# Industrial 8 100/1000X SFP + 2-Port 10/100/1000T Managed Switch (-40 ~ 75 Degree C)



*Multiple SFP Fiber Port Switch for Growing Long-Reach Networking of Industry and Telecom*

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 also can forward data to remote network through fiber optic. It provides **8-Port 100/1000Base-X SFP fiber optic interface** and **2 extra 10/100/1000Base-T copper interfaces** delivered in an IP30 rugged strong case with redundant power system, being able to operate under the temperature range from **-40 to 75 Degree C**, the IGS-10080MFT can be placed in almost any difficult environment.



*IPv6 / IPv4 Full-Functioned Managed Switch for Building Automation Networking*

The IGS-10080MFT is the ideal solution to fulfill the demand of IPv6 management Gigabit Ethernet Switch, especially in the Industrial hardened environment. It supports both **IPv4 and IPv6 management** functions and can work with original network structure. The IGS-10080MFT 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 and automation network connectivity.

*Fast Recovery to a Redundant Ethernet Network*

The IGS-10080MFT features strong and self-recovery capability to prevent interruptions and outside intrusions. It incorporates **Rapid Spanning Protocol (RSTP), Multiple Spanning Tree (MSTP) as well as** the Loop protection function that will shutdown specific Ethernet interfaces when system detects a loop. The dynamic port **Link Aggregation** and **Redundant Power System** are provided into customers' industrial automation network to enhance system reliability and uptime in the harsh factory environments. It greatly protects customer's industrial network with switching recovery capability that is used for implementing fault tolerant ring architectures.

## Physical Port

- 8 100/1000Base-SX/LX mini-GBIC SFP slots
- 2 10/100/1000Base-T Ethernet interface

## Industrial Case / Installation

- IP30 Aluminum case protection
- DIN-Rail and Wall Mount Design
- Redundant Power Design
  - 12 to 48V DC, redundant power with polarity reverse protect function
  - AC 24V power adapter acceptable
- Supports EFT protection 6000 VDC for power line
- Supports 6000 VDC Ethernet ESD protection
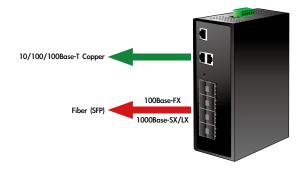- -40 to 75 Degree C operation temperature

## 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 eliminate erroneous packets to optimize the network bandwidth
- Storm Control support
  - Multicast / Unknown-Unicast
- Supports **VLAN**
  - IEEE 802.1Q Tagged VLAN
  - Up to 255 VLANs groups, out of 4095 VLAN IDs
  - Provider Bridging (VLAN Q-in-Q) support (IEEE 802.1ad)
  - Private VLAN
  - Protocol-Based VLAN
  - MAC-Based VLAN
  - 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

## Flexible and Extendable Solution

The 8 mini-GBIC slots built in the IGS-10080MFT support Dual-Speed, 100Base-FX and 1000Base-SX/LX SFP (Small Form-factor Pluggable) fiber-optic modules, that means, the administrator now can flexibly choose the suitable SFP transceiver according to the transmission distance or the transmission speed required to extend the network efficiently.

10/100/100Base-T Copper

100Base-FX
Fiber (SFP)
1000Base-SX/LX

# Application

## 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 control cabinet of transportation, factory floors, outdoor, and the places where are in extremely 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

By means of improving the technology of Optical Fiber Ethernet with high-flexible, high-extendable and easy-installation features, the IGS-10080MFT offers up to 1Gbps data exchange speed via Optical Fiber interface and the transmission distance extends to 120km. The IGS-10080MFT is the ideal solution for service providers such as ISP and Telecom to build Metropolitan Area Network (MAN) based on Fiber technology to the Wide-Area-Network.

### City C (Control Center and Parking Lot)

Switch

PoE IP Camera

PoE IP Camera

Industrial PoE Switch

IGS-10080MFT

Industrial PoE Switch

Redundant Connection

IGS-10080MFT

IGS-10080MFT

Industrial Media Converter

Industrial Media Converter

Media Converter

Industrial Media Converter

IP Camera

Traffic Light

### City B (Train Station)

### City A (Intersection)

| | | |
|---|---|---|
| 100Base-FX Fiber-optic | 100Base-TX UTP with PoE | Serial Line (RS-XXX) |
| 1000Base-SX/LX Fiber-optic | 1000Base-T UTP | |

• **Supports Link Aggregation**

 – 802.3ad Link Aggregation Control Protocol (LACP)

 – Cisco ether-channel (Static Trunk)

 – Maximum 5 trunk groups, up to 10 ports per trunk group

 – Up to 20Gbps bandwidth(Duplex Mode)

 – Provides Port Mirror (many-to-1)

 – Port Mirroring to monitor the incoming or outgoing traffic on a particular port

 – Supports E.R.P.S. (Ethernet Ring Protection Switching, *Function to expect in future)

## 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

 – 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 policies on the switch port

• DSCP remarking

## 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
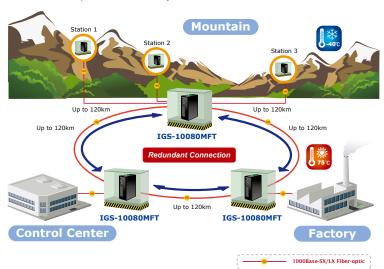
• MVR (Multicast VLAN Registration)

## Security

• 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

• **Dynamic ARP Inspection** discards ARP packets with invalid MAC address to IP address binding

• **IP Source Guard** prevents IP spoofing attacks

• **Loop Protection**

• IP address access management to prevent unauthorized intruder

## Environmentally Hardened Design

With IP30 aluminum industrial case protection, 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 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 Degree C**, the IGS-10080MFT can be placed in almost any difficult environment.



## Management

- Switch Management Interfaces
  - Web switch management
  - Remote Telnet management
  - SNMP v1, v2c, and v3 switch management
  - SSH / SSL secure access
- Four RMON groups (history, statistics, alarms, and events)
- IPv6 IP Address / NTP / DNS management
- Built-in Trivial File Transfer Protocol (TFTP) client
- BOOTP and DHCP for IP address assignment
- Firmware upload/download via HTTP / TFTP
- DHCP Relay
- DHCP Option82
- User Privilege levels control
- NTP (Network Time Protocol)
- PTP (Precision 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 deploy management
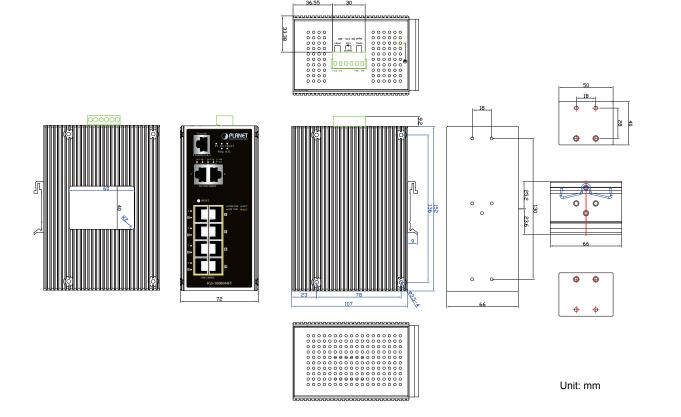
# Specification

| Product | Industrial 8 100/1000X SFP + 2-Port 10/100/1000T Managed Switch (-40 ~ 75 Degree C) |
|---|---|
| Model | IGS-10080MFT |
| **Hardware Specification** | |
| SFP/mini-GBIC Slots | 8 100/1000Base-SX/LX mini-GBIC SFP slots |
| Copper Ports | 2 10/100/1000Base-T Ethernet interface |
| Switch Architecture | Store-and-Forward |
| Switch Fabric | 20Gbps / non-blocking |
| Throughput (packet per second) | 14.8Mpps |
| Address Table | 8K entries, automatic source address learning and ageing |
| Flow Control | IEEE 802.3x Pause Frame for Full-Duplex. Back pressure for Half-Duplex |
| Jumbo Frame | 9Kbytes |
| Reset Button | < 5 sec: System reboot<br>> 5 sec: Factory Default |
| ESD Protection | 6KV DC |
| EFT Protection | 6KV DC |
| Enclosure | IP30 Aluminum Metal Case |
| Installation | DIN Rail Kit and Wall Mount Kit |
| Alarm | One relay output for power fail<br>Alarm Relay current carry ability: 1A @ DC 24V |
| LED Indicator | **System:**<br>  Power 1 (Green)<br>  Power 2 (Green)<br>  Fault Alarm (Green)<br>  Ring (Green) *<br>  R.O. (Green) *<br>**Per 10/100/1000T RJ-45 Ports:**<br>  1000 (Orange)<br>  LNK/ACT (Green)<br>**Per SFP Interface:**<br>  1000 LNK/ACT (Green)<br>  100 LNK/ACT (Orange) |
| Dimension (W x D x H) | 152 x 107x 72mm |
| Weight | 1036g |
| Power Requirement | DC 12 to 48V,  AC 24V Power Adapter |
| Power Consumption | 13.92 Watts / 47.76BTU (Full loading) |
| **Layer 2 function** | |
| Basic Management Interfaces | Web Browser, Remote Telnet, SNMP v1, v2c |
| Secure Management Interface | SSH, SSL, SNMP v3 |
| Port configuration | Port disable/enable<br>Auto-Negotiation 10/100/1000Mbps full and half duplex mode selection<br>Auto-Detection / Forced 100/1000Mbps SFP Fiber transceiver speed<br>Flow Control disable / enable<br>Power saving mode control |
| Port Status | Display each port's speed duplex mode, link status, Flow control status, Auto negotiation status, trunk status |
| Port Mirroring | TX / RX / Both<br>Many to 1 monitor |
| E.R.P.S. Ring * | Recovery time <20ms |
| VLAN | 802.1Q Tagged Based VLAN, up to 255 VLAN groups<br>Q-in-Q tunneling<br>Private VLAN<br>MAC-Based VLAN<br>Protocol-Based VLAN<br>Voice VLAN<br>MVR (Multicast VLAN Registration)<br>Up to 255 VLAN groups, out of 4095 VLAN IDs |
| Link Aggregation | IEEE 802.3ad LACP / Static Trunk<br>Supports 5 groups of 10-Port trunk |
| QoS | Traffic classification based, Strict priority and WRR<br>8-Level priority for switching<br>- Port Number<br>- 802.1p priority<br>- 802.1Q VLAN tag<br>- DSCP field in IP Packet |
| IGMP Snooping | IGMP (v1/v2/V3) Snooping, up to 255 multicast Groups<br>IGMP Querier mode support |
| MLD Snooping | MLD (v1/v2) Snooping, up to 255 multicast Groups<br>MLD Querier mode support |
| Access Control List | IP-Based ACL / MAC-Based ACL<br>Up to 256 entries |

| Bandwidth Control | Per port bandwidth control<br>  Ingress: 500Kb~1000Mbps<br>  Egress: 500Kb~1000Mbps |
|---|---|
| SNMP MIBs | RFC-2863 Interface MIB<br>RFC-2665 Ether-Like MIB<br>RFC-2819 RMON MIB (Group 1, 2, 3 and 9)<br>RFC-2737 Entity MIB<br>RFC-2618 RADIUS Client MIB<br>RFC3411 SNMP-Frameworks-MIB<br>IEEE 802.1X PAE<br>IF-MIB<br>LLDP<br>MAU-MIB |

**Standards Conformance**

| Regulation Compliance | FCC Part 15 Class A, CE |
|---|---|
| Stability Testing | IEC60068-2-32 (Free fall)<br>IEC60068-2-27 (Shock)<br>IEC60068-2-6 (Vibration) |
| Standards Compliance | IEEE 802.3 10Base-T<br>IEEE 802.3u 100Base-TX / 100Base-FX<br>IEEE 802.3z Gigabit SX/LX<br>IEEE 802.3ab Gigabit 1000T<br>IEEE 802.3x Flow Control and Back pressure<br>IEEE 802.3ad Port trunk with LACP<br>IEEE 802.1D Spanning Tree Protocol<br>IEEE 802.1w Rapid Spanning Tree Protocol<br>IEEE 802.1s Multiple Spanning Tree Protocol<br>IEEE 802.1p Class of service<br>IEEE 802.1Q VLAN Tagging<br>IEEE 802.1x Port Authentication Network Control<br>IEEE 802.1ab LLDP |

**Environment**

| Operating | Temperature:      -40 ~ 75 Degree C<br>Relative Humidity:  5 ~ 95% (Non-condensing) |
|---|---|
| Storage | Relative Humidity:  5 ~ 95% (Non-condensing) |

\* Remark: function to expect in future

# Dimensions



Unit: mm

# Ordering Information

| IGS-10080MFT | Industrial 8 100/1000X SFP + 2-Port 10/100/1000T Managed Switch (-40 ~ 75 Degree C) |
|---|---|

# Available Modules

## *1000MBPS SFP TRANSCEIVER MODULES*

| | |
|---|---|
| MGB-TSX | SFP-Port 1000Base-SX mini-GBIC module - 550m (-40 ~ 75 Degree C) |
| MGB-TLX | SFP-Port 1000Base-LX mini-GBIC module - 10km (-40 ~ 75 Degree C) |
| MGB-TL30 | SFP-Port 1000Base-LX mini-GBIC module - 30km (-40 ~ 75 Degree C) |
| MGB-TL70 | SFP-Port 1000Base-LX mini-GBIC module - 70km  (-40 ~ 75 Degree C) |
| MGB-GT | SFP-Port 1000Base-T Module |
| MGB-SX | SFP-Port 1000Base-SX mini-GBIC module - 550m |
| MGB-LX | SFP-Port 1000Base-LX mini-GBIC module - 10km |
| 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 |

## *100MBPS SFP TRANSCEIVER MODULES*

| | |
|---|---|
| MFB-TFX | SFP-Port 100Base-FX Transceiver (1310nm) - 2km (-40~75 Degree C) |
| MFB-TF20 | SFP-Port 100Base-FX Transceiver (1310nm) - 20km (-40~75 Degree C) |
| 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 |

**IGS-10080MFT**