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Networking & Communication

Product Specifications

Industrial IP67 8-Port 10/100TX M12 802.3at PoE+ Switch (-40~75 degrees C)

ISW-808PT-M12

Version 1.0

Change History:

Revision	Date	Author	Change List
Version 1.0	2020/3/13	Marc Liao	Initial Release

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

1. PRODUCT DESCRIPTION

Reliable Data and Power over Ethernet

PLANET ISW-808PT-M12 is an industrial-grade robust and vibration-proof PoE+ switch for a wide range of applications in factories or moving trains as it guarantees a reliable performance under vibration and shock. It features **eight 10/100BASE-TX** auto-negotiation **waterproof/dustproof M12** connectors with **IEEE 802.3at PoE+** injector function; each PoE+ port provides **36 watts** of PoE output. The M12 connector provides tight and strong connection, and ensures stable Ethernet operating performance withstanding humidity, dirt, dust, shock, vibrations, heat and cold. The compact, IP67-rated aluminum case of the ISW-808PT-M12 allows either DIN-rail or wall mounting for efficient use of cabinet space.

Environmentally-hardened Design

Being able to operate under the temperature range from **-40** to **75 degrees C**, the ISW-808PT-M12, equipped with a tough IP67-rated industrial aluminum case, 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. It ensures the highest level of reliability for mission-critical applications in any difficult environment.

Convenient and Reliable Power System

To facilitate the 802.3at PoE usage with commonly-used 12~54V DC power input for transportation and industrial-level applications, the ISW-808PT-M12 adopts the 12~54V DC to 54V power boost technology to solve power source issue but does not require special power supplies. Its wide-ranging voltages design is suitable for worldwide operability with high availability applications requiring dual or backup power inputs.

Intelligent LED Indicator for Real-time PoE Usage

The ISW-808PT-M12 helps users to monitor current status of PoE power usage easily and efficiently by its advanced LED indication. Called "PoE Power Usage", the front panel of the ISW-808PT-M12 has three orange LEDs indicating 60W,120W and 180W of PoE power usage.

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High Performance

The ISW-808PT-M12 has 2K MAC address table and offers wire-speed packets transfer performance without the risk of packet loss. The high data throughput of the device makes it ideal for most Gigabit environments. With a 1.6Gbps internal switching fabric and featuring auto negotiation support in each Fast Ethernet port, the ISW-808PT-M12 can handle large amounts of data in a secure topology linking to a backbone or high capacity servers.

Easy Installation

The flow control function enables the ISW-808PT-M12 to provide fast and reliable data transfer. All of the M12 RJ45 copper interfaces in the ISW-808PT-M12 support 10/100Mbps auto-negotiation for optimal speed detection through RJ45 Category 3, 4, 5, 5e, 6 cables. The standard auto-MDI/MDI-X support can detect the type of connection to any Ethernet device without requiring special straight-through or crossover cables.

2. PRODUCT FEATURES

➢ **Physical Port**
- 8-port 10/100BASE-TX with waterproof/dustproof M12 connectors and IEEE 802.3at PoE+ injector function

➢ **Power over Ethernet**
- Its end-span PSE complies with IEEE 802.3at Power over Ethernet Plus.
- Backward compatible with IEEE 802.3af Power over Ethernet
- Up to 8 ports of IEEE 802.3af/802.3at devices powered
- 180-watt PoE budget
- Supports PoE power up to 36 watts for each PoE port
- Auto detects powered device (PD)
- Circuit protection prevents power interference between ports
- Remote power feeding up to 100 meters

➢ **Layer 2 Features**
- Supports auto-negotiation and 10/100Mbps half/full duplex mode
- High-performance Store and Forward architecture; runt/CRC filtering eliminates erroneous packets to optimize the network bandwidth
- Prevents packet loss with back pressure (half-duplex) and IEEE 802.3x pause frame flow control (full-duplex)
- Backplane (switching fabric): 1.6Gbps
- Integrated address look-up engine, supporting 2K absolute MAC addresses
- Automatic address learning and address aging
- CSMA/CD Protocol

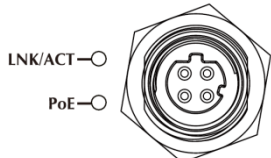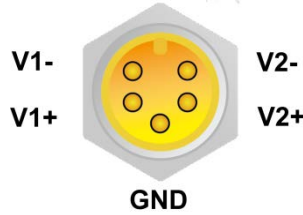➢ **Industrial Case and Installation**
- IP67 aluminum case
- Waterproof/dustproof and fanless designs
- DIN-rail and wall-mount installation
- Redundant power design
  - 12 to 56V DC, redundant power with reverse polarity protection
  - Active-active redundant power failure protection
  - Backup of catastrophic power failure on one supply
  - Fault tolerance and resilience
- Supports 6KV DC Ethernet ESD protection
- Supports 6KV surge protection
- -40 to 75 degrees C operating temperature

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3. PRODUCT SPECIFICATIONS

3.1 MAIN COMPONENTS

Switch ASIC: IC Plus IP178GI x1
Power over Ethernet Controller: IC Plus IP808AR x1

3.2 Functional Specifications

Model	ISW-808PT-M12
Hardware Specifications	
Copper Ports	8 x M12, 4-pin D-coded female connector 10/100BASE-TX auto-MDI/MDI-X
IEEE 802.3at PoE+ Ports	8, port 1 to port 8
Power Connector	1 x M23, 5-pin A-coded male connector
Enclosure	IP67 aluminum case
Dimensions (W x D x H)	124 x 53 x 204mm
Weight	1.75kg
Installation	Wall-mount and DIN-rail kit
Power requirements	Dual 12~56V DC
Power Consumption	Max. 194.8 watts/664 BTU
ESD Protection	6KV DC
Surge Protection	6KV DC
Network Cables	10BASE-T: 2-pair UTP Cat.3,4,5 up to 100m (328ft) 100BASE-TX: 2-pair UTP Cat.5, 5e, 6 up to 100m (328ft) EIA/TIA-568 100-ohm STP (100m, max.)
Power over Ethernet	

PoE Standard	IEEE 802.3at Power over Ethernet Plus / PSE
PoE Power Supply Type	End-span
PoE Power Output	54V DC per port with maximum of 36 watts

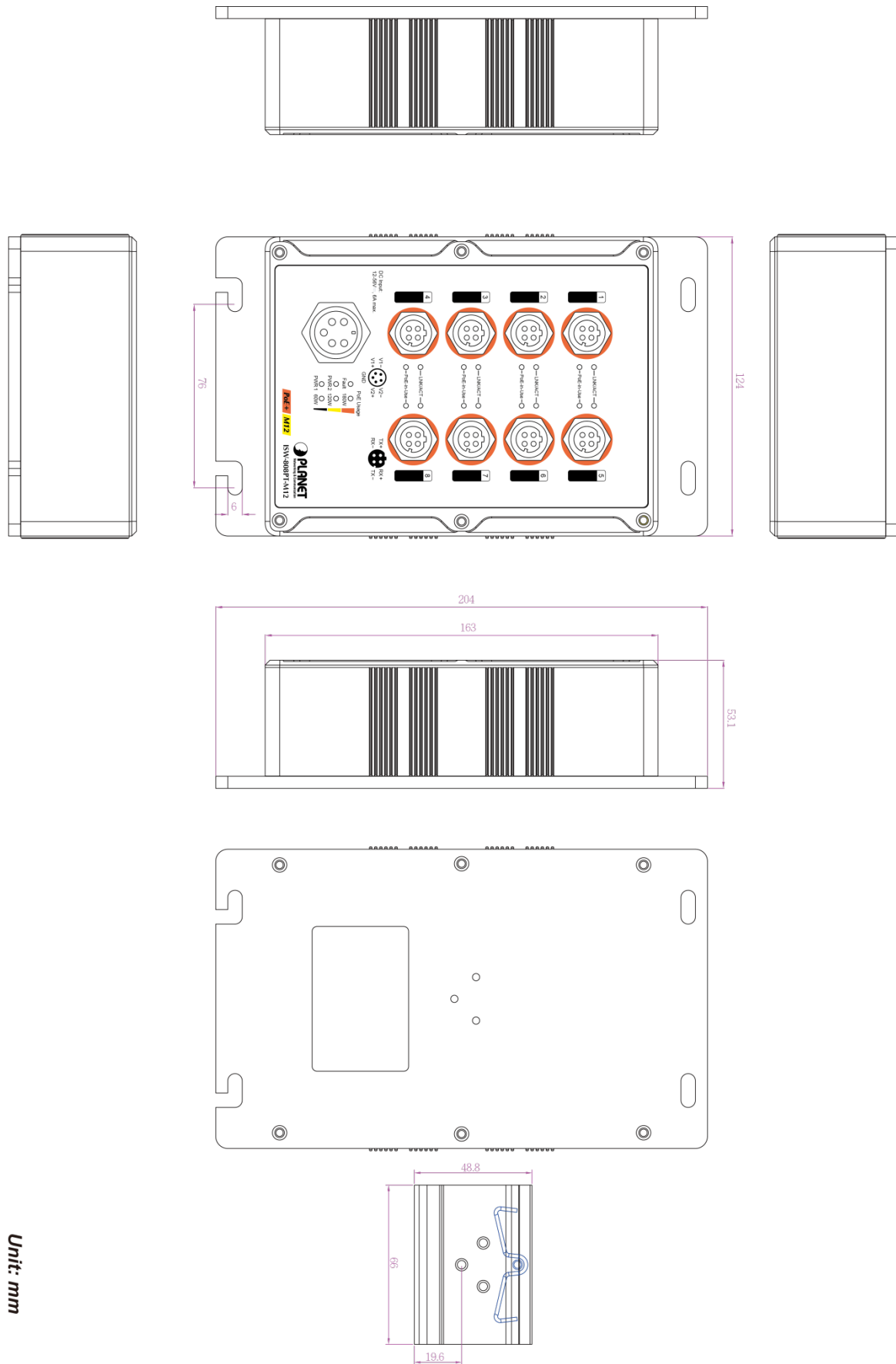| Power Pin Assignment	1/2(+), 3/6(-)
PoE Budget	180 watts@48-56V DC input
	120 watts@24~48V DC input
	60　watts@12~23V DC input
Standards Conformance	
Regulatory Compliance	FCC Part 15 Class A
	CE
Standards Compliance	IEEE 802.3 10BASE-T Ethernet
	IEEE 802.3u 100BASE-TX Fast Ethernet
	IEEE 802.3x Full-Duplex Flow Control
	IEEE 802.3af Power over Ethernet
	IEEE 802.3at Power over Ethernet plus
Stability Testing	IEC60068-2-32 (free fall)
	IEC60068-2-27 (shock)
	IEC60068-2-6 (vibration)
Environments	
Operating	Temperature: -40 ~ 75 degrees C
	Relative Humidity: 5 ~ 95% (non-condensing)
Storage	Temperature: -40 ~ 80 degrees C
	Relative Humidity: 5 ~ 95% (non-condensing)

3.3 Physical Specifications

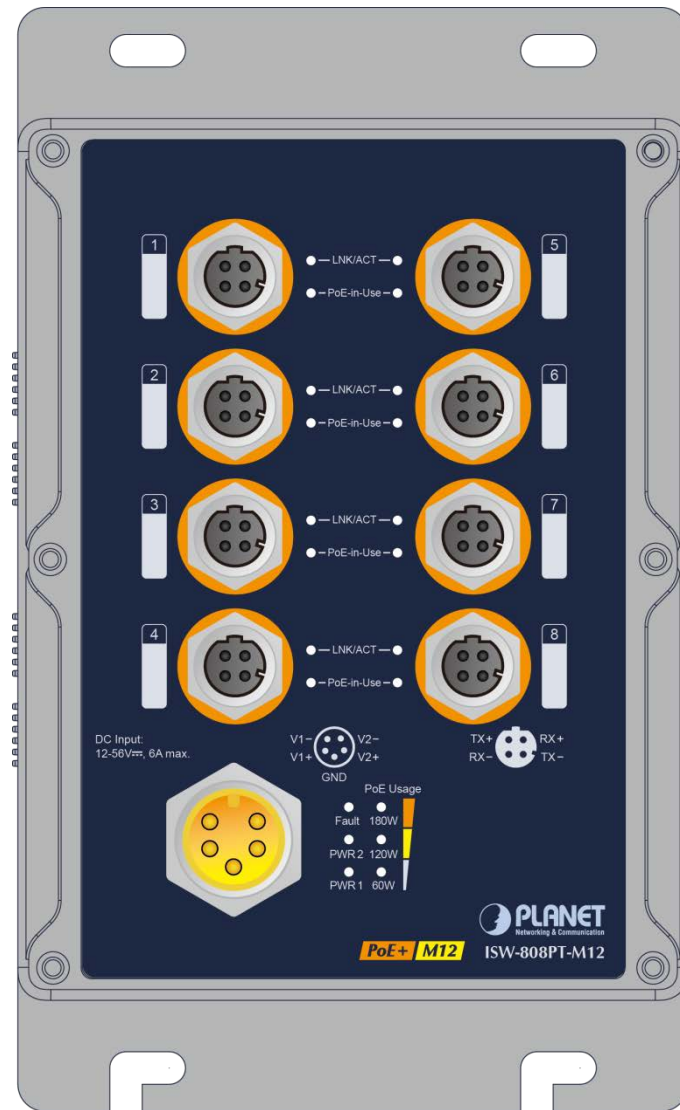■ **DIMENSIONS**

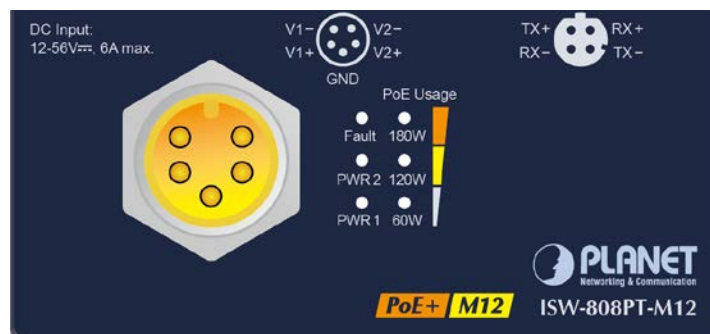124 x 53 x 204mm (W x D x H)

■ **Weight:**

1.75kg

■ **Drawing**

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Unit: mm

204

163

53.1

124

76

6

48.8

66

19.6

■ Front Panel

ISW-808-PT-M12 Front Panel

■ System

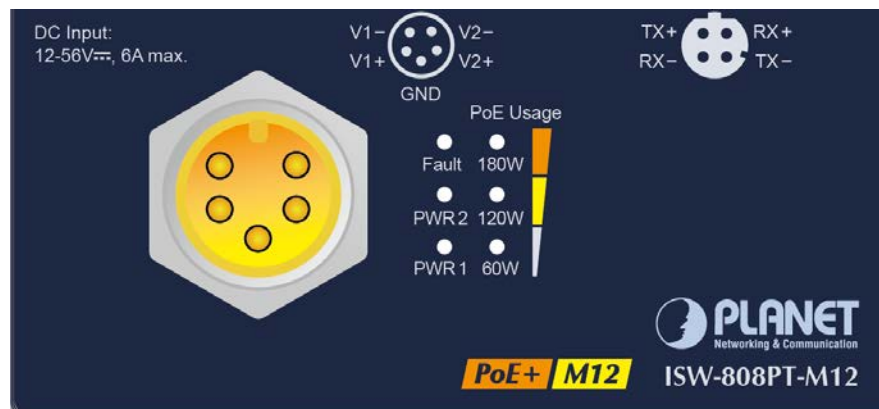| LED	Color	Function
PWR 1	Green	Lights to indicate DC power input 1 has power.
PWR 2	Green	Lights to indicate DC power input 2 has power.
Fault	Red	Lights to indicate either power 1 or power 2 has no power.

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■ **Per 10/100BASE-TX PoE+ Port (Port-1 ~ Port-8)**
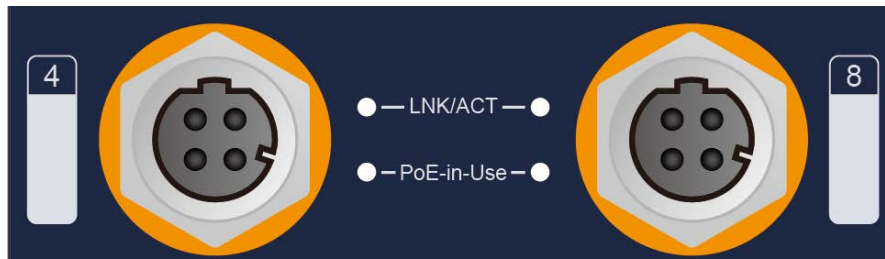
| LED	Color		Function
LNK/ACT	**Green**	Lights	To indicate the port is running at 10/100Mbps speed and successfully established.
		Blinks	To indicate the switch is actively sending or receiving data over that port.
PoE-in-Use	**Amber**	Lights	To indicate the port is providing PoE to remote PD.
		Off	To indicate the connected device is not a PoE powered device (PD).

■ **PoE Power Usage (Unit: Watt)**

LED	Color		Function
180W	**Amber**	Lights	To indicate the system has reached **180-watt** PoE power budget.
		Blinks	To indicates that the PoE usage is around **150W to 180W**.
120W	**Amber**	Lights	To indicate the system consumes over **120-watt** PoE power budget.
		Blinks	To indicates that the PoE usage is around **90W to 120W**.
60W	**Amber**	Lights	To indicate the system consumes over **60-watt** PoE power budget.
		Blinks	To indicates that the PoE usage is around **30W to 60W**.

M12 4-Pin D-coded Ethernet Connector PIN Assignment
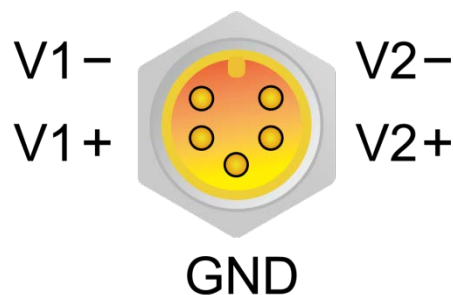
ISW-808PT-M12/ISW-808PT-M12A

Pinout 1: TX+
Pinout 2: RX+
Pinout 3: TX−
Pinout 4: RX−
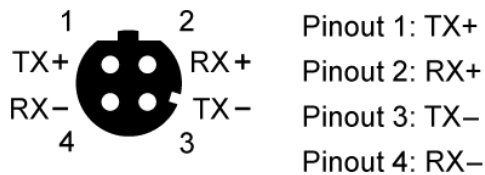
Pinouts for the RJ45 (8-Pin) Port

RJ45 (8-Pin)
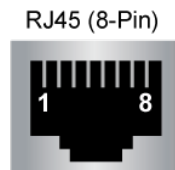
Pin	Signal	
	MDI	MDI-X
1	TX+	RX+
2	TX−	RX−
3	RX+	TX+
6	RX−	TX−

M23 DC Power Connector Pin Assignment

The front panel of the Industrial M12 Ethernet Switch provides one M23 5-pin male connector for dual DC power input.

V1−   V2−
V1+   V2+
GND

3.4 Environmental Specifications

Operating:

Temperature: -40°C ~75 degrees C

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

Storage:

Temperature: -40°C ~75 degrees C

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

3.5 Electrical Specifications

Power Requirement: 12~56V DC, redundant power with reverse polarity protection

Power Consumption:

	System ON	Data + PoE Full Loading
DC 48V Input	5.28 watts/18 BTU	194.8 watts/664 BTU
DC 54V Input	4.32 watts/14 BTU	192.7 watts/657 BTU

PoE Budget: 180 watts/614BTU (maximum).

3.6 Regulatory Compliance

FCC Class A, CE.

3.7 Reliability

MTBF > 100,000Hrs @ 25 degrees C

3.8 Basic Packing

- The Industrial M12 Ethernet Switch x 1
- User's manual x 1
- 1.2m 4-pin D-code M12-to-RJ45 UTP cable x 1
- DIN-rail kit x 1
- Screws x 1 set

3.9 Packing Information

Box Dimensions (W x D x H)	298 x 169 x 110 mm
Weight	2.1kg
Carton Dimensions (W x D x H)	625 x 360 x 240 mm
Carton Weight	2.8kg
Quantity	8pcs in one carton