Product Specification

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

IGS-10080MFT

Version 1.0

Change History:

Revision	Date	Author	Change List
Version 1.0	2013/01/03	Norman Tsai	Initial release

Author	Norman Tsai	**Editor:**	Norman Tsai
Reviewed by:	Kent Kang	**Approved by:**	Tom Shih

1. PRODUCT DESCRIPTION

The 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-SX/LX SFP mini-GBIC slot interface** and **2 extra 10/100/1000Base-T copper port** delivered in an IP30 rugged strong aluminum case with redundant DC power input 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 Secure 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)**, dynamic port **Link Aggregation** and **Redundant Power System** into customers' industrial automation network to enhance system reliability and uptime in the harsh factory environments. It also protects customer's industrial network connectivity with switching recovery capability that is used for implementing fault tolerant ring and mesh network architectures.

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

Flexibility and Extension 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.

2. PRODUCT FEATURES

- **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 eliminates erroneous packets to optimize the network bandwidth
  - Storm Control support:
    - Multicast / Unknown-Unicast
  - Support **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
  - Support **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
  - Support **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)

- Provide Port Mirror (many-to-1)
- Port Mirroring to monitor the incoming or outgoing traffic on a particular port
- Support E.R.P.S. **(Note : Future function)**

➢ **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
- Support 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
- Build-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

➢ **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
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3. PRODUCT SPECIFICATION

3.1 MAIN COMPONENT

Switch ASIC: Vitesse VSC7428 X1

3.2 FUNCTION SPECIFICATION

Model Name	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 > 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. Alarm Relay current carry ability: 1A @ DC 24V
LED Indicator	System: Power 1 (Green) Power 2 (Green) Fault Alarm (Green) Ring (Green) **Note R.O. (Green) **Note Per 10/100/1000T RJ-45 Ports: 1000 (Green) 10/100, LNK/ACT (Orange)

	Per SFP Interface: 1000 LNK/ACT(Green) 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, SNMPv1, v2c
Secure Management Interface	SSH, SSL, SNMP v3
Port configuration	Port disable/enable Auto-negotiation 10/100/1000Mbps full and half duplex mode selection Auto-detection / Forced 100/1000Mbps SFP Fiber transceiver speed. 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.
Port Mirroring	TX / RX / Both Many to 1 monitor
E.R.P.S. Ring (Note)**	Recovery time <20ms
VLAN	802.1Q Tagged Based VLAN ,up to 255 VLAN groups Q-in-Q tunneling Private VLAN MAC-based VLAN Protocol-based VLAN Voice VLAN MVR (Multicast VLAN Registration) Up to 255 VLAN groups, out of 4095 VLAN IDs
Link Aggregation	IEEE 802.3ad LACP / Static Trunk Support 5 groups of 10-Port trunk support
QoS	Traffic classification based, Strict priority and WRR 8-level priority for switching - Port Number - 802.1p priority - 802.1Q VLAN tag - DSCP 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: 500Kb~1000Mbps Egress: 500Kb~1000Mbps
SNMP MIBs	RFC-1213 MIB-II RFC-2236 IGMPv2 RFC-2710 MLDv1 RFC-3376 IGMPv3 RFC-2879 RMON 1, 2, 3, 9 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 RFC3411 SNMP-Frameworks-MIB IEEE 802.1X PAE IF-MIB LLDP

	MAU-MIB
Standards Conformance	
Regulation Compliance	FCC Part 15 Class A, CE
Stability Testing	IEC60068-2-32 (Free fall) IEC60068-2-27 (Shock) IEC60068-2-6 (Vibration)
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
Environment	
Operating	Temperature: -40 ~ 75 Degree C Relative Humidity: 5 ~ 95% (Non-condensing)
Storage	Temperature: -40 ~ 75 Degree C Relative Humidity: 5 ~ 95% (Non-condensing)

**Note: It is the future function.

3.3 PHYSICAL SPECIFICATIONS:

Dimensions:

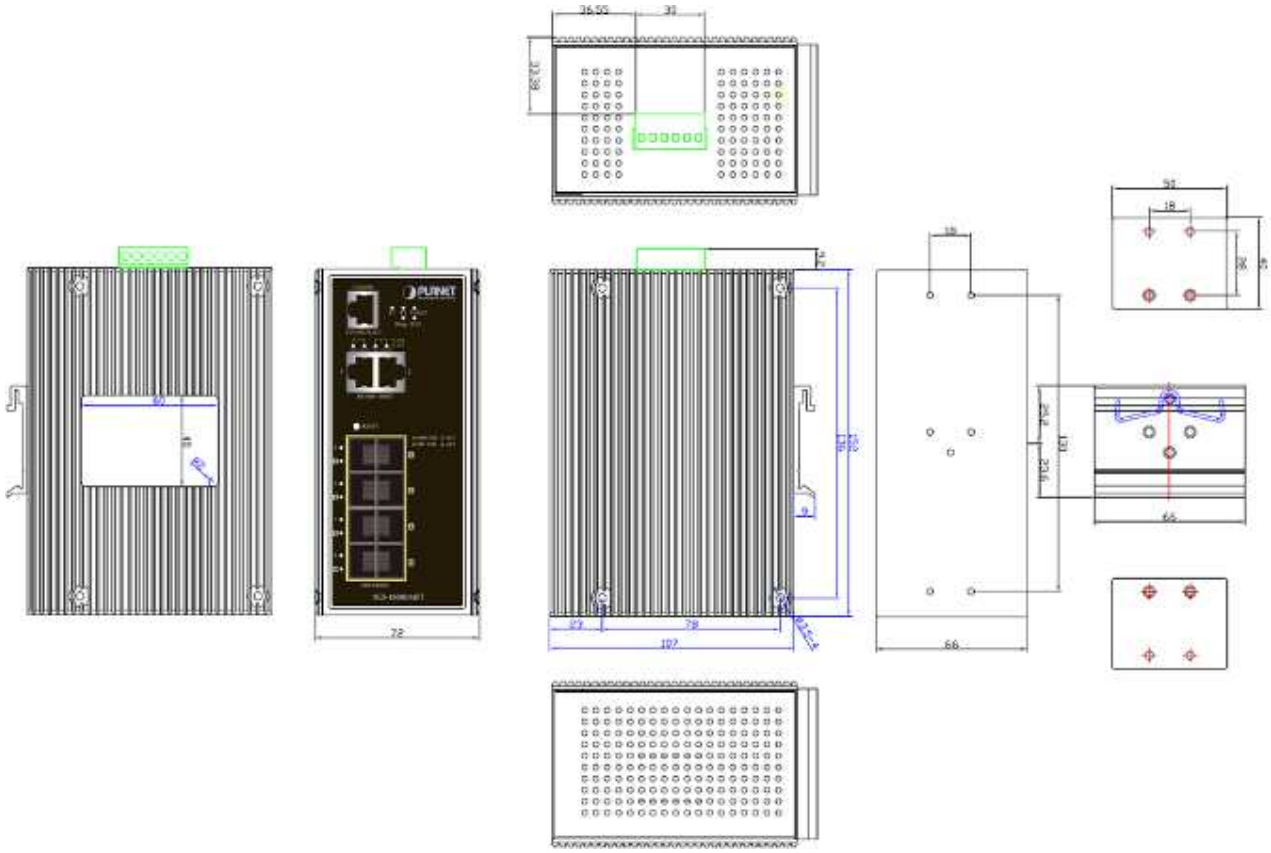
152 x 107x 72 mm (W x D x H)

Weight:

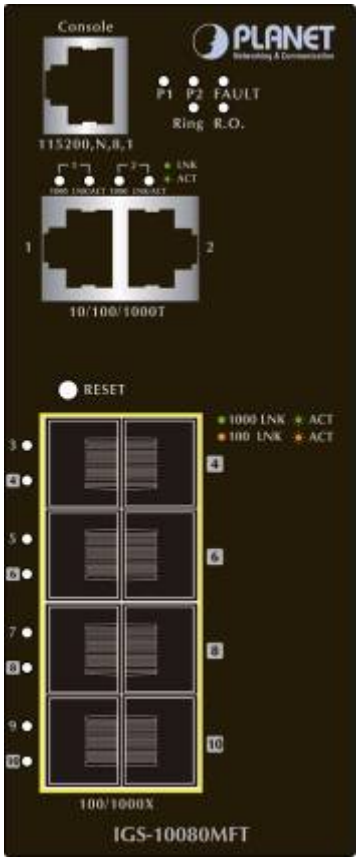
1036g

Diagram:

Unit: mm



Front view


Console
PLANET
P1 P2 FAULT
Ring R.O.
115200,N,8,1
LNK
ACT
10/100/1000T
RESET
1000 LNK ACT
100 LNK ACT
100/1000X
IGS-10080MFT

LED Definition:

■ **System**

LED	Color	Function
P1	**Green**	Indicate the power 1 has power.
P2	**Green**	Indicate the power 2 has power.
Fault	**Green**	Indicate the either power 1 or power 2 has no power.
Ring	**On**	Indicate the ERPS Ring has been created successfully. **Note
	Off	Indicate the ERPS Ring hasn't been created. **Note
R.O.	**Green**	Indicate the Switch has been enabled Ring Owner. **Note
	Off	Indicate the Ring Owner hasn't be enabled. **Note

****Note: It is means future function.**

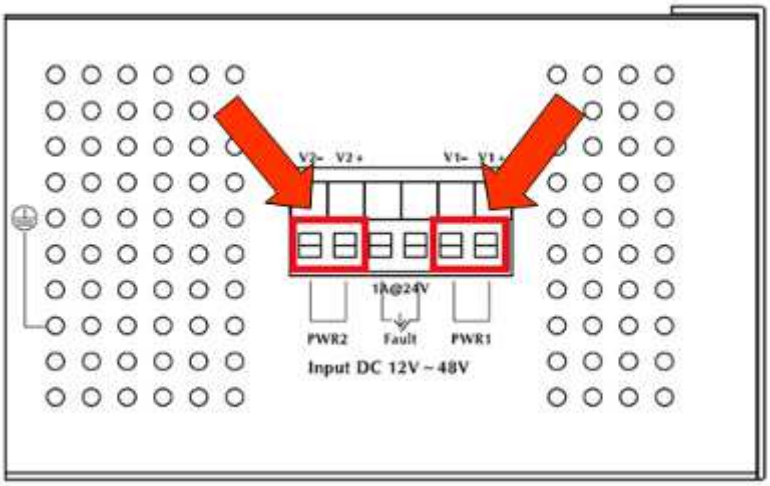
■ **Per 10/100/1000Base-T Port**

LED	Color	Function	
LNK / ACT	**Green**	**Light**	Indicate the link through that port is successfully established.
		Blink	Indicate that the Switch is actively sending or receiving data over that port.
1000	**Green**	**Light**	Indicate that the port is successfully connecting to the network at 1000Mbps.
		Off	Indicate that the port is successfully connecting to the network at 10 / 100Mbps.

■ **Per SFP Interface**

LED	Color	Function	
1000 LNK / ACT	**Green**	**Light**	Indicate the link through that port is successfully established.
		Blink	Indicate that the Switch is actively sending or receiving data over that port.
100 LNK / ACT	**Orange**	**Light**	Indicate that the port is successfully connecting to the network at 100Mbps.
		Blink	Indicate that the Switch is actively sending or receiving data over that port.

Upper Panel:



3.4 ENVIRONMENTAL SPECIFICATION

Operating:

Temperature: -40°C ~75 Degree C

Relative Humidity: 5% ~ 95% (non-condensing)

Storage:

Temperature: -40°C ~75 Degree C

Relative Humidity: 5% ~ 95% (non-condensing)

3.5 ELECTRICAL SPECIFICATION

Power Requirement: 12 to 48V DC, redundant power with polarity reverse protection

AC 24V Power Adapter

Power Consumption:

Operation Mode	Input Voltage (V)	Current (A)	Watts (W)
System on	12V DC	0.30A	3.7W
	24V DC	0.16A	3.84W
	36V DC	0.12A	4.32W
	48V DC	0.09A	4.32W
Ethernet Full Load	12V DC	1.2A	14.4W
	24V DC	0.53A	12.72W
	36V DC	0.37A	13.32W
	48V DC	0.29A	13.92W

3.6 REGULATORY COMPLIANCE

FCC Part 15 Class A, CE

EMI:

EN 55022 CLASS A:2006

EN61000-3-2:2006

EN61000-3-3: 1995+1A:2001+A2:2005

EMS:

EN 55024:1998+A1:2001+A2:2003

IEC 61000-4-2:2001

IEC 61000-4-3:2008

IEC 61000-4-4:2004

IEC 61000-4-5:2005

IEC 61000-4-6:2008

IEC 61000-4-8:2001

IEC 61000-4-11:2004

Stability Testing:

- IEC60068-2-32 (Free Fall)
- IEC60068-2-27 (Shock)
- IEC60068-2-6 (Vibration)

3.7 REALIABILITY

MTBF > 100,000Hrs

3.8 BASIC PACKAGING

☑ **The Industrial Managed Switch**	x1
☑ **Quick Installation Guide**	x1
☑ **User's Manual CD**	x1
☑ **DIN Rail Kit**	x1
☑ **Wall Mounting Kit**	X1
☑ **Dust Cap**	X11

3.9 PACKING DIMENSION

Dimension:	31.2 x 17 x 9 cm
Weight:	1.4kg (Goss Weight)
	15pcs in one carton