

## Product Specification

4-Port 10/100Base-TX + 1-Port 100Base-FX  
Wide-Temperature Unmanaged Industrial Fast Ethernet Switch

### ISW-511T & ISW-511TS15

Version 1.2

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#### Change History:

Revision	Date	Author	Change List
Version 1.0	2010/3/31	Bryant Wu	Initial release
Version 1.1	2010/10/31	Bryant Wu	1. Update power consumption 2. Update Regulatory
Version 1.2	2010/12/08	Kent	Revise the wavelength value of multimode SC connector

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Reviewed by:	Kent Kang	Approved by:	Tom Shih

## 1. PRODUCT DESCRIPTION



The PLANET entry level Industrial Ethernet Switch is industrially hardened Ethernet Switch specifically designed to operate reliably in electrically harsh and climatically demanding environments.

### Highly Convenient and Feasible Industrial Robust Switch

In the PLANET ISW-511 series Industrial Ethernet Switch, PLANET nowadays has upgraded and provided two new models named ISW-511T and ISW-511TS15 for wide temperature operation environment ranging from -40 up to 75 Degree C. As we know the temperature in many places and countries of the world are lower than -10 Degree C, these two new models, ISW-511T and ISW-511TS15, will be the right products for Transportation, Manufactory, Security and Surveillance network deployment in those harsh environments. The ISW-511T / ISW-511TS15 also 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.

### Distance Extendable and Flexibility

Each of ISW-511T / ISW-511TS15 includes four 10/100Base-TX Auto-Negotiation ports and one 100Base-FX port. The ISW-511T equips 100Base-FX multi-mode SC interfaces for transmission distance up to 2km and ISW-511TS15 equips 100Base-FX single-mode SC interfaces for transmission distance up to 15km. Users can choose the suitable model for network deployment either for long distance (ISW-511TS15) or short distance (ISW-511T) transmission.

The PLANET ISW-511T / ISW-511TS15 Series include following models.

<b>ISW-511T</b>	4+1 100FX Port Multi-mode Industrial Ethernet Switch (-40~75 Degree C)– SC/MM 2km
<b>ISW-511TS15</b>	4+1 100FX Port Single mode Industrial Ethernet Switch (-40~75 Degree C)–SC/SM 15km

### Easy Installation and Wide Range of Power Usage

The ISW-511T and ISW-511TS15 are designed with 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 12V DC to 48V DC power supply inputs for high availability applications requiring dual or backup power inputs.

## 2. PRODUCT FEATURES

### ➤ **Physical Port**

#### **ISW-511T**

- 4-Port 10/100Base-TX RJ-45
- 1-Port 100Base-FX interface for up to 2km (Multi-mode fiber 62.5/125μm / 50/125μm)

#### **ISW-511TS15**

- 4-Port 10/100Base-TX RJ-45
- Port 100Base-FX interface for up to 15km (Single mode fiber 9/125μm)

### ➤ **Industrial Design**

- Slim type IP-30 Metal case
- -40°C~75°C Operating Temperature
- DIN Rail and Wall Mount Design
- 12 to 48V DC, redundant power with polarity reverse protect function and connective removable terminal block for master and slave power
- Supports EFT protection 6000 VDC for power line
- Supports 6000 VDC Ethernet ESD protection

### ➤ **Data Communication**

- Complies with the IEEE 802.3, IEEE 802.3u, Fast Ethernet standard
- Auto-MDI/MDI-X detection and Auto-negotiation with Half-Duplex/Full-Duplex modes for all 10 /100Base-TX RJ-45 ports
- Features Store-and-Forward mode with wire-speed filtering and forwarding rates
- Prevents packet loss with back pressure (Half-Duplex) and IEEE 802.3x PAUSE frame flow control (Full-Duplex)
- Backplane (Switching Fabric): 1Gbps
- 1Mbit on-chip frame buffer
- Integrated address look-up engine, support 2K absolute MAC addresses
- CSMA/CD Protocol
- Automatic source address learning and aging
- Support to handle up to 1522 bytes packet size

## 3. PRODUCT SPECIFICATION

### 3.1 MAIN COMPONENT

<b>Switch MAC + PHY</b>	IC Plus IP178D x1	
<b>Fiber Transceiver</b>	ISW-511T	AXFE-1311-0127 Transceivers 3.3V x1
	SW-511TS15	LS32-A3C-PI-N Transceivers 3.3V x1

### 3.2 Functional Specifications

Product	ISW-511T	ISW-511TS15
<b>Hardware Specification</b>		
10/100Base-TX Ports	4 RJ-45 Auto-MDI/MDI-X ports	
100Base-FX SC Port	1	
Fiber Port Type	SC / Multi-mode	SC / Singel mode
Cable Distance	2km	15km
Optical Frequence	1310nm	1310nm
Launch Power (dBm)	Max:-14 Min: -20	Max:0 Min: -20
Receive Sensitivity (dBm)	-32	-32
Maximum Input Power (dBm)	-14	0
Installation	DIN rail kit and wall mount ear	
Enclosure	IP-30 Slim Type Metal Case	
LED	<b>System:</b> <ul style="list-style-type: none"> <li>• Power 1 (Green),</li> <li>• Power 2 (Green),</li> <li>• Fault (Green)</li> </ul> <b>4 x port copper:</b> <ul style="list-style-type: none"> <li>• 10/100 (Green)</li> <li>• Link/Activity (Green)</li> </ul> <b>1 x 100FX port:</b> <ul style="list-style-type: none"> <li>• 100 (Green),</li> <li>• LNK/ACT(Green)</li> </ul>	
Protection	ESD (Ethernet): 6KVDC Surge (Power): 6KVDC	
<b>Switch Specification</b>		
Switch Architecture	Store-and-Forward	
Switch Fabric	1Gbps / non-blocking	
Switch Throughput	0.74Mpps@64bytes	
Address Table	2K entries	
Share Data Buffer	1Mbit on-chip frame buffer	
Maximum Frame Size	1522 Bytes packet	
Flow Control	Back pressure for half duplex IEEE 802.3x Pause Frame for full duplex	
<b>Standards Conformance</b>		
Standards Compliance	IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX/100Base-FX IEEE 802.3x Flow Control and Back pressure	
Stability testing	IEC60068-2-32(Free fall), IEC60068-2-27(Shock), IEC60068-2-6(Vibration)	
Network cables	<b>10/100Base-TX:</b> <ul style="list-style-type: none"> <li>• 2-Pair UTP Cat. 3, 4, 5 (100meters, max.) EIA/TIA-568 100-ohm STP (100meters, max.)</li> </ul> <b>100Base-FX:</b> <ul style="list-style-type: none"> <li>• Multi-mode optic fiber 62.5/125µm / 50/125µm (2km)</li> </ul>	

	<ul style="list-style-type: none"> <li>• Single-mode optical fiber 9/125μm (15km)</li> </ul>
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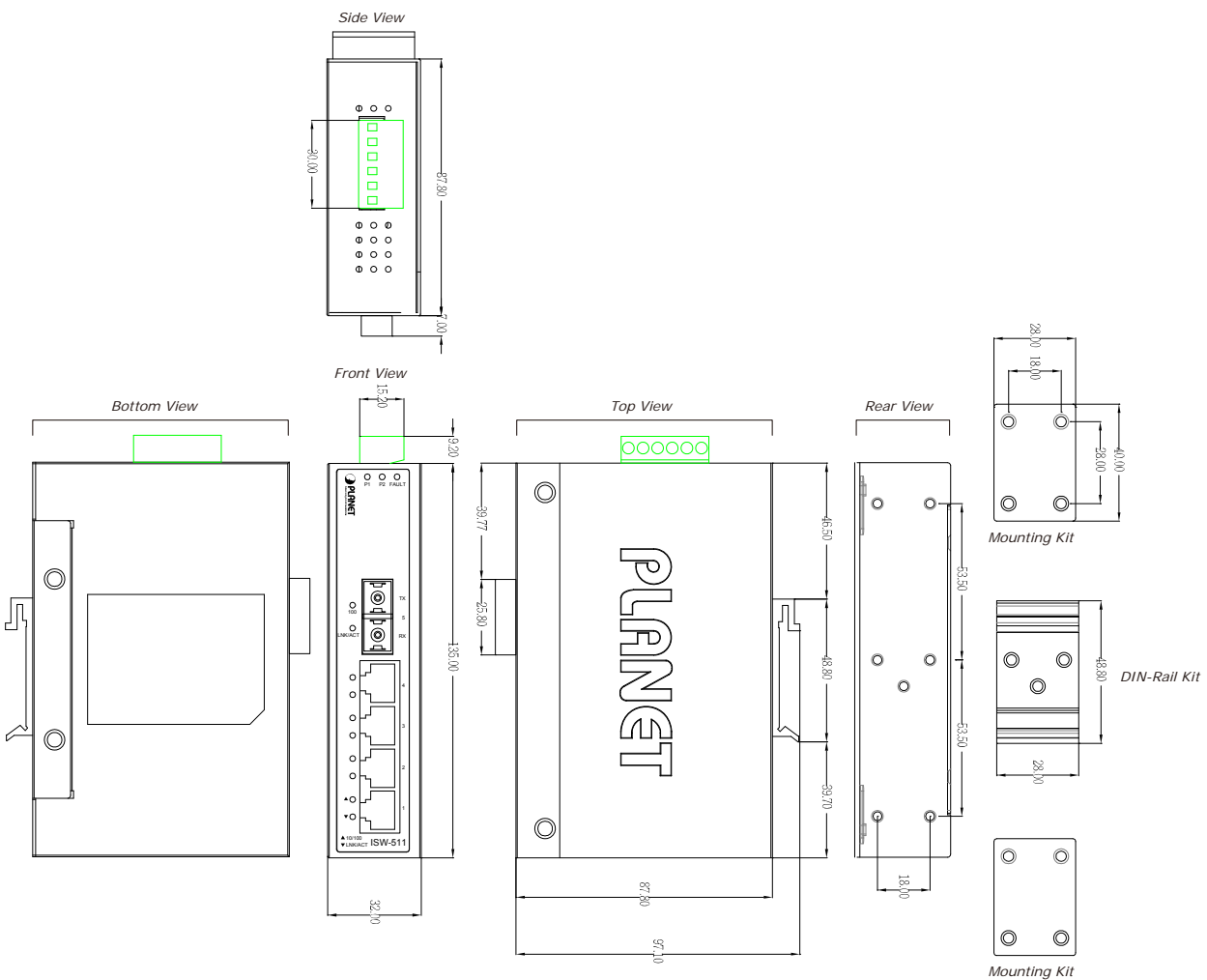
### 3.3 Physical Specification

**Dimensions:**

135mm x 97mm x 32mm (W x D x H)

**Weight:**

436g



**Dimensions ( unit = mm )**

## LED Definition

### > System

LED	Color	Function
P1	Green	Lit: indicate the power 1 has power.
P2	Green	Lit: indicate the power 2 has power.
FAULT	Green	Lit: indicate the either power 1 or power 2 has no power.

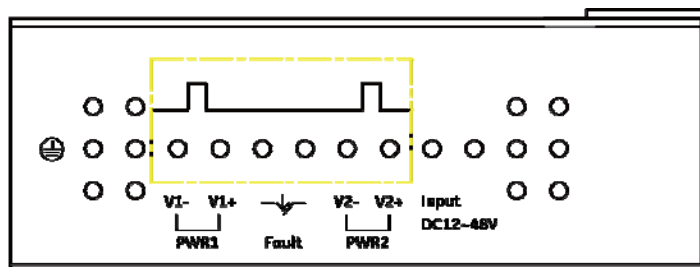
### > 10/100Base-TX RJ-45

LED	Color	Function
10/100	Green	Lit: indicate the Switch is successfully connecting to the network at 100Mbps. Off: indicate that the Switch is successfully connecting to the network at 10Mbps.
LNK/ACT	Green	Lit: To indicate the link through that port is successfully established. Blink: To indicate that the switch is actively sending or receiving data over that port.

### > 100Base-FX SC Fiber Interface

LED	Color	Function
100	Green	Lit: indicate the Switch is successfully connecting to the network at 100Mbps.
LNK/ACT	Green	Lit: To indicate the link through that port is successfully established. Blink: To indicate that the switch is actively sending or receiving data over that port.

## ■ Upper panel



## 3.4 Environmental Specification

### Operating

Model	ISW-511T	ISW-511TS15
Temperature:	-40~75 Degree C	
Relative Humidity:	0~90% RH (non-condensing)	

### Storage

Temperature: -40~85 Degree C

Relative Humidity: 10~90% RH (non-condensing)

### 3.5 Electrical Specification

	ISW-511T	ISW-511TS15
<b>Power requirement:</b>	12~48 VDC, Redundant power with polarity reverse protection function	
<b>Power Consumption:</b>	9.1Watts / 31BTU max	9.1Watts / 31BTU max

### 3.6 Regulatory Compliance

**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

### 3.7 Reliability

MTBF > 100,000Hrs @ 25°C

### 3.8 BASIC PACKAGING

- Industrial Fast Ethernet Switch x 1
- User's manual x 1
- DIN rail kit x 1
- Wall mount kit x 1

### 3.9 PACKING DIMENSION

**Dimension:** 410mm (W) x 310mm (D) x 265mm (H)

**Weight:** 10.5kg (Gross weight)

18pcs in one carton