/both 1 to 1 monitor |
| /LAN | 802.1Q tag-based VLAN, up to 4K VLAN groups Q-in-Q tunneling Private VLAN Edge MAC-based VLAN Protocol-based VLAN Voice VLAN MVR (Multicast VLAN Registration) GVRP Up to 4K VLAN groups, out of 4094 VLAN IDs |
| ink Aggregation | IEEE 802.3ad LACP/static trunk |
| | IEEE 802.1D Spanning Tree Protocol (STP) |
| Spanning Tree Protocol | IEEE 802.19 Spanning Tree Protocol (RSTP) IEEE 802.1s Multiple Spanning Tree Protocol (MSTP) |

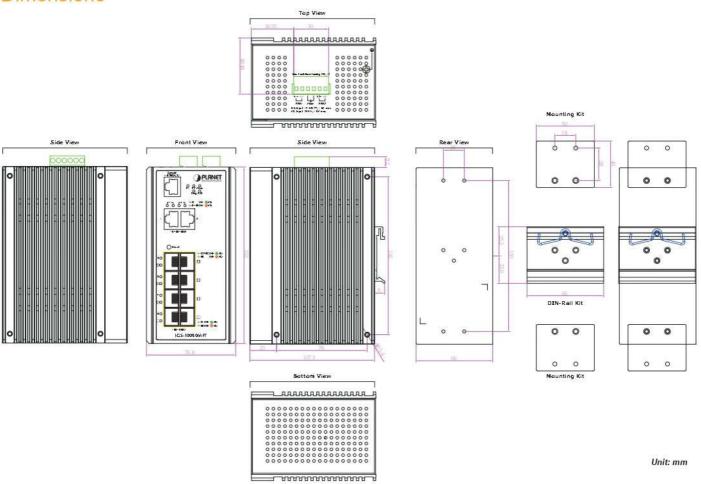


| | IGMP (v1/v2/v3) snooping | | | | | | |
|---|---|------------------------------|--|--|--|--|--|
| IGMP Snooping | IGMP querier mode support | | | | | | |
| | Up to 255 multicast groups | | | | | | |
| | MLD (v1/v2) snooping | | | | | | |
| MLD Snooping | MLD querier mode support | | | | | | |
| | Up to 255 multicast groups | | | | | | |
| | Per port bandwidth control | | | | | | |
| Bandwidth Control | Ingress: 500Kb~1000Mbps | | | | | | |
| | Egress: 500Kb~1000Mbps | | | | | | |
| | Supports ERPS, and complies with ITU-T G.8032 | | | | | | |
| Ring | Supports Major ring and sub-ring | | | | | | |
| Ting | Recovery time < 10ms @ 3 units | | | | | | |
| | Recovery time < 50ms @ 16 units | | | | | | |
| | IEEE 1588v2 PTP (Precision Time Protocol) | | | | | | |
| Synchronization | - Peer-to-peer transparent clock | | | | | | |
| | - End-to-end transparent clock | | | | | | |
| | Traffic classification based, strict priority and WRR | | | | | | |
| | 8-level priority for switching | | | | | | |
| 0-0 | - Port number | | | | | | |
| QoS | - 802.1p priority | | | | | | |
| | - 802.1Q VLAN tag | | | | | | |
| | - DSCP/TOS field in IP packet | | | | | | |
| Security Functions | | | | | | | |
| | IPv4/IPv6 IP-based ACL/MAC-based ACL | | | | | | |
| Access Control List | IPv4/IPv6 IP-based ACE/MAC-based ACE | | | | | | |
| | Up to 256 entries | | | | | | |
| | IEEE 802.1X – Port-based authentication | | | | | | |
| Port Security | Built-in RADIUS client to co-operate with RADIUS serve | er | | | | | |
| | RADIUS/TACACS+ user access authentication | | | | | | |
| | IP-MAC port binding | | | | | | |
| MAC Security | MAC filter | | | | | | |
| • | Static MAC address | | | | | | |
| | DHCP Snooping and DHCP Option82 | | | | | | |
| | STP BPDU guard, BPDU filtering and BPDU forwarding | | | | | | |
| Enhanced Security | DoS attack prevention | | | | | | |
| * | ARP inspection | | | | | | |
| | IP source guard | | | | | | |
| Layer 3 Functions | | | | | | | |
| IP Interfaces | Max. 8 VLAN interfaces | | | | | | |
| Routing Table | Max. 32 routing entries | | | | | | |
| reduing rable | IPv4 software static routing | | | | | | |
| Routing Protocols | IPv6 software static routing | | | | | | |
| Management | | | | | | | |
| Basic Management Interfaces | Telnet/Web browser/SNMP v1, v2c | | | | | | |
| Secure Management Interfaces | SSHv2, TLS v1.2, SNMP v3 | | | | | | |
| occure ividiagement interfaces | | | | | | | |
| | Firmware upgrade by HTTP/TFTP protocol through Ethe | ernet network | | | | | |
| C. I. M. | LLDP protocol | | | | | | |
| System Management | SNTP PLANET Smart Discovery Htility | | | | | | |
| | PLANET Smart Discovery Utility PLANET NMS System/CloudViewer | | | | | | |
| | PLANET NMS System/CloudViewer | | | | | | |
| Event Management | Remote/Local Syslog | | | | | | |
| Indicated Bases of | System log | | | | | | |
| Industrial Protocol | Modbus TCP for real-time monitoring in SCADA system | | | | | | |
| RFC 1213 MIB-II RFC 2737 Entity MIB IF-MIB RFC 2618 RADIUS Client MIB | | | | | | | |
| | RFC 2618 RADIUS Client MIB | | | | | | |
| | RFC 2933 IGMP-STD-MIB | | | | | | |
| SNMP MIBs | RFC 1643 Ethernet MIB | RFC 3411 SNMP-Frameworks-MIB | | | | | |
| | RFC 2863 Interface MIB | IEEE 802.1X PAE | | | | | |
| | RFC 2665 Ether-Like MIB | LLDP | | | | | |
| | RFC 2819 RMON MIB (Groups 1, 2, 3 and 9) | MAU-MIB | | | | | |
| | | | | | | | |



| Standards Conformance | | |
|---|---|--|
| Regulatory Compliance Stability Testing | FCC Part 15 Class A, CE IEC60068-2-32 (free fall) IEC60068-2-27 (shock) IEC60068-2-6 (vibration) IEEE 802 3 10BASE-T | |
| Standards Compliance | IEEE 802.3u 100BASE-TX/100BASE-FX IEEE 802.3ab Gigabit 1000T IEEE 802.3z Gigabit SX/LX IEEE 802.3bz 2.5GBASE-X 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-T G.8032 Ethernet Ring Protection Switching RFC 768 UDP RFC 768 TFTP RFC 793 TCP RFC 791 IP RFC 792 ICMP RFC 2068 HTTP RFC 1112 IGMP v1 RFC 2236 IGMP v2 |
| Environment | | |
| Operating Temperature | -40 ~ 75 degrees C | |
| Storage Temperature | -40 ~ 75 degrees C | |
| Humidity | 5 ~ 95% (non-condensing) | |

Dimensions





Ordering Information

IGS-10080MFT Industrial 6-Port 100/1000X SFP + 2-Port 1G/2.5G SFP + 2-Port 10/100/1000T Managed Switch (-40 ~ 75 degrees C)

Related Products

| IGS-5225-4T2S | Industrial L2+ 4-port 10/100/1000T + 2-port 100/1000X SFP Managed Ethernet Switch (-40~75 degrees C) |
|---------------|---|
| IGS-12040MT | Industrial L2+ 8-port 10/100/1000T + 4-port 100/1000X SFP Managed Ethernet Switch (-40~75 degrees C) |
| IGS-10020PT | Industrial L2+ 8-port 10/100/1000T 802.3at PoE + 2-port 1G/2.5G SFP Managed Switch (-40~75 degrees C) |
| GS-10020HPT | Industrial L2+ 8-port 10/100/1000T 802.3at PoE + 2-port 1G/2.5G SFP Managed Switch (-40~75 degrees C) |
| IGS-801M | 8-port 10/100/1000Mbps Managed Industrial Ethernet Switch |
| IGS-10020MT | Industrial 8-port 10/100/1000T + 2-port 1G/2.5G SFP Managed Gigabit Switch (-40~75 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 |

| Model | Speed (Mbps) | Connector Interface | Fiber Mode | Distance | Wavelength (nm) | Operating Temp. | Operating Temp. |
|----------|--------------|---------------------|-------------|----------|-----------------|--------------------|------------------|
| MFB-TFX | 100 | LC | Multi-mode | 2km | 1310nm | -40 ~ 75 degrees C | 0 ~ 60 degrees C |
| MFB-TF20 | 100 | LC | Single Mode | 20km | 1310nm | -40 ~ 75 degrees C | 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 |

| Model | Speed (Mbps) | Connector Interface | Fiber Mode | Distance | Wavelength (TX) | Wavelength (RX) | Operating Temp. |
|-----------|--------------|---------------------|-------------|----------|-----------------|-----------------|--------------------|
| 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 |

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 | 200 | 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 |

| Model | DDM | Speed (Mbps) | Connector Interface | Fiber Mode | Distance | Wavelength (nm) | Operating Temp. |
|----------|------|--------------|---------------------|-------------|----------|-----------------|--------------------|
| MGB-TGT | - 03 | 1000 | Copper | 55.2 | 100m | 127 | -40 ~ 75 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 | 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) | TES | 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) | YES | 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 | TES | 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 | TES | 1000 | WDM(LC) | Single Mode | 80km | 1550nm | 1490nm | 0 ~ 60 degrees C |

| Model | DDM | Speed (Mbps) | Connector Interface | Fiber Mode | Distance | Wavelength (TX) | Wavelength (RX) | Operating Temp. |
|------------|---------------|--------------|---------------------|-------------|----------|-----------------|-----------------|--------------------|
| MGB-TSA | VEC | 1000 | WDM(LC) | Multi-mode | 2km | 1310nm | 1550nm | -40 ~ 75 degrees C |
| MGB-TSB | YES | 1000 | WDM(LC) | Multi-mode | 2km | 1550nm | 1310nm | -40 ~ 75 degrees C |
| MGB-TLA10 | VEC | 1000 | WDM(LC) | Single Mode | 10km | 1310nm | 1550nm | -40 ~ 75 degrees C |
| MGB-TLB10 | YES | 1000 | WDM(LC) | Single Mode | 10km | 1550nm | 1310nm | -40 ~ 75 degrees C |
| MGB-TLA20 | YES | 1000 | WDM(LC) | Single Mode | 20km | 1310nm | 1550nm | -40 ~ 75 degrees C |
| MGB-TLB20 | TES | 1000 | WDM(LC) | Single Mode | 20km | 1550nm | 1310nm | -40 ~ 75 degrees C |
| MGB-LA80 | VEC | 1000 | WDM(LC) | Single Mode | 40km | 1310nm | 1550nm | -40 ~ 75 degrees C |
| MGB-LB80 | YES | 1000 | WDM(LC) | Single Mode | 40km | 1550nm | 1310nm | -40 ~ 75 degrees C |
| MGB-TLA80 | VEC | 1000 | WDM(LC) | Single Mode | 80km | 1490nm | 1550nm | -40 ~ 75 degrees C |
| MGB-TLB80 | MGB-TLB80 YES | 1000 | WDM(LC) | Single Mode | 80km | 1550nm | 1490nm | -40 ~ 75 degrees C |
| MGB-TLA120 | VEC | 1000 | WDM(LC) | Single Mode | 120km | 1490nm | 1550nm | -40 ~ 75 degrees C |
| MGB-TLB120 | YES | 1000 | WDM(LC) | Single Mode | 120km | 1550nm | 1490nm | -40 ~ 75 degrees C |

Available 2500Mbps Modules

Gigabit Ethernet Transceiver (2500BASE-X SFP)

| Model | DDM | Speed (Mbps) | Connector Interface | Fiber Mode | Distance | Wavelength (nm) | Operating Temp. |
|------------|-----|--------------|---------------------|-------------|----------|-----------------|------------------|
| MGB-2GSR | YES | 2500 | LC | Multi-mode | 300m | 850nm | 0 ~ 70 degrees C |
| MGB-2GLR2 | YES | 2500 | LC | Single mode | 2km | 1310nm | 0 ~ 70 degrees C |
| MGB-2GLR20 | YES | 2500 | LC | Single mode | 20km | 1310nm | 0 ~ 70 degrees C |

| Model | DDM | Speed (Mbps) | Connector Interface | Fiber Mode | Distance | Wavelength (nm) | Operating Temp. |
|-------------|-----|--------------|---------------------|-------------|----------|-----------------|--------------------|
| MGB-2GTSR | YES | 2500 | LC | Multi-mode | 300m | 850nm | -40 ~ 75 degrees C |
| MGB-2GTLR2 | YES | 2500 | LC | Single mode | 2km | 1310nm | -40 ~ 75 degrees C |
| MGB-2GTLR20 | YES | 2500 | LC | Single mode | 20km | 1310nm | -40 ~ 75 degrees C |

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

| Model | DDM | Speed (Mbps) | Connector Interface | Fiber Mode | Distance | Wavelength (TX) | Wavelength (RX) | Operating Temp. |
|--------------------------|-----|--------------|---------------------|-------------|----------|-----------------|-----------------|------------------|
| MGB-2GLA20 MGB-2GLB20 | YES | 2500 | WDM(LC) | Single Mode | 20km | 1310nm | 1550nm | 0 ~ 70 degrees C |
| | | 2500 | WDM(LC) | Single Mode | 20km | 1550nm | 1310nm | 0 ~70 degrees C |

| | Model | DDM | Speed (Mbps) | Connector Interface | Fiber Mode | Distance | Wavelength (TX) | Wavelength (RX) | Operating Temp. |
|--|----------------------------|-----|--------------|---------------------|-------------|----------|-----------------|-----------------|--------------------|
| | MGB-2GTLA20 MGB-2GTLB20 | YES | 2500 | WDM(LC) | Single Mode | 20km | 1310nm | 1550nm | -40 ~ 75 degrees C |
| | | | 2500 | WDM(LC) | Single Mode | 20km | 1550nm | 1310nm | -40 ~ 75 degrees C |

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