

## Product Specification

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

**ISW-511**  
**ISW-511S15**

Version 1.0

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Change History:

Revision	Date	Author	Change List
Version 1.0	2009/02/09	Neo Tsai	Initial release

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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.

The ISW-511 series provides a high level of immunity to electromagnetic interference and heavy electrical surges typical of environments found on plant floors or in curb side traffic control cabinets. The feature of operating temperature range of -10 to 60 Degree C coupled with hazardous location certification (Class 1 Division 2) allows the Switch to be placed in almost any location.

The ISW-511 series is packaged in a compact, IP-30 standard metal that allows either DIN or panel mounting for efficient use of cabinet space. The switch provides an integrated power supply with a wide range of voltages (12 to 48V DC) for worldwide operability or dual-redundant, reversible polarity, 24V DC and 48V DC power supply inputs for high availability applications requiring dual or backup power inputs.

The ISW-511 Series provides one 100Base-FX optic-fiber SC interface. It provides multi-mode or Single mode 100Base-FX SC interface and the fiber transmit distance can be 2km or 15km away for link to remote backbone.

The PLANET ISW-511 Series include following models.

- |                   |  |
|-------------------|--|
| <b>ISW-511</b>    | 4+1 100FX Port Multi-mode Industrial Ethernet Switch (-10~60 Degree C)– SC/MM 2km  |
| <b>ISW-511S15</b> | 4+1 100FX Port Single mode Industrial Ethernet Switch (-10~60 Degree C)–SC/SM 15km |

## 2. PRODUCT FEATURES

### ➤ **Physical Port**

#### **ISW-511**

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

#### **ISW-511S15**

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

### ➤ **Industrial Design**

- Slim type IP-30 Metal case
- Operating Temperature from -10°C~60°C for ISW-511 / ISW-511S15
- 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
- Store-and-Forward Switching Architecture
- 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): ISW-511 Series: 1Gbps
- 1Mbit on-chip frame buffer on ISW-511 Series
- 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

Switch MAC + PHY	IC Plus IP178D	
Fiber Transceiver	ISW-511	AFBR-5803Z Transceivers 3.3V
	ISW-511S15	APAC Opto LS32-A3C-DC-N Transceivers 3.3V

### 3.2 Functional Specifications

Product	ISW-511	ISW-511S15
<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 Frequency	1310nm	1310nm
Launch Power (dBm)	Max:-14 Min: -19.0	Max:-7 Min: -20
Receive Sensitivity (dBm)	-34.5	-28
Maximum Input Power (dBm)	-14	-8
Switch Architecture	Store-and-Forward	
Switch Fabric	1Gbps / non-blocking	
Switch Throughput	0.744Mpps@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	
Enclosure	IP-30 Slim Type Metal Case	
LED	<p><b>System:</b></p> <ul style="list-style-type: none"> <li>• Power 1 (Green),</li> <li>• Power 2 (Green),</li> <li>• Fault (Green)</li> </ul> <p><b>4 port copper:</b></p> <ul style="list-style-type: none"> <li>• 10/100 (Green)</li> <li>• Link/Activity (Green)</li> </ul> <p><b>1 100FX port:</b></p> <ul style="list-style-type: none"> <li>• 100 (Green),</li> <li>• LNK/ACT(Green)</li> </ul>	
Protection	ESD (Ethernet): 6KVDC Surge (Power): 6KVDC	
<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	<p>10/100Base-TX:</p> <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> <p>100Base-FX:</p> <ul style="list-style-type: none"> <li>• Multi-mode optic fiber 50/125µm(2km, max.).</li> <li>• Single-mode optic fiber 9/125µm (15km, max.)</li> </ul>	

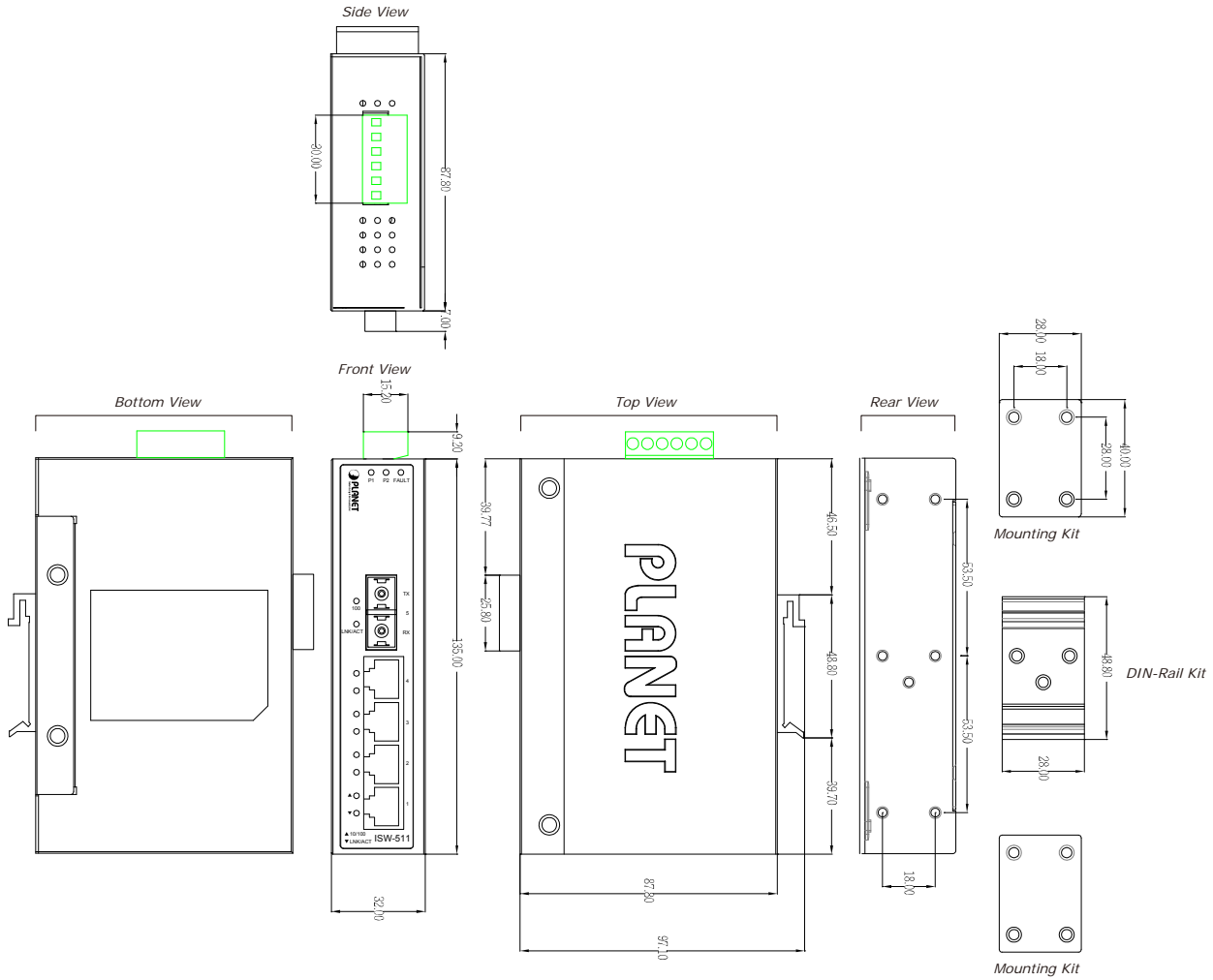
### 3.3 Physical Specification

**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	<b>Green</b>	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	<b>Green</b>	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	<b>Green</b>	Lit: indicate the Switch is successfully connecting to the network at 100Mbps.
LNK/ACT	<b>Green</b>	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.

## 3.4 Environmental Specification

### Operating

<b>Model</b>	ISW-511	ISW-511S15
<b>Temperature:</b>	-10~60 Degree C	
<b>Relative Humidity:</b>	0~90% RH (non-condensing)	

### Storage

Temperature: -40~85 Degree C  
 Relative Humidity: 10~90% RH (non-condensing)

### 3.5 Electrical Specification

**Input Voltage:**

External Power Supply: DC 12V~48V,

Redundant power DC 12V~48V and connective removable terminal block for master and slave power

**Power Consumption:**

9.1Watts / 31BTU max @ 12V

### 3.6 Regulatory Compliance

FCC Part 15 Class A, CE

### 3.7 Reliability

MTBF > 50,000Hrs

### 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