

# 8-Port 10/100Mbps + 2-Port Gigabit TP/SFP Combo Managed Industrial Switch with Wide Operating Temperature



## *Enhanced Reliability for Industrial Networks*

The PLANET ISW-1022MT Managed Industrial Ethernet Switch is equipped with multiple redundant ring technology and provides 8 10/100Mbps Fast Ethernet and 2 Gigabit TP/SFP combo interfaces 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-1022MT is the most reliable choice for highly-managed and Fiber Ethernet application.

- Wide Temperature Support
- Industrial Protect 30 Metal Case
- Redundant Ethernet Network
- Manageable
- Power Redundant
- Gigabit / Fiber uplink capability

## *Fast Recovery to a Redundant Ethernet Network*

The ISW-1022MT 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 customer's 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-1022MT 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-1022MT 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-1022MT 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-1022MT allows the operation of high-speed trunk combining multiple ports. Maximum up to 4 ports of the ISW-1022MT 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-1022MT 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-1022MT 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-1022MT can be accessed via Telnet and the console port. The enhanced system reliability and advanced networking features offered by the ISW-1022MT makes it ideally suited to build the Industrial Ethernet networks for mission-critical and real-time control applications.

## *Flexibility and Extension Solution*

The two mini-GBIC slots in the ISW-1022MT 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-1022MT is packaged in a compact case that allows either DIN rail or panel mounting for efficient usage of cabinet space. The DC power inputs are provide for awide range of input voltages. It also offers dual-redundant, reversible polarity 12V to 48V DC power supply inputs for high availability applications requiring dual or backup power inputs.

## KEY FEATURES

### PHYSICAL PORT

- 8-Port 10/100Mbps Auto MD/MDI-X RJ45
- 2-Port Gigabit TP/SFP combo interface, SFP(Mini-GBIC) supports 100/1000 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 and power failure
- 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

### 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

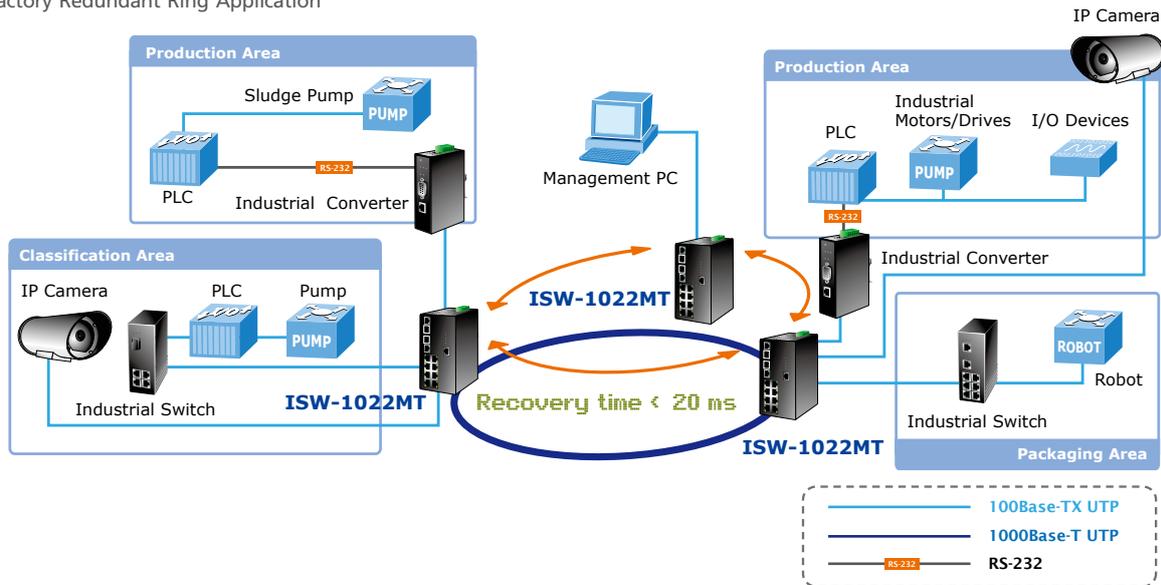
### MANAGEMENT

- 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 / Client
- Configuration backup / restore
- E-mail event alert
- TFTP firmware upgrade

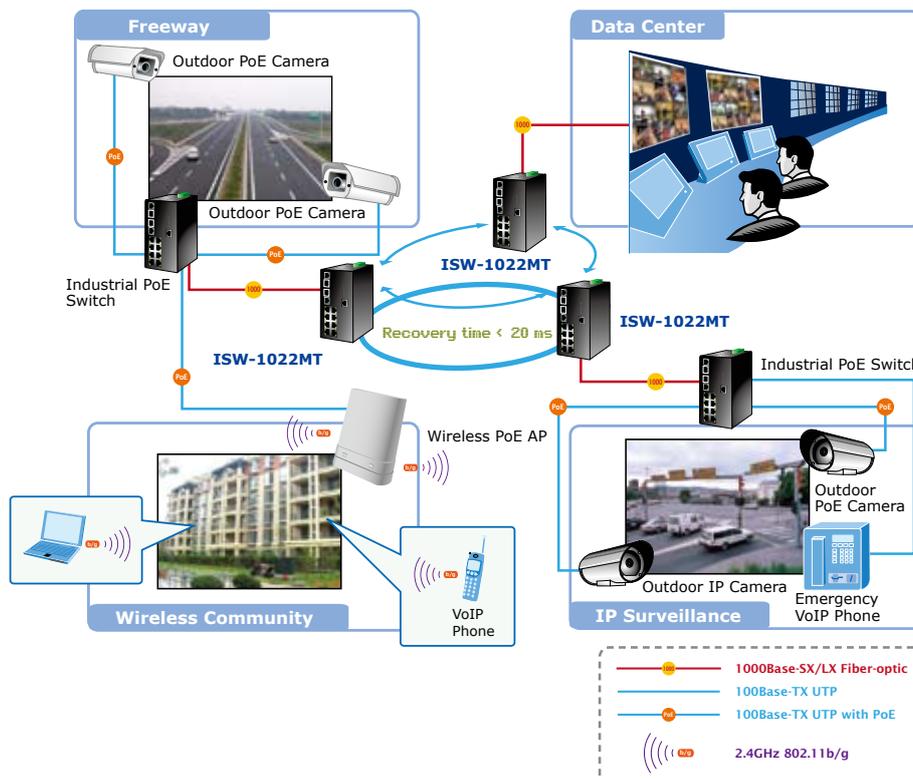
**APPLICATIONS**

PLANET's Managed Industrial Ethernet Switch, ISW-1022MT, 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 extreme low or high temperatures. In the industrial networking environments, each networked device is required to keep running continuously in the hazardous status. If industrial equipment fails to connect to the network, it might influence the entire operation of industrial systems and thus cause incredible financial losses. By adopting the ISW-1022MT Managed Industrial Switch which complies with all the requirements of industrial applications, customers may enjoy high reliability, fast recovery capability, and safe Ethernet network operation.

■ **Factory Redundant Ring Application**



■ **Transportation Networking and Public Wireless Service**



**SPECIFICATION**

Product	<b>8-Port 10/100Mbps + 2-Port Gigabit TP/SFP Managed Industrial Switch</b>
Model	ISW-1022MT
<b>Hardware Specification</b>	
Copper Ports	8 10/ 100Base-TX RJ-45 Auto-MDI/MDI-X ports 2 10/100/1000Base-T RJ-45 port
SFP/mini-GBIC Slots	2 SFP interface, shared with Port-9 and Port-10
Switch Architecture	Store-and-Forward
Switch Fabric	5.6Gbps / non-blocking
Switch Throughput	4.1Mpps @64Bytes
Address Table	8K entries
Share Data Buffer	1Mbit
Maximum Frame Size	1522 Bytes packet
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), Master (Green), FWD (Green) 7 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
ESD Protection	4KV 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
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 : <ul style="list-style-type: none"> <li>• Port Number,</li> <li>• 802.1Q Tag,</li> <li>• 802.1p priority,</li> <li>• IP DSCP/TOS field in IP Packet</li> </ul>
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
<b>Standards Conformance</b>	
Regulation Compliance	FCC Part 15 Class A, CE
Safety	UL 331236
Standards Compliance	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-1022MT</b>	8-Port 10/100Mbps + 2G TP/SFP Combo Managed Industrial Switch (-40~75 Degree C)
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**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