

Product Specifications

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

ISW-808PT-M12A

Version 1.0

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Change History:

Revision	Date	Author	Change List
1.0	2020/1/13	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-M12A 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 **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, IP50-rated metal case of the ISW-808PT-M12A 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-M12A, equipped with a tough IP50-rated industrial 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-M12A 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-M12A 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-M12A has three orange LEDs indicating 60W, 120W and 180W of PoE power usage.

High Performance

The ISW-808PT-M12A 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-M12A 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-M12A to provide fast and reliable data transfer. All of the M12 RJ45 copper interfaces in the ISW-808PT-M12A 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 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**

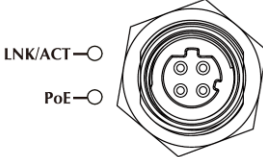
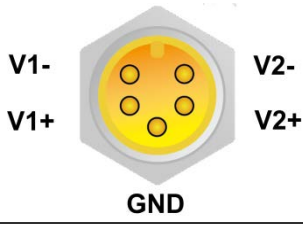
- IP50 metal case
- Dustproof and fanless designs
- DIN-rail and wall-mount installation
- Redundant power design
 - 12 to 56V DC, redundant power with reverse polarity protection
 - Active-active redundant power failure protection
 - Backup of catastrophic power failure on one supply
 - Fault tolerance and resilience
- Supports 6KV DC Ethernet ESD protection
- Supports 6KV surge protection
- -40 to 75 degrees C operating temperature

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-M12A
Hardware Specifications	
Copper Ports	8 x M12, 4-pin D-coded female connector 10/100BASE-TX auto-MDI/MDI-X 
IEEE 802.3af PoE Ports	8, port 1 to port 8
Power Connector	1 x M23, 5-pin A-coded male connector 
Enclosure	IP50 metal case
Dimensions (W x D x H)	132 x 75 x 160mm
Weight	952g
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
Switch Specifications	
Switch Processing Scheme	Store-and-Forward
Address Table	2K entries
Flow Control	Back pressure for half duplex IEEE 802.3x pause frame for full duplex
Switch Fabric	1.6Gbps
Throughput (packet per second)	1.19Mpps
Maximum Transmit Unit	1536 bytes
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

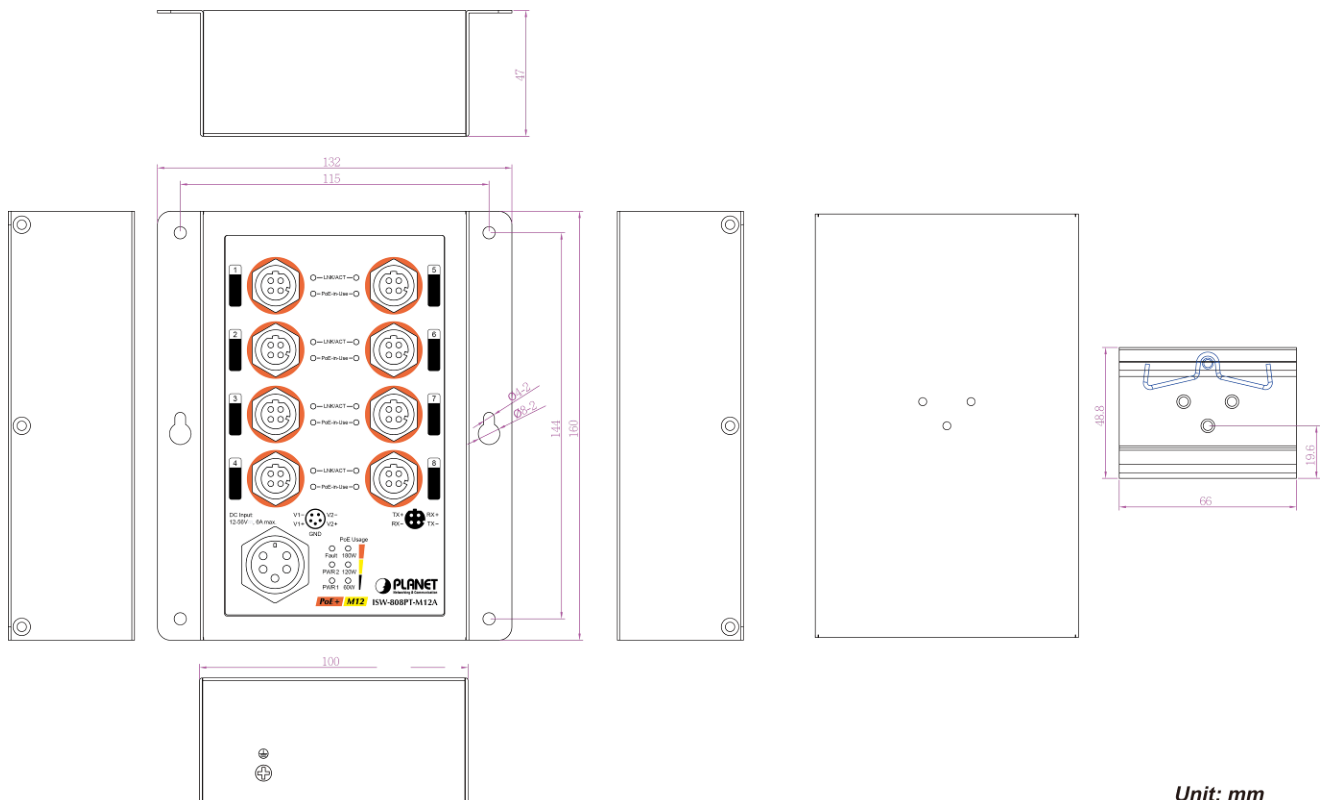
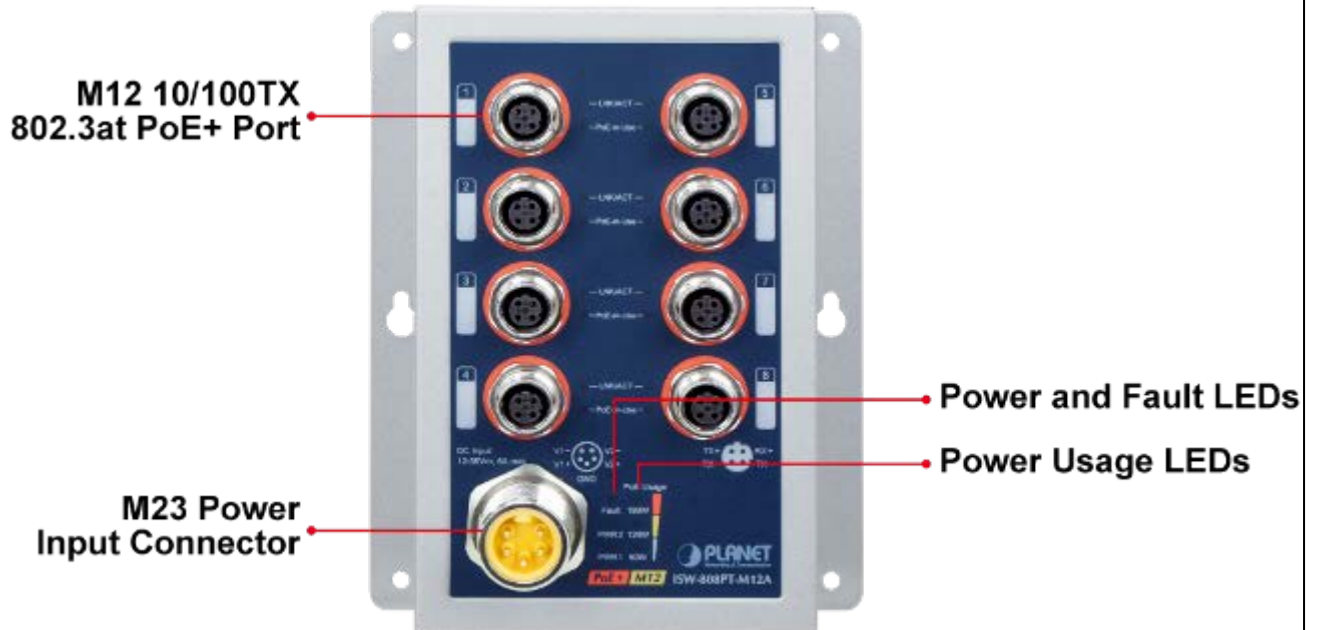
■ **DIMENSIONS**

132 x 75 x 160mm (W x D x H)

■ **Weight:**

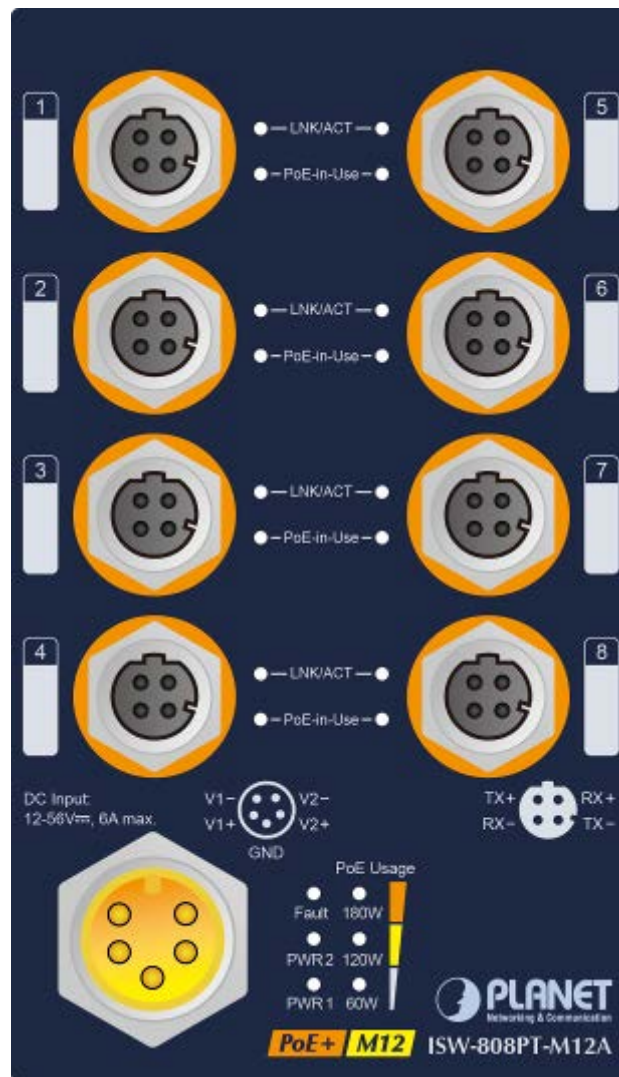
952g

■ **Drawing**



Unit: mm

■ **Front Panel**



ISW-808-PT-M12A 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.

■ 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).

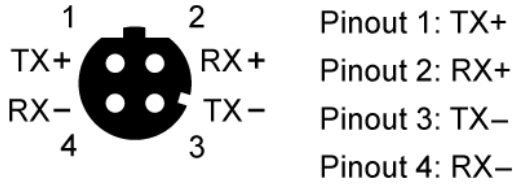
■ PoE Power Usage (Unit: Watt)



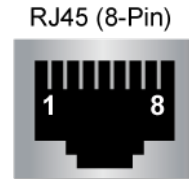
LED	Color	Function	
180W	Amber	Lights	To indicate the system consumes reach 180-watt PoE power budget.
		Blinks	To indicates that the PoE usage is around 150W to 180W .
120W	Amber	Lights	To indicate the system consumes over 120-watt PoE power budget.
		Blinks	To indicates that the PoE usage is around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



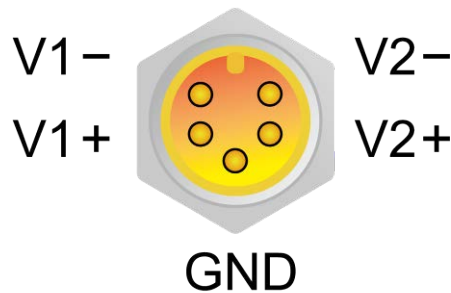
Pinouts for the RJ45 (8-Pin) Port



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.



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)	176 x 238 x 117 mm
Weight	1.29kg
Carton Dimensions (W x D x H)	625 x 387 x 278 mm
Carton Weight	13.4kg
Quantity	10pcs in one carton