

# Product Specifications

## Industrial 16-Port 10/100TX Fast Ethernet Switch

### ISW-1600T

Version 1.0

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#### Change History:

Revision:	Date:	Author:	Change List
Version 1.0	2019/5/10	Marc Liao	Initial Release

Author:	Marc Liao	Editor:	Marc Liao
Reviewed By:		Approved By:	Kent Kang

## 1. PRODUCT DESCRIPTION



PLANET ISW-1600T **Industrial high-density 16-port 10/100TX Fast Ethernet Switch** is equipped with a rugged IP30 metal case for stable operation in heavy industrial demanding environments. Thus, the ISW-1600T provides a high level of immunity against electromagnetic interference and heavy electrical surges which are usually found on plant floors or in curbside traffic control cabinets.

### **Environmentally Hardened Design**

The ISW-1600T possesses an integrated power supply source with a 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 wide temperature range from **-40 to 75 degrees C**, the ISW-1600T can be placed in almost any difficult environment. The ISW-1600T also allows either DIN rail or wall mounting for efficient use of cabinet space.

### **Robust Protection**

The ISW-1600T provides a contact discharge of  $\pm 6\text{KV}$  DC and air discharge of  $\pm 6\text{KV}$  DC for Ethernet ESD protection. It also supports  $\pm 6\text{KV}$  surge immunity to improve product stability and protects users' networks from devastating ESD attacks, making sure the flow of operation does not fluctuate.

## Energy Savings

The ISW-1600T, integrated with advanced green networking technologies and **IEEE 802.3az Energy Efficient Ethernet (EEE)** protocol based power saving, is able to provide power savings of up to 50% but maintain high performance efficiently.

### ■ Link Down power savings

The Link Down power savings goes beyond IEEE specifications to automatically lower power consumption for a given port when it is not linked. With the Link Down power saving technology, the ISW-1600T will automatically adjust power usage of the ports that are shut down or not connected to network device.

### ■ Intelligent power scale based on cable length

Intelligent power scale is an intelligent algorithm that actively determines the appropriate power level based on cable length. When the ISW-1600T is connected with Ethernet cable shorter than 20m, a device can obtain maximum power savings because the ISW-1600T would automatically detect the Ethernet cable length and diminish power usage. The connected device can substantially reduce the overall power consumption, which makes a significant contribution to energy savings.

## 2. PRODUCT FEATURES

### ▶ **Physical Port**

- 16-port 10/100BASE-TX RJ45 with auto MDI/MDI-X function

### ▶ **Layer 2 Features**

- Complies with IEEE 802.3 10BASE-T, IEEE 802.3u 100BASE-TX Ethernet standard
- Supports auto-negotiation and 10/100Mbps half/full duplex mode
- Prevents packet loss with back pressure (half-duplex) and IEEE 802.3x pause frame flow control (full-duplex)
- Complies with IEEE 802.3az Energy Efficient Ethernet (EEE)
- IEEE 802.1p CoS
- Supports 16K MAC address
- 16K jumbo packet support
- Automatic address learning and address aging

### ▶ **Industrial Case and Installation**

- IP30 metal case
- DIN-rail and wall-mount designs
- 12 to 48V DC, redundant power with reverse polarity protection
- 24V AC power input
- Supports 6000 VDC Ethernet ESD protection
- -40 to 75 degrees C operating temperature
- Free fall, shock-proof and vibration-proof for industries

### 3. PRODUCT SPECIFICATIONS

#### 3.1 MAIN COMPONENTS

<b>Switch ASIC:</b>	IC Plus IP1829AI	x 1
<b>EEPROM:</b>	AT24C16C	x 1
<b>LED Controller:</b>	IP403	x 1

#### 3.2 FUNCTION SPECIFICATIONS

<b>Product</b>	<b>ISW-1600T</b>
<b>Hardware Specifications</b>	
<b>Fast Ethernet Copper Ports</b>	16 10/100BASE-TX RJ45 auto-MDI/MDI-X ports
<b>Switch Architecture</b>	Store-and-Forward
<b>Switch Fabric</b>	3.2Gbps (non-blocking)
<b>Throughput (packet per second)</b>	2.38Mpps@ 64 bytes
<b>Address Table</b>	16K entries, automatic source address learning and aging
<b>Jumbo Packet Size</b>	16K
<b>Shared Data Buffer</b>	4Mbits
<b>Flow Control</b>	IEEE 802.3x pause frame for full duplex Back pressure for half duplex
<b>ESD Protection</b>	6KV DC
<b>Enclosure</b>	IP30 metal case
<b>Installation</b>	DIN-rail kit and wall-mount kit
<b>Connector</b>	Removable 6-pin terminal block for power input Pin 1/2 for Power 1, Pin 3/4 for fault alarm, Pin 5/6 for Power 2
<b>Alarm</b>	One relay output for power failure. Alarm relay current carry ability: 1A @ 24V DC
<b>Power Requirements</b>	Dual 12~48V DC, 24V AC
<b>Power Consumption</b>	Max. 5.3 watts/18BTU (Ethernet full loading)
<b>Standards Conformance</b>	
<b>Standards Compliance</b>	IEEE 802.3 10BASE-T IEEE 802.3u 100BASE-TX IEEE 802.3x flow control and back pressure IEEE 802.1p Class of Service IEEE 802.3az Energy Efficient Ethernet (EEE)
<b>Environment</b>	
<b>Operating Temperature</b>	-40 ~ 75 degrees C
<b>Storage Temperature</b>	-40 ~ 85 degrees C
<b>Humidity</b>	5 ~ 95% (non-condensing)

### 3.3 PHYSICAL SPECIFICATIONS:

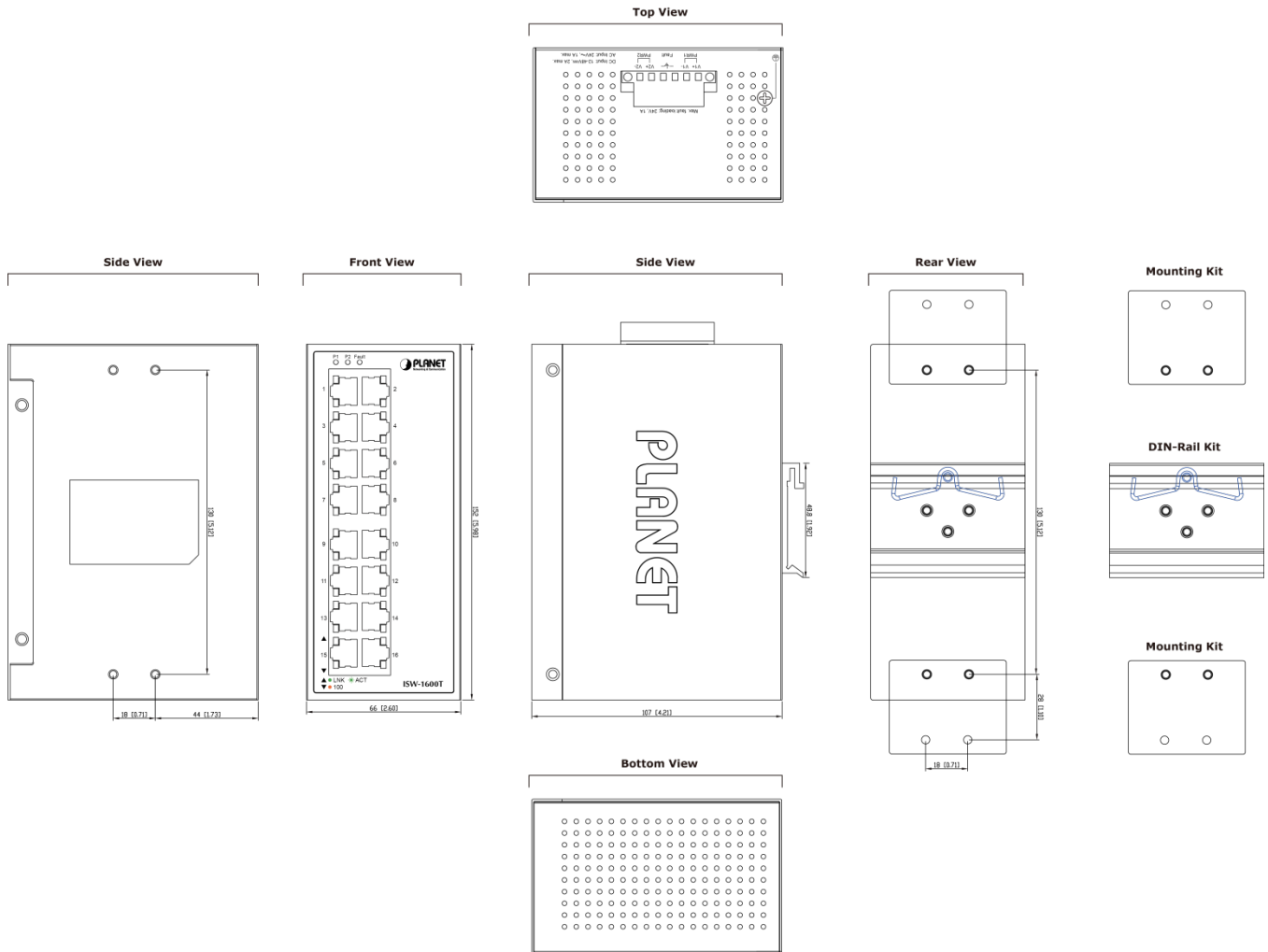
■ **Dimensions:**

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

■ **Weight:**

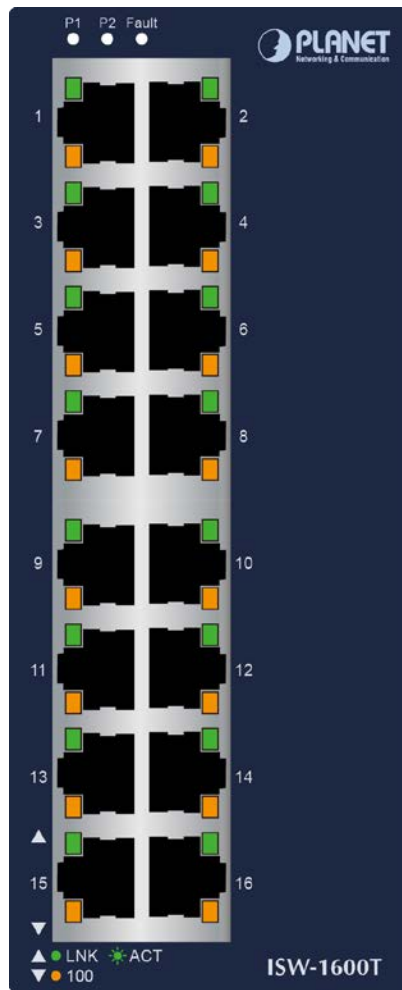
750g

■ **Diagram**



Unit: mm

■ Front Panel:



■ LED Definition

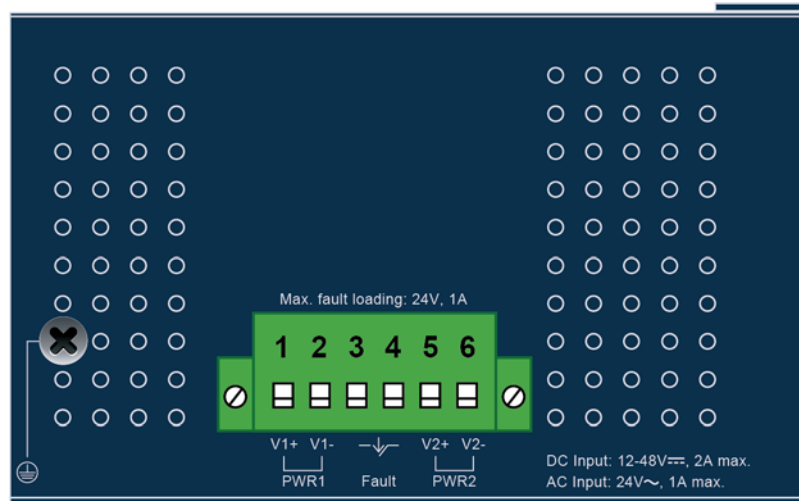
► System

LED	Color	Function
DC1	Green	Lights to indicate DC power input 1 has power.
DC2	Green	Lights to indicate DC power input 2 has power.
Fault	Red	Lights to indicate that AC or DC power has failed.

► Per 10/100BASE-TX Port

LED	Color	Function
LNK/ACT	Green	Lights to indicate the link through that port is successfully established.
		Blinking to indicate that the switch is actively sending or receiving data over that port.
		Off to indicate that the port is linked down.
100 Speed	Amber	Lights to indicate that the port is operating at <b>100Mbps</b> .
		Off to indicate that the port is operating at <b>10Mbps</b> .
		Off to indicate that the port is linked down.

■ Top View



**3.4 ENVIRONMENTAL SPECIFICATIONS**

**Operating:**

**Temperature:** -40°C ~ 75 degrees C

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

**Storage:**

**Temperature:** -40°C ~ 85 degrees C

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

**3.5 ELECTRICAL SPECIFICATION**

LOADING \ INPUT	System on without any devices attached	Port-1~Port-16 Link Up with Full Loading
DC 12V	1.32 watts/4.5BTU	2.88 watts/9.8BTU
DC 24V	1.2 watts/4BTU	2.88 watts/9.8BTU
DC 48V	1.44 watts/4.9BTU	2.88 watts/9.8BTU
DC 56V	1.68 watts/5.7BTU	2.88 watts/9.8BTU
AC 24V	3.5 watts/11.9BTU	5.3 watts/18BTU

**3.6 REGULATORY COMPLIANCE**

FCC Part 15 Class A, CE

**Stability Testing:**

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



### 3.7 RELIABILITY

MTBF > 100,000Hrs @ 25 degrees C

### 3.8 BASIC PACKAGING

<input checked="" type="checkbox"/> The ISW-1600T	x 1
<input checked="" type="checkbox"/> User's Manual	x 1
<input checked="" type="checkbox"/> DIN-rail Kit	x 1
<input checked="" type="checkbox"/> Wall Mounting Kit	x 1
<input checked="" type="checkbox"/> RJ45 Dust Cap	x 16

### 3.9 PACKING INFORMATION

<b>Box Dimensions (W x D x H)</b>	300 x 170 x 90 mm
<b>Weight</b>	993g
<b>Carton Dimensions (W x D x H)</b>	385 x 340 x 490 mm
<b>Carton Weight</b>	10.8kg
<b>Quantity</b>	10pcs in one carton