

Product Specifications

Industrial 4-Port 10/100/1000T 802.3bt PoE + 2-Port 10/100/1000T + 2-Port 100/1000X SFP Gigabit Ethernet Switch

IGS-824UPT

Version 1.0

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Change History:

Revision:	Date:	Author:	Change List
Version 1.0	2020/06/04	Ricebean	Initial Release

Author:	Ricebean	Editor:	Kent Kang
Reviewed By:		Approved By:	Kent Kang

1. PRODUCT DESCRIPTION



Outstanding 802.3bt PoE++ Solution for Hardened Environment

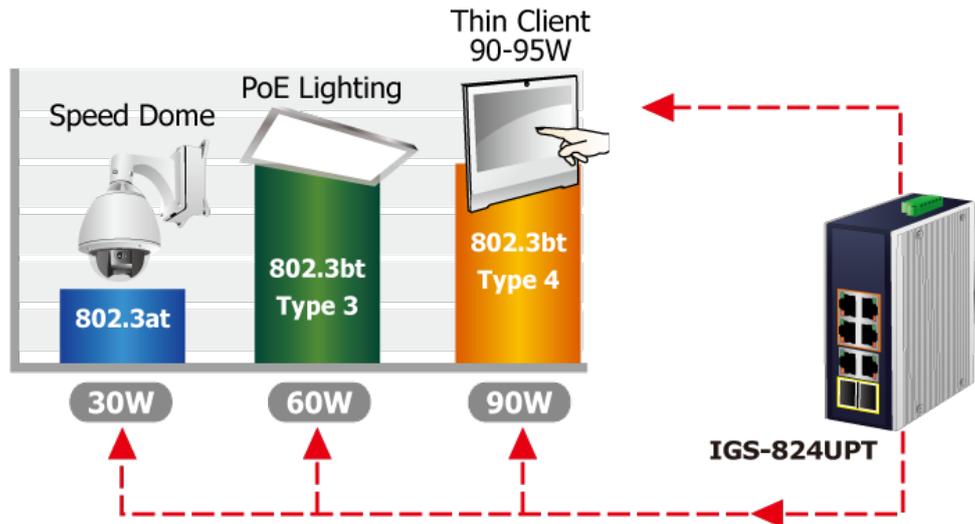
Featuring Plug and Play designed to be installed in heavy industrial demanding environments, the IGS-824UPT is a PLANET Industrial-grade, DIN-rail type Unmanaged Gigabit Ethernet Switch with **four 10/100/1000BASE-T** ports featuring IEEE **802.3bt Power over Ethernet Plus Plus (PoE++)** injector function to deliver up to **95 watts** of power output and high data transmission speed to PDs (powered devices) installed in a remote area where sufficient and reliable power input is required. Its **two 100/1000BASE-X** SFP fiber optic uplink ports provide long distance, high speed and stable data transmission to a remote core network.

The IGS-824UPT is designed with redundant power system and is able to operate reliably, stably and quietly in any hardened environment without affecting its performance. It comes with a total power budget of up to **240 watts** for different kinds of PoE applications and operating temperature ranging from **-40 to 75 degrees C** in a rugged IP30 metal housing.

802.3bt PoE++ – 90~95-watt Power over 4-pair UTP Solution

As the IGS-824UPT adopts the **IEEE 802.3bt PoE++** standard and **PoH** technology, it is capable to source up to 95 watts of power by using all the four pairs of standard Cat5e/6 Ethernet cabling to deliver power and full-speed data to each remote PoE compliant powered device (PD). It possesses triple amount of power capability than the conventional 802.3at PoE+ and is an ideal solution to satisfy the growing demand for higher power consuming network PDs, such as:

- PoE PTZ speed dome cameras
- Thin clients
- AIO (all-in-one) touch PCs, point of sale (POS) and information kiosks
- Remote digital signage displays
- PoE lightings



Intelligent LED Indicator for Real-time PoE Usage

The IGS-824UPT helps users to monitor the current status of PoE power usage easily and efficiently via its advanced LED indicator. On the front panel of the Industrial Gigabit PoE++ Switch, there are three different power usage LED indicators indicating 80W, 160W and 240W.



Fiber Optic Link Capability for Flexible Distance Extension

The additional two mini-GBIC slots built in the IGS-824UPT supports SFP auto-detection and dual speed as it features **100BASE-FX** and **1000BASE-SX/LX SFP** (small form-factor pluggable) fiber-optic modules, meaning the administrator now can flexibly choose the suitable SFP transceiver according to the transmission distance or the transmission speed required to extend the network efficiently. The distance can be extended from 550 meters to 2 kilometers (multi-mode fiber) and 10/20/40/60/80/120 kilometers (single-mode fiber or WDM fiber). They are well suited for applications to uplink to backbone switch and monitoring center in long distance.

Dual Power Input for High Availability Network System

The IGS-824UPT features a strong dual power input system with 48~54V DC to enhance system reliability and uptime. In the example below, when power supply 1 fails to work, the hardware failover function will be activated automatically to keep powering the IGS-824UPT via power supply 2 alternatively without any loss of operation.

Environmentally Hardened Design

With the **IP30** aluminum case, the IGS-824UPT 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 without air conditioning. It features a ventilated construction in which a cooling fan is not necessary, thereby making its operation noiseless. Being able to operate under the temperature range from **-40 to 75 degrees C**, the IGS-824UPT can be placed in almost any difficult environment.

Robust Protection

The IGS-824UPT provides contact discharge of $\pm 6\text{KV}$ DC and air discharge of $\pm 8\text{KV}$ 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.

2. PRODUCT FEATURES

Interface

- 6 10/100/1000BASE-T Gigabit Ethernet RJ45 copper ports
- Two SFP slots, supporting 1000BASE-X and 100BASE-FX transceiver in dual modes

Power over Ethernet

- Complies with IEEE 802.3bt Power over Ethernet Plus Plus type 4 PSE
- Backward compatible with IEEE 802.3at Power over Ethernet Plus
- Up to 4 ports of IEEE 802.3bt/at devices powered
- Up to 240-watt PoE budget
- Supports PoE power up to 95 watts for each PoE port
- Each port supports 48~54V DC power to PoE powered device
- Auto detects powered device (PD)
- Auto detects IEEE 802.3bt equipment and protects devices from being damaged by incorrect installation
- Circuit protection prevents power interference between ports
- Remote power feeding up to 100m

Industrially Hardened Design

- IP30 aluminum case
- DIN-rail and wall-mount designs
- 48~54V DC redundant power with reverse polarity protection
- Fault alarm for power input failed
- Supports 6KV DC Ethernet ESD protection
- -40 to 75 degrees C operating temperature
- 4 real-time PoE power usage indicators

Layer 2 Switching

- Features Store-and-Forward mode with wire-speed filtering and forwarding rates
- IEEE 802.3x flow control for full duplex operation and back pressure for half duplex operation
- 4K MAC address table size
- 9K jumbo frame
- IEEE 802.1Q VLAN transparency
- Automatic address learning and address aging
- Supports CSMA/CD protocol

3. PRODUCT SPECIFICATIONS

3.1 MAIN COMPONENTS

Switch ASIC:	Realtek RTL8370MBI	x 1
PoE Controller	Microchip PD69200C(v3.49)	x 1
PoE PSE IC	Microchip PD69208T4	x 1

3.2 FUNCTION SPECIFICATIONS

Model	IGS-824UPT
Hardware Specifications	
Copper Ports	6 10/100/1000BASE-T RJ45 auto-MDI/MDI-X ports
PoE Injector Ports	Four ports with 802.3bt PoE++ injector function (Port-1 to Port-4)
SFP Slots	2 1000BASE-SX/LX/BX SFP interfaces Compatible with 100BASE-FX SFP
Connector	Removable 6-pin terminal block Pin 1/2 for Power 1 Pin 3/4 for fault alarm Pin 5/6 for Power 2
Power Requirements	48~54V DC, 5A max. Redundant power with reverse polarity protection
Power Consumption	Max. 2.24 watts/7.64BTU (System on) Max. 5.2 watts/17.74BTU (Ethernet Full Loading) Max. 252 watts/860BTU (Ethernet + PoE Full Loading)
Dimensions (W x D x H)	56 x 86.1 x 135 mm
Weight	777g
Enclosure	IP30 aluminum case
Installation	DIN-rail kit and wall-mount kit
ESD Protection	6KV
Switch Specifications	
Switch Architecture	Store-and-Forward
Switch Fabric	16Gbps
Throughput (packet per second)	11.9Mpps@64bytes
Address Table	4K entries
Buffer Memory	1M bits on-chip buffer memory
Jumbo Frame	9Kbytes
Flow Control	Back pressure for half duplex IEEE 802.3x pause frame for full duplex

Power over Ethernet	
PoE Standard	IEEE 802.3bt Power over Ethernet Plus Plus type 4 PSE Backward compliant with 802.3at Power over Ethernet Plus PSE
PoE Power Supply Type	802.3bt/PoH End-span/Mid-span
PoE Power Output	Max. 90 watts to 802.3bt PoE++ PD Max. 95 watts to PoH PD Max. 36 watts to 802.3at PoE+ PD
Power Pin Assignment	Pair 1 End-span: 1/2(-), 3/6(+) Pair 2 Mid-span: 4/5(+), 7/8(-) 802.3bt/PoH: 1/2(-), 3/6(+), 4/5(+), 7/8(-)
PoE Power Budget (max.)	240 watts maximum@52-54V DC input 160 watts maximum@48-51V DC input
Standards Conformance	
Regulatory Compliance	FCC Part 15 Class A, CE
Stability Testing	IEC 60068-2-32 (free fall) IEC 60068-2-27 (shock) IEC 60068-2-6 (vibration)
Standards Compliance	IEEE 802.3 Ethernet IEEE 802.3u Fast Ethernet IEEE 802.3ab Gigabit Ethernet IEEE 802.3az Gigabit SX/LX IEEE 802.3x Full-Duplex Flow Control IEEE 802.3az Energy Efficient Ethernet (EEE) IEEE 802.3bt Power over Ethernet Plus Plus PSE IEEE 802.3at Power over Ethernet Plus PSE IEEE 802.3af Power over Ethernet Plus IEEE 802.1p Class of Service
Environment	
Temperature	Operating: -40~75 degrees C Storage: -40~75 degrees C
Humidity	Operating: 5~90% (non-condensing) Storage: 5~90% (non-condensing)

3.3 PHYSICAL SPECIFICATIONS:

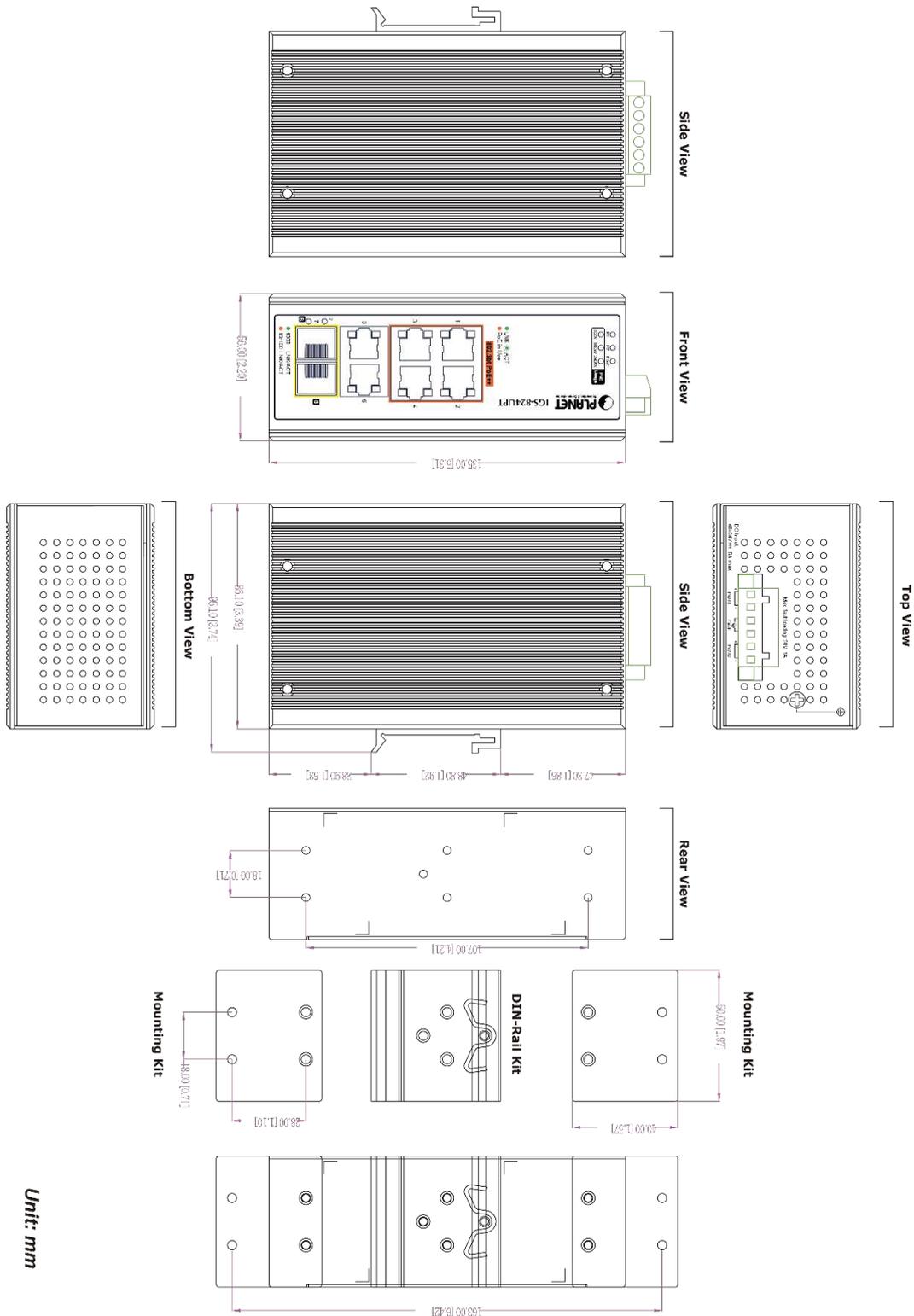
■ **Dimensions:**

56 x 86.1 x 135 mm (W x D x H)

■ **Weight:**

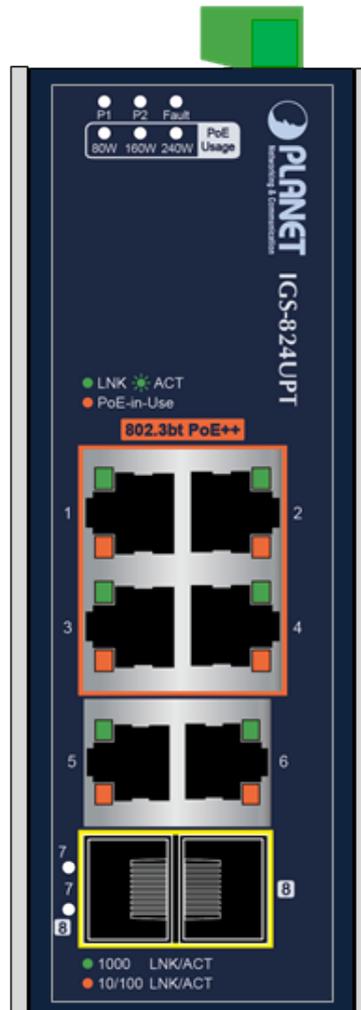
777g

■ **Diagram**



Unit: mm

■ Front Panel:



■ LED Definition

► System

LED	Color	Function
P1	Green	Lights to indicate power 1 has power.
P2	Green	Lights to indicate power 2 has power.
Fault	Red	Lights to indicate either power 1 or power 2 has no power.

PoE Power Usage (Unit: Watt)

LED	Color	Function
80W	Amber	Blinks to indicate that the PoE usage is around 40W to 79W. Lights to indicate the PoE usage is around/over 80W.
160W	Amber	Blinks to indicate that the PoE usage is around 120W to 159W. Lights to indicate the PoE usage is around/over 160W.
240W	Amber	Blinks to indicate that the PoE usage is around 200W to 239W. Lights to indicate the PoE usage is at the maximum.

► Per 802.3at PoE+ 10/100/1000BASE-T Interface (Port 1 to Port 4)

LED	Color	Function
LNK/ACT	Green	Lights to indicate the link through that port is successfully established at 10Mbps or 100Mbps or 1000Mbps. Blinks to indicate that the switch is actively sending or receiving data over that port.
PoE-in-Use	Amber	Lights to indicate the port is providing DC in-line power. Off to indicate the connected device is not a PoE powered device (PD).

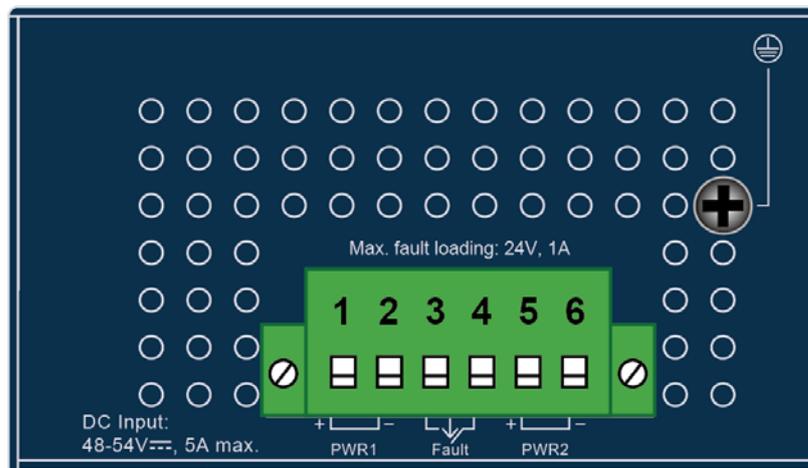
► Per 10/100/1000BASE-T Interface (Port 5 and Port 6)

LED	Color	Function
1000 LNK/ACT	Green	Lights to indicate the port is successfully established at 1000Mbps. Blinks to indicate that the Switch is actively sending or receiving data over that port.
10/100 LNK/ACT	Amber	Lights to indicate the port is successfully established at 100Mbps or 10Mbps. Blinks to indicate that the Switch is actively sending or receiving data over that port.

► Per 100/1000BASE-X SFP Slot (Port 7 and Port 8)

LED	Color	Function
1000 LNK/ACT	Green	Lights to indicate the port is successfully established at 1000Mbps. Blinks to indicate that the Switch is actively sending or receiving data over that port.
100 LNK/ACT	Amber	Lights to indicate the port is successfully established at 100Mbps Blinks to indicate that the Switch is actively sending or receiving data over that port.

■ 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-8 Link Up with Data Full Loading	Port-1~Port-8 Link Up with Data + PoE Full Loading
DC 48V	1.92W	4.8W	187.76W
DC 52V	2.08W	5.2W	216.32W
DC 54V	2.24W	5.04W	252W

3.6 REGULATORY COMPLIANCE

FCC:

- 47 CFR FCC Part 15 Subpart B (Class A)
ANSI C63.4: 2014
- ICES-003 Issue 6 (Class A)
ANSI C63.4: 2014

CE:

- EN 55032: 2015+AC: 2016
- EN 55035: 2010+A1: 2015
- EN 55035: 2017

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 IGS-824UPT	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 6
<input checked="" type="checkbox"/> SFP Dust Cap	x 2

3.9 PACKING INFORMATION

Box Dimensions (W x D x H):	202 x 140 x 94 mm
Weight (gross weight):	974 g
Carton Dimensions (W x D x H):	600 x 239 x 332 mm
Carton Weight (gross weight):	12.3 kg
Quantity:	12pcs in one carton