Lantech

IPES/IES-0005B/0008B Series

5/8 10/100TX (w/8/5 PoE at/af) Industrial Un-Managed Switch

User Manual

Aug. 2015

Important Notice

Lantech Communications Global, Inc. reserves the right to modify the equipment, its specification or this manual without prior notice, in the interest of improving performance, reliability, or servicing. At the time of publication all data is correct for the operation of the equipment at the voltage and/or temperature referred to. Performance *d*ata indicates typical values related to the particular product.

No part of this documentation or information supplied may be divulged to any third party without the express written consent of Lantech Communications Global Inc. Products offered may contain software which is proprietary to Lantech Communications Global Inc. The offer or supply of these products and services does not include or infer any transfer of ownership.

Interference Issues

This Equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a commercial or industrial installation. This equipment generates, uses, and can radiate radio frequency energy. It may cause harmful interference to radio communications if the equipment is not installed and used in accordance with the instructions.

FCC Warning

This Equipment has been tested and found to comply with the limits for a Class-A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy. It may cause harmful interference to radio communications if the equipment is not installed and used in accordance with the instructions. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CE Mark Warning

This is a Class-A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Content

Chapter 1 Introduction

Lantech IPES/IES-0005B/0008B Series is a high performance IP41 industrial switch with 8/5 x10/100TX (w/8/5 PoE at/af injectors - IPES model)by M12 connectors which provides L2 wire speed and advanced security function for connecting PD network.

Specification

IES/IPES-0005B series

Hardware Specification	
IEEE Standard	IEEE802.3 10BASE-T Ethernet IEEE802.3u 100BASE-T Ethernet IEEE802.3x Flow Control and Back Pressure IEEE802.3at/af Power over Ethernet
Transfer Rate	14,880pps for Ethernet port 148,800pps for Fast Ethernet port
Mac Address	8K MAC address table
Connector	10/100T: 5 x M12, 4-pole D-coded, Female with auto MDI/MDI-X function Power connector: 1 x M12, 5-pole A-coded, Male
Protocol	CSMA/CD
LED	Per unit: Power 1 (Green), Power 2 (Green), Ethernet: Link/Activity (Green)
PoE Pin Assignment	RJ-45 port # 1~#5 support IEEE 802.3af/at End-point, Alternative A mode. Per port provides 15.4W/30W ability. Positive (VCC+): RJ-45 pin 1,2. Negative (VCC-): RJ-45 pin 3,6.
Power Supply	9.5~60DC for Ethernet Data 9.5~56VDC for PoE feeding (12V model) 48V model: 45~56VDC dual input 72V model: 50.4~90VDC dual input
Power Consumption	10W for 12/24/48VDC 13.5W for 72V
Power Budget	150W for 45~56V input (55V input is recommended for 802.3at 30W applications) 80W for 12V input 120W for 24V input 120W for 72V Input
Operating Humidity	5% to 95% (Non-condensing)
Operating Temperature	-40°C ~ 75°C (-40°F ~ 167°F)
Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
Case Dimension	Aluminum case, IP-41 135mm(W)x165mm(H)x62mm(D)
Weight	700g
Installation	Din Rail**, Wall Mount Design
EMC	FCC Class A, CE EN61000-4-2 (ESD), CE EN61000-4-3 (RS), CE EN-61000-4-4 (EFT), CE EN61000-4-5 (Surge), CE EN61000-4-6 (CS), CE EN61000-4-8 (Magnetic Field),

	CE EN61000-6-2, CE EN61000-6-4
Stability Testing	IEC61373 (Shock), EN61373 (Shock and Vibration)
Certificates & Report	EN50155/EN50121-3-2/EN50121-4 Certificate EN45545-2 R24 (EN ISO 4589-2, EN ISO 5659-2, NF X70-100-1 & 2) Fire & Smoke Certificate
Warranty	5 years

**Optional

IES/IPES-0008B series

Hardware Specification	
IEEE Standard	IEEE802.3 10BASE-T Ethernet IEEE802.3u 100BASE-T Ethernet IEEE802.3x Flow Control and Back Pressure IEEE802.3at/af Power over Ethernet
Transfer Rate	14,880pps for Ethernet port 148,800pps for Fast Ethernet port
Mac Address	8K MAC address table
Connector	10/100T: 8 x M12, 4-pole D-coded, Female with auto MDI/MDI-X function Power connector: 1 x M12, 5-pole A-coded, Male
Protocol	CSMA/CD
LED	Per unit: Power 1 (Green), Power 2 (Green), Ethernet: Link/Activity (Green)
PoE Pin Assignment	RJ-45 port # 1~#8 support IEEE 802.3af/at End-point, Alternative A mode. Per port provides 15.4W/30W ability. Positive (VCC+): RJ-45 pin 1,2. Negative (VCC-): RJ-45 pin 3,6.
Power Supply	9.5~60DC for Ethernet Data 9.5~56VDC for PoE feeding (12V model) 48V model: 45~56VDC dual input 72V model: 50.4~90VDC dual input
Power Consumption	10W for 12/24/48VDC 13.5W for 72V
Power Budget	240W for 45~56V input (55V input is recommended for 802.3at 30W applications) 80W for 12V input 120W for 24V input 120W for 72V Input
Operating Humidity	5% to 95% (Non-condensing)
Operating Temperature	-40°C ~ 75°C (-40°F ~ 167°F)
Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
Case Dimension	Aluminum case, IP-41 135mm(W)x165mm(H)x62mm(D)
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Warranty	5 years

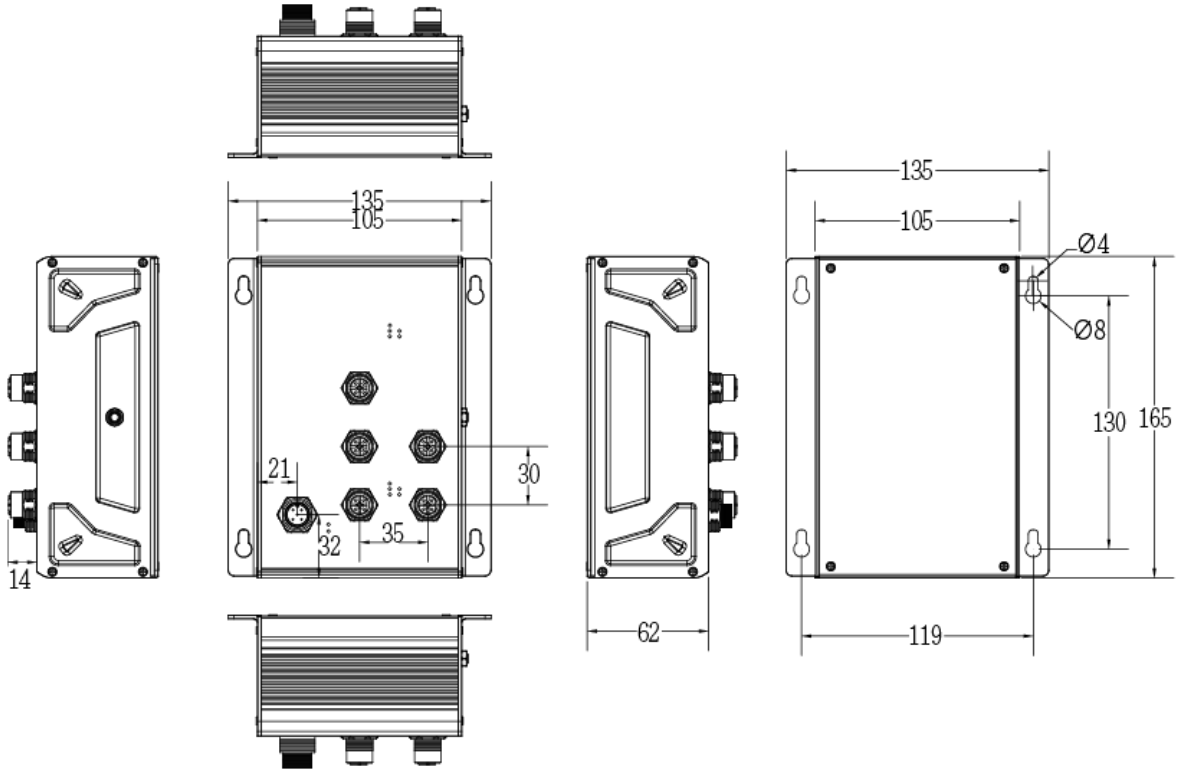
**Optional

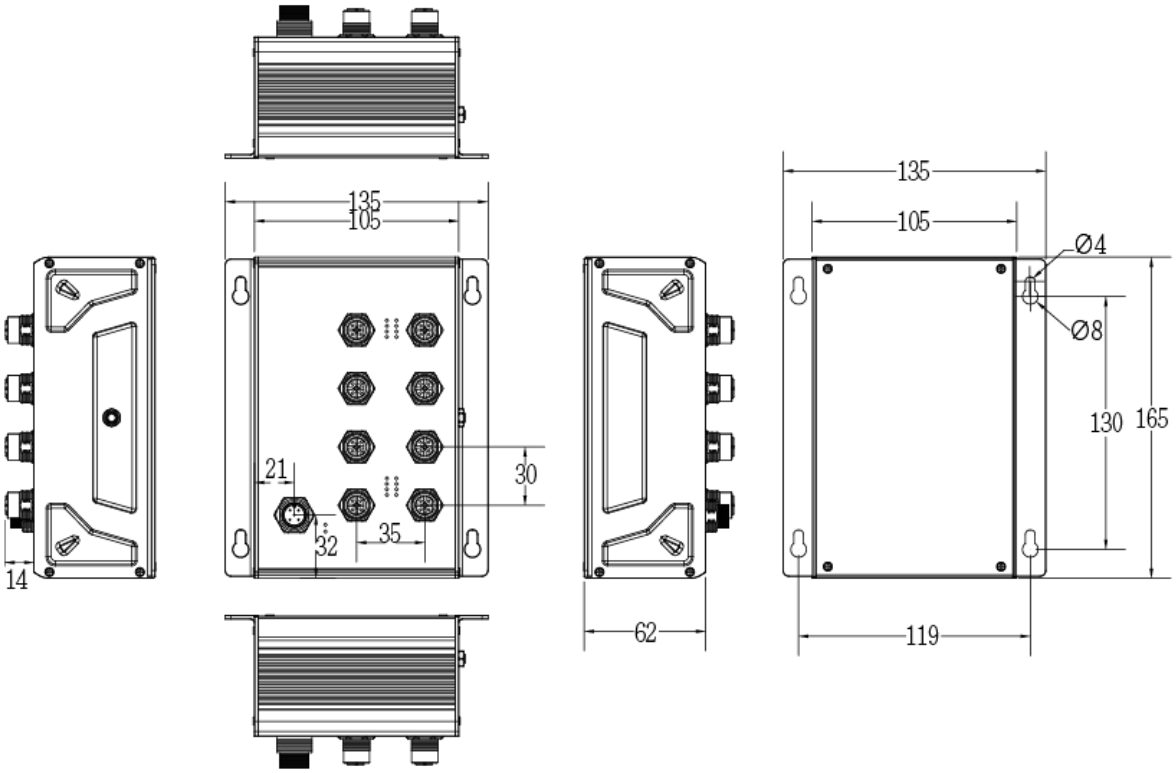
Chapter 2 Hardware Description

In this paragraph, it will describe the Industrial switch's hardware spec, port, cabling information, and wiring installation.

2.1 Physical Dimension

Aluminum case. IP-41,





2.2 Package Content:

Manual CD*

Product

*By request

2.3 IP Protection

The **IP Code**, **Ingress Protection Rating**, sometimes also interpreted as **International Protection Rating**, classifies and rates the degree of protection provided against the intrusion (including body parts such as hands and fingers), dust, accidental contact, and water in *mechanical casings* and with electrical enclosures. It is published by the International Electrotechnical Commission (IEC)

Solid particle protection

The first digit indicates the level of protection that the enclosure provides against access to hazardous parts (e.g., electrical conductors, moving parts) and the ingress of solid foreign objects.

Level	Object size protected against	Effective against
0	—	No protection against contact and ingress of objects
1	>50 mm	Any large surface of the body, such as the back of a hand, but no protection against deliberate contact with a body part
2	>12.5 mm	Fingers or similar objects
3	>2.5 mm	Tools, thick wires, etc.
4	>1 mm	Most wires, screws, etc.
5	Dust protected	Ingress of dust is not entirely prevented, but it must not enter in sufficient quantity to interfere with the satisfactory operation of the equipment; complete protection against contact
6	Dust tight	No ingress of dust; complete protection against contact

Liquid ingress protection

The second digit indicates the level of protection that the enclosure provides against harmful ingress of water.

Level	Protected against	Testing for	Details
0	Not protected	—	—
1	Dripping water	Dripping water (vertically falling drops) shall have no harmful effect.	Test duration: 10 minutes Water equivalent to 1 mm rainfall per minute
2	Dripping water when tilted up to 15°	Vertically dripping water shall have no harmful effect when the enclosure is tilted at an angle up to 15° from its normal position.	Test duration: 10 minutes Water equivalent to 3 mm rainfall per minute
3	Spraying water	Water falling as a spray at any angle up to 60° from the vertical shall have no harmful effect.	Test duration: 5 minutes Water volume: 0.7 litres per minute Pressure: 80–100 kPa
4	Splashing of water	Water splashing against the enclosure from any direction shall have no harmful effect.	Test duration: 5 minutes Water volume: 10 litres per minute Pressure: 80–100 kPa
5	Water jets	Water projected by a nozzle (6.3 mm) against enclosure from any direction shall have no harmful effects.	Test duration: at least 15 minutes Water volume: 12.5 litres per minute Pressure: 30 kPa at distance of 3 m

6	Powerful water jets	Water projected in powerful jets (12.5 mm nozzle) against the enclosure from any direction shall have no harmful effects.	Test duration: at least 3 minutes Water volume: 100 litres per minute Pressure: 100 kPa at distance of 3 m
7	Immersion up to 1 m	Ingress of water in harmful quantity shall not be possible when the enclosure is immersed in water under defined conditions of pressure and time (up to 1 m of submersion).	Test duration: 30 minutes Immersion at depth of at least 1 m measured at bottom of device, and at least 15 cm measured at top of device
8	Immersion beyond 1 m	The equipment is suitable for continuous immersion in water under conditions which shall be specified by the manufacturer. Normally, this will mean that the equipment is hermetically sealed. However, with certain types of equipment, it can mean that water can enter but only in such a manner that it produces no harmful effects.	Test duration: continuous immersion in water Depth specified by manufacturer
9	Powerful high temperature water jets	Protected against close-range high pressure, high temperature spray downs.	—

2.4 LED Indicators

The diagnostic LEDs that provide real-time information of system and optional status are located on the front panel of the industrial switch. The following table provides the description of the LED status and their meanings for the switch.

LED	Color	Status	Meaning
PWR1	Green	On	Power 1 is active
		Off	Power 1 is inactive
PWR2	Green	On	Power 2 is active
		Off	Power 2 is inactive
FAULT	Red	On	Power or port failure
		Off	No failure
P1 ~ P5/P8	Link/Ack	On	A network device is detected.
		Blinking	The port is transmitting or receiving packets from the TX device.
		Off	No device attached
	PoE(1~5/8)(IPES)	On	The port is operating in PoE mode.(IPES)
		Off	The port is not operating in PoE mode.(IPES)

Chapter 3 Hardware Installation

3.1Hardware installation

3.1.1Unpack switch and check the accessory with packing content list

3.1.2 Mount the switch on desired position. For the best ventilation, it is suggested to mount the switch on metallic surface.

3.1.3 Connect the M23/M12 connector of power input. The PoE power supply for IPES-0008B series is connected via a 5-pole M23 female connector while IES-0008B is with a 5-pole M12 female connector.

- Voltage of Power Input

  For IPES-0005B/0008B series, the voltage of power input should use 48VDC to feed power IEEE 802.3af standardized devices or 54VDC for IEEE 802.3at standardized ones.

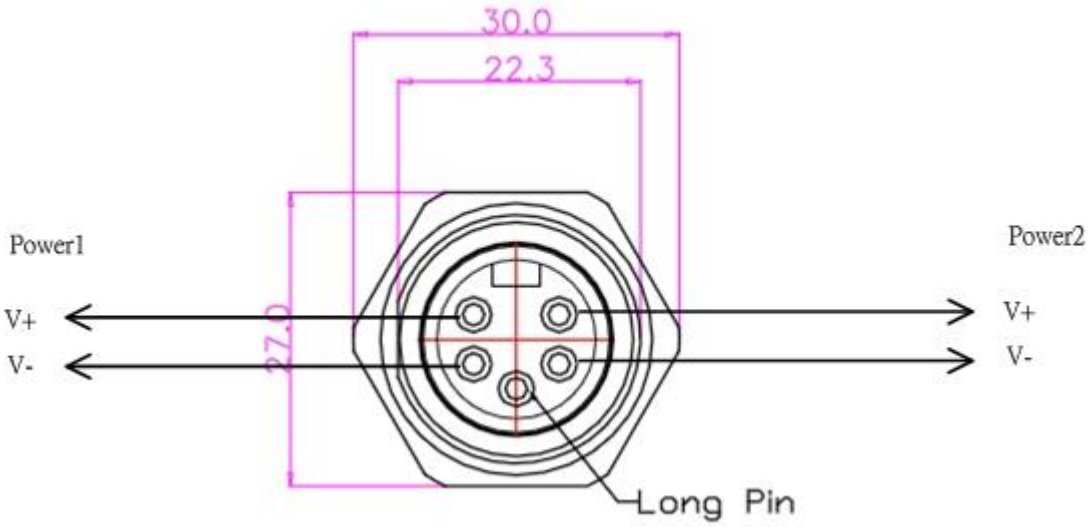
  For IPES-0005B/0008B-12V series, the power input voltage can be from 9.2V to 56VDC to feed power on both the 802.3af and 802.3at standardized devices.

  With IPES-0005B/0008B-72V series, the power input voltage can be from 72V to feed power on both 802.3af/at standardized devices. IES-0008B series can accept power input ranging from 9.2V~72V(12V~72V) to be powered.

  Please make sure that the external power supply unit you use to provide the PoE voltage meet the following criteria:

- The output voltage of power supply must exceed 48VDC for 802.3af and 53VDC for 802.3at operation(with IPES-0005B/0008B-72V, only 72VDC can power both the 802.3af and 802.3at PD.)

- The power consumption can satisfy the total power request from all PD devices required.

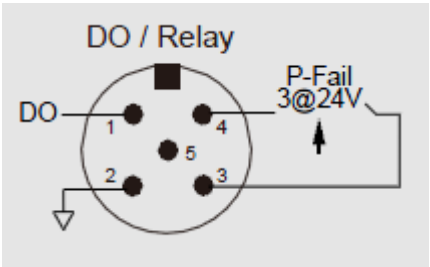


Pin assignment of Power input

- Redundant Power Input

The power input can be supported redundantly. The supply voltage is electrically isolated from the housing.

Note: With single power supply of the mains voltage, the device will report a power failure. You can disable this power fail event via web browser.



Pin assignment of alarm relay

A break in contact is reported via the relay contact :

- The failure of at least one of the two supply voltages.
- The break link status of at least one switch port.

3.1.4 Fitting the device, grounding

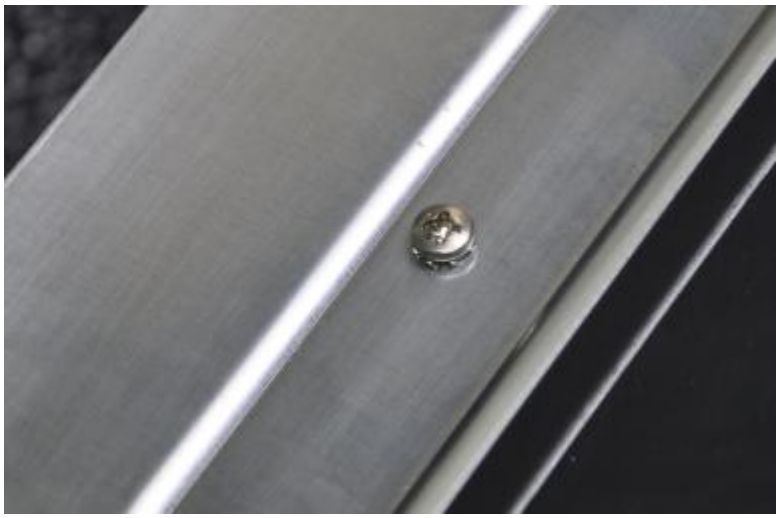
Install the system in a dry and clean area to protect the switch to get exposed with dirt.

Plug the connector to the power supply plug then turn on the power supply.

- **Ground**

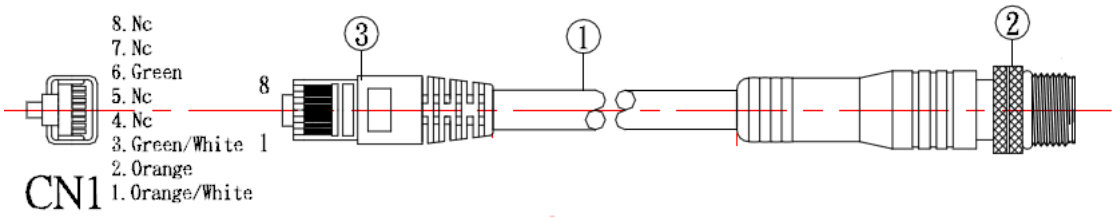
The chassis is grounded via a separate ground nut (M3).

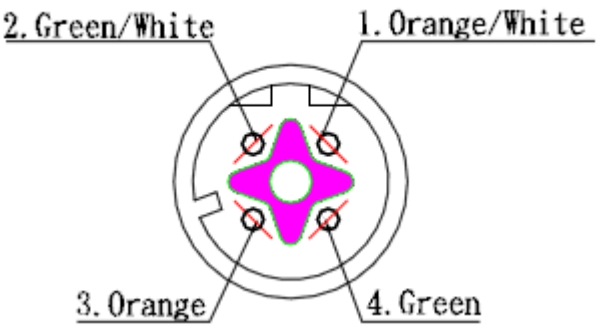
Use toothed locking washers for a good electrical connection.



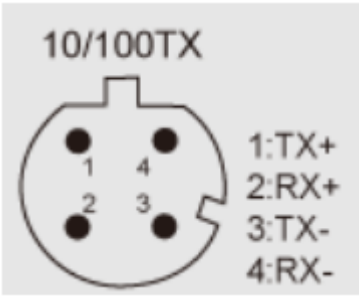
Ground screw of IPES-0008B switch

3.1.5 Connect the M12 connector with RJ-45 data cable, ports are not used shall be caped that comes with the package to insulate the surrounding.





Pin assignment of M12 10/100Tx network connector



3.1.6 Check the status of LED, make sure the switch was in working status.

Note:

- The protection class IP41 is only achieved when bolted together.
- The other components attaching to the system have to meet with the IP41 protection class in order to reach the whole system IP 41 protection.
- Empty ports must be sealed with the protective caps supplied.