

# 7-Port 10/100Mbps + 3-Port Gigabit TP/SFP Combo Managed Industrial Switch with Wide Operating Temperature



## *Enhanced Reliability for Industrial Networks*

The PLANET ISW-1033MT Managed Industrial Ethernet Switch is equipped with multiple redundant ring technology and provides 7 10/100Mbps Fast Ethernet, 3 Gigabit TP/SFP combo interfaces and 2 DI/DO delivered in a rugged strong case. It is an industrially (substation) hardened and fully managed with Ethernet Switch specifically designed to operate reliably in electrically harsh, climatically demanding, wide temperature range (-40°C to 75°C) and centralized power management environments. The ISW-1033MT is the most reliable choice for highly-managed and Fiber Ethernet application.

- 3 Gigabit / Fiber uplink capability
- 2 DI/DO for event and alarm
- Redundant Ethernet Network
- Industrial Protect 30 Metal Case
- Manageable
- Power Redundant
- Wide Temperature Support

## *Fast Recovery to a Redundant Ethernet Network*

The ISW-1033MT features strong and rapid self-recovery capability to prevent interruptions of industrial network operation and external intrusions. It incorporates advanced **redundant data Ring technology**, Rapid Spanning Protocol (IEEE 802.1w RSTP) and redundant power supply 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. If the Industrial network was interrupted accidentally, the **fault recovery times could be less than 20ms** to quickly bring the network back to normal operation.

## *Tough, Environmentally Hardened Design*

With IP-30 aluminum industrial case protection, the ISW-1033MT 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. The ISW-1033MT also provides a wide range of power supply options suitable for multiple industries and for worldwide operation. The feature of operating temperature range from **-40 to 75 Degree C** allows the Managed Industrial Switch to be placed in almost any difficult environment.

## *Robust Layer 2 Features and Advanced Security*

The ISW-1033MT supports robust advanced features including IEEE 802.1Q VLAN, GVRP, Port link aggregation, QoS, broadcast storm control, MAC address filtering, IGMP snooping enhanced security and bandwidth utilization to fit a variety of applications. Via aggregation of supporting port, the ISW-1033MT allows the operation of high-speed trunk combining multiple ports. Maximum up to 4 ports of the ISW-1033MT can be assigned for 4 trunk groups and support fail-over as well. Additionally, its standard-compliant implementation ensures interoperability with equipments from other vendors.

## *Efficient and Centralized Management*

The ISW-1033MT provides the benefit of efficient and centralized management with the built-in console, WEB and SNMP management interfaces. The Web-based management of the ISW-1033MT is an easy-to-use, platform-independent management and configuration facility supporting standard Simple Network Management Protocol (SNMP) and can be managed via any standard-based network management system. For text-based management, the ISW-1033MT can be accessed via Telnet and the console port. The enhanced system reliability and advanced networking features offered by the ISW-1033MT makes it ideally suited to build the Industrial Ethernet networks for mission-critical and real-time control applications.

## *Flexibility and Extension Solution*

The three mini-GBIC slots in the ISW-1033MT are compatible with 1000Base-SX/LX/WDM and 100Base-FX through SFP (Small Form Factor Pluggable) fiber-optic transceivers. The fiber optical uplink capability guarantees the throughput to all nodes hooked into the network and the Gigabit Ethernet distance can be extended from 550 meters (Multi-Mode fiber cable) up to 10/20/30/40/50/70/120 kilometers (Single-Mode fiber or WDM fiber). They are well suited for applications within the factory data centers and distributions.

## *Easy Installation*

The ISW-1033MT is packaged in a compact case that allows either DIN rail or panel mounting for efficient usage of cabinet space. It provides an integrated power supply with a wide range of voltages for worldwide operation. It also offers dual-redundant, reversible polarity 12-48V DC power supply inputs for high availability applications requiring dual or backup power inputs.

## KEY FEATURES

### PHYSICAL PORT

- 7-Port 10/100Mbps
- 3-Port Gigabit TP/SFP combo interface, SFP(Mini-GBIC) supports 100/1000Mbps Dual Mode
- 1 RJ-45 Console interface for Switch basic management and setup

### INDUSTRIAL CONFORMANCE

- 12-48V DC, redundant power with polarity reverse protect function
- -40 to 75 Degree C operating temperature
- IP-30 metal case
- Relay alarm for port breakdown, power failure
- 2 groups digital in and digital out
- FCC Class A, CE compatibility
- Free fall, Shock and Vibration Stability

### RAPID RING

- Rapid Ring, Dual Homing, Couple Ring Topology
- Provides redundant backup feature and the recovery time less than 20ms

### DIGITAL INPUT / DIGITAL OUTPUT

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

### LAYER 2 FEATURES

- Complies with the IEEE 802.3, IEEE 802.3u, IEEE 802.3ab, IEEE 802.3z Gigabit Ethernet standards
- Prevents packet loss with back pressure (Half-Duplex) and IEEE 802.3x PAUSE frame flow control (Full-Duplex)
- Supports VLANs
  - IEEE 802.1Q Tagged based VLAN
  - Port-Based VLAN
  - GVRP
  - Up to 256 VLANs groups, out of 4K VLAN IDs
- Supports Spanning Tree Protocol
  - STP, IEEE 802.1D Spanning Tree Protocol
  - RSTP, IEEE 802.1w Rapid Spanning Tree Protocol

- Supports Link Aggregation
  - Up to 4 Trunk groups
  - Up to 4 ports per trunk group with 800Mbps bandwidth (Full Duplex mode)
  - IEEE 802.3ad LACP (Link Aggregation Control Protocol)
  - Cisco ether-Channel (Static Trunk)

### QUALITY OF SERVICE

- 4 priority queues on all switch ports
- Traffic classification by:
  - Port-Based priority
  - IEEE 802.1p Class of Service
  - IP TOS (Type of Service) priority
- Supports strict priority and Weighted Round Robin (WRR) policies
- Ingress/Egress Bandwidth control on each port

### MULTICAST

- IGMP Snooping v1 and v2
- IGMP Query mode for Multicast Media application

### SECURITY

- IEEE 802.1x Port-Based Authentication
- MAC address Filtering and MAC address Binding
- IP address security management to prevent unauthorized intruder
- Port Mirroring to monitor the incoming or outgoing traffic on a particular port

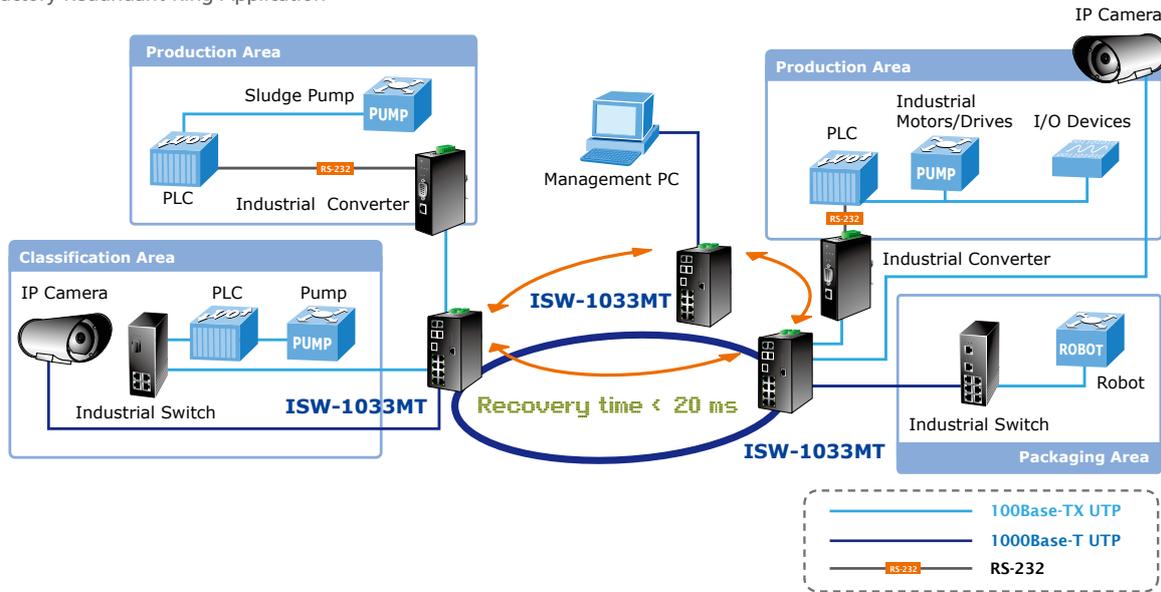
### MANAGEMENT

- Web-based, Telnet, Console Command Line management
- Access through SNMP v1, v2c and v3 set and get requests
- SNMP Trap / SMTP email for alarm notification of events
- System Log Server / ClientConfiguration backup / restore
- E-mail event alert
- TFTP firmware upgrade

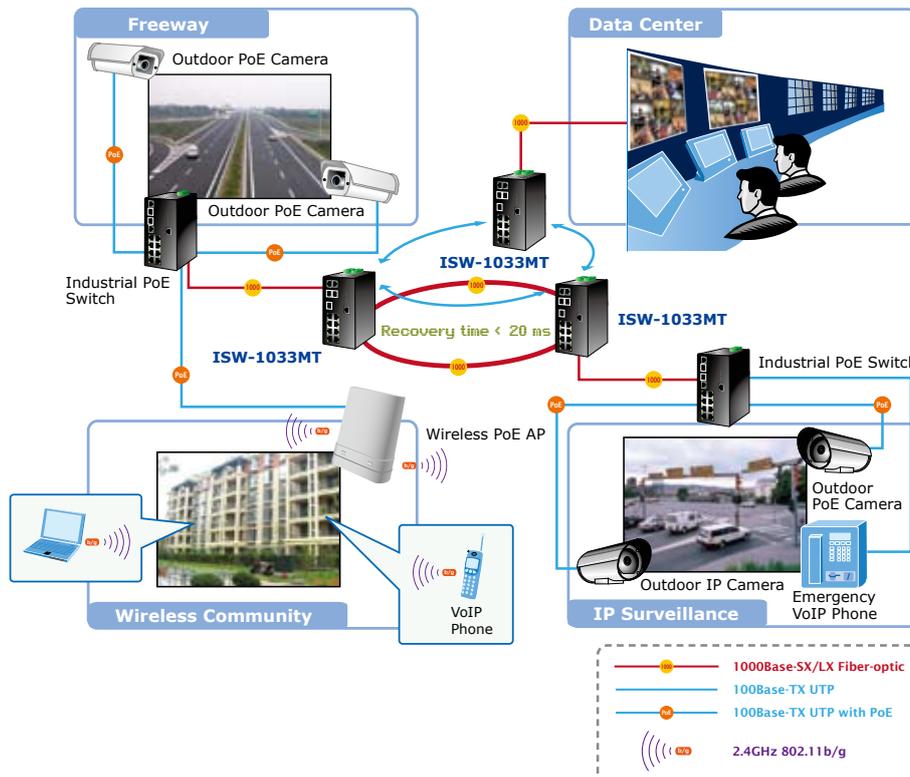
**APPLICATIONS**

PLANET Managed Industrial Ethernet Switch, ISW-1033MT, offers high reliability and security to make sure the continuous industrial operation in harsh environments such as control cabinet of transportation, factory floors, outdoor space, and where in extreme low or high temperatures. In the industrial networking environments, each networked device is required to keep running continuously in the hazardous status. If the industrial equipment loses its connection to the network, it might influence the entire operation of industrial systems and thus cause incredible financial losses. By applying the ISW-1033MT Managed Industrial Switch which complies with all the requirements of industrial applications, customers would have the advantages of high reliability, fast recovery capability, and safe Ethernet network operation.

■ Factory Redundant Ring Application



■ Transportation Networking and Public Wireless Service



**SPECIFICATION**

Product	<b>7-Port 10/100Mbps + 3-Port Gigabit TP/SFP Managed Industrial Switch</b>	
Model	ISW-1033MT	
<b>Hardware Specification</b>		
Copper Ports	7 10/ 100Base-TX RJ-45 Auto-MDI/MDI-X ports 3 10/100/1000Base-T RJ-45 port	
SFP/mini-GBIC Slots	3 SFP interfaces, shared with Port-7, Port-9 and Port-10	
Switch Architecture	Store-and-Forward	
Switch Fabric	7.4Gbps / non-blocking	
Switch Throughput	11Mpps@64bytes	
Address Table	8K entries	
Share Data Buffer	1Mbit	
Maximum Frame Size	1522 Bytes	
Flow Control	Back pressure for half duplex, IEEE 802.3x Pause Frame for full duplex	
LED	Per unit: Power (Green), Power 1 (Green), Power 2 (Green), Fault (Red) 8 port 10/100: Link/Activity (Green), Full duplex/Collision (Yellow) SFP port: LNK/ACT(Green), 1000T: LNK/ACT(Green), 1000M(Green)	
Console Interface	One RJ-45-to -RS-232 male connector for switch management	
DI/DO	2 Digital Input (DI):	Level 0: -30~2V Level 1: 10~30V Max. input current: 8mA
	2 Digital Output(DO):	Open collector to 40VDC, 200mA
ESD Protection	6KV DC	
EFT Protection	3KV DC	
<b>Layer 2 function</b>		
Management Interface	Console, Telnet, Web Browser, SNMP v1, v2c and v3	
Port Configuration	Port disable/enable	
	Auto-negotiation 10/100Mbps full and half duplex mode selection	
	Flow Control disable / enable	
	Bandwidth control on each port	
Port Status	Display each port's speed duplex mode, link status, Flow control status. Auto negotiation status	
VLAN	Port-Based VLAN, up to 9 VLAN groups	
	IEEE 802.1q Tagged Based VLAN , 4K VLAN ID, up to 256 VLAN groups	
Spanning Tree	IEEE 802.1D Spanning Tree	
	IEEE 802.1w Rapid Spanning Tree	
Link Aggregation	Supports 4 groups of 4-Port trunk support	
QoS	Traffic classification based on :	
	• Port Number,	
	• 802.1Q Tag,	
	• 802.1p priority:	
	Port Base, Class Of Service, TOS field in IP Packet	
IGMP Snooping	v1 and v2	
	256 multicast groups and IGMP query	
Bandwidth Control	Per port bandwidth control	
	Ingress: 100Kbps~102Mbps or 100Kbps ~256Mbps(Gigabit port) Egress: 100Kbps~102Mbps or 100Kbps ~256Mbps(Gigabit port)	
Port Mirror	RX/TX/Both	
Security	Supports 100 entries of MAC address for static MAC and another 100 for MAC filter	
	Supports 10 IP addresses that have permission to access the switch management and to prevent unauthorized intruder	
SNMP MIBs	RFC-1213 MIB-II	
	RFC-2863 Interface MIB	
	RFC-1493 Bridge MIB	
	RFC-2674 Extended Bridge MIB (Q-Bridge)	
	Private MIB	
EMI	FCC Class A, CE	
Safety	UL, E331236	

**Standards Conformance**

<b>Standards Compliance</b>	IEEE 802.3 10Base-T
	IEEE 802.3u 100Base-TX/100Base-FX
	IEEE 802.3ab 1000Base-T
	IEEE 802.3z Gigabit SX/ LX
	IEEE 802.3x Flow Control and Back pressure
	IEEE 802.1D Spanning tree protocol
	IEEE 802.1w Rapid spanning tree protocol
	IEEE 802.1p Class of service
	IEEE 802.1Q VLAN Tagging
	IEEE 802.1x Port Authentication Network Control

**ORDERING INFORMATION**

<b>ISW-1033MT</b>	7-Port 10/100Mbps + 3G TP/SFP Combo Managed Industrial Switch (-40~75 Degree C)
-------------------	---

**AVAILABLE MODULES**

<b>MGB-GT</b>	SFP-Port 1000Base-T Module
<b>MGB-SX</b>	SFP-Port 1000Base-SX mini-GBIC module
<b>MGB-LX</b>	SFP-Port 1000Base-LX mini-GBIC module
<b>MGB-L30</b>	SFP-Port 1000Base-LX mini-GBIC module-30km
<b>MGB-L50</b>	SFP-Port 1000Base-LX mini-GBIC module-50km
<b>MGB-L70</b>	SFP-Port 1000Base-LX mini-GBIC module-70km
<b>MGB-L120</b>	SFP-Port 1000Base-LX mini-GBIC module-120km
<b>MGB-LA10</b>	SFP-Port 1000Base-LX (WDM,TX:1310nm) mini-GBIC module-10km
<b>MGB-LB10</b>	SFP-Port 1000Base-LX (WDM,TX:1550nm) mini-GBIC module-10km
<b>MGB-LA20</b>	SFP-Port 1000Base-LX (WDM,TX:1310nm) mini-GBIC module-20km
<b>MGB-LB20</b>	SFP-Port 1000Base-LX (WDM,TX:1550nm) mini-GBIC module-20km
<b>MGB-LA40</b>	SFP-Port 1000Base-LX (WDM,TX:1310nm) mini-GBIC module-40km
<b>MGB-LB40</b>	SFP-Port 1000Base-LX (WDM,TX:1550nm) mini-GBIC module-40km
<b>MFB-FX</b>	SFP-Port 100Base-FX Transceiver (1310nm) -2KM
<b>MFB-F20</b>	SFP-Port 100Base-FX Transceiver (1310nm) - 20KM
<b>MFB-F40</b>	SFP-Port 100Base-FX Transceiver (1310nm) - 40KM
<b>MFB-F60</b>	SFP-Port 100Base-FX Transceiver (1310nm) - 60KM
<b>MFB-FA20</b>	SFP-Port 100Base-BX Transceiver (WDM,TX:1310nm) -20KM
<b>MFB-FB20</b>	SFP-Port 100Base-BX Transceiver (WDM,TX:1550nm) -20KM