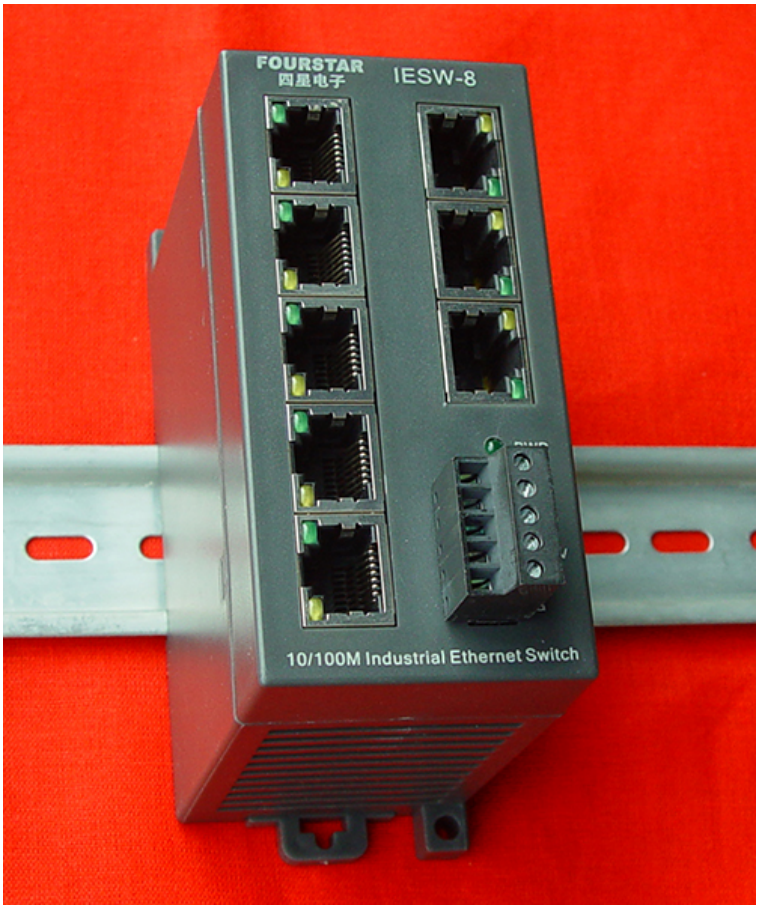
User's Manual of IESW-8 Industrial-level Wide-temperature Eight-interface Non-network Management Industrial Ethernet Switch



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Foreword

Thank you for using our industrial Ethernet products.

Read this User’s Manual carefully before using the product. Both specification and other information of the product mentioned in this User’s Manual are for reference only and are subject to change without prior notice. This User’s Manual is used as an operating guide only and any statements or information in it should not be regarded as guarantees of any forms. We shall have the right to change both content of his User’s Manual and the functions of the product in line with the need of technical development and without declaration. We shall not be responsible for any property losses or personal injuries due to improper operation of the product by users.

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Version information

Document name: User’s Manual of IESW-8 Industrial-level Wide-temperature Eight-interface Non-network Management Industrial Ethernet Switch

Document revision history

version	Revision date	Reason of revision
V3.0	2013-03-12	To create a document.
	2013-08-13	To add pictures.

Product list

1. IESW-8 industrial-level wide-temperature eight-interface non-network management industrial Ethernet switch: 1 pcs

2. User’s Manual prepared on paper or a CD (this product needs no driver software): 1pcs

1 Overview

With quick growth of the industrial Ethernet technology and extensive application of the products based on it, industrial Ethernet has already become a most popular industrial control communication network because of its advantages such as low price, high stability, reliability and communication rate, abundant hardware and software products, extensive application and mature technical support. With the development of network technologies in recent years, Ethernet has been used in industrial automation and formed new industrial Ethernet control network technologies. This is because industrial automation systems are becoming more distributed and intelligent and their open and transparent communication protocols and easy use have been widely accepted by the industrial control field (many existing industrial control equipment is provided with an industrial Ethernet communication interface).

With eight Ethernet switch interfaces, the product has easy and flexible operation and is easy to form various complicated network topologies. With network interfaces isolated from power interfaces,

industrial-level design and a wide range of industrial-level operating temperature from -40℃ to +85℃, it is extensively used on industrial Ethernet based industrial control equipment such as PLC, HMI, VVVF and DCS.

The product does not support redundancy, so it cannot be used in redundancy loop networks.

2 Features and main technical data of product

- Supply voltage: It has a wide range of supply voltage from 9VDC to 40VDC that keeps it from the impact of voltage fluctuation and a power consumption of about 2W.
- Its network interfaces, optical fiber interfaces and power interfaces are completely isolated and it has an isolation voltage of 1500Vrms.
- It complies with IEEE802.3 10/100Base-TX industrial Ethernet standard.
- It has a function of broadcast storm suppression that can limit the excessive messages generated by network broadcast storms and effectively maintain normal data transmission.
- Transmission rate: 10/100M (Adaptive for the network interfaces)
- With a MDI/MDI-X automatic jumper function, its network interfaces are adaptive to through network cables and crossover network cables.
- Maximum transmission distance: 100m (for Cat.5 Twisted pairs)
- It has a power interface indicator and an Ethernet interface indicator.
- Operating temperature: -40～+85 ℃
- External dimensions: 85mm×49mm×100mm (L×W×H)
- Weight: 190 g
- Installation method: It is installed with the help of DIN35mm standard rails or bolts.

3 Appearance and parts of product

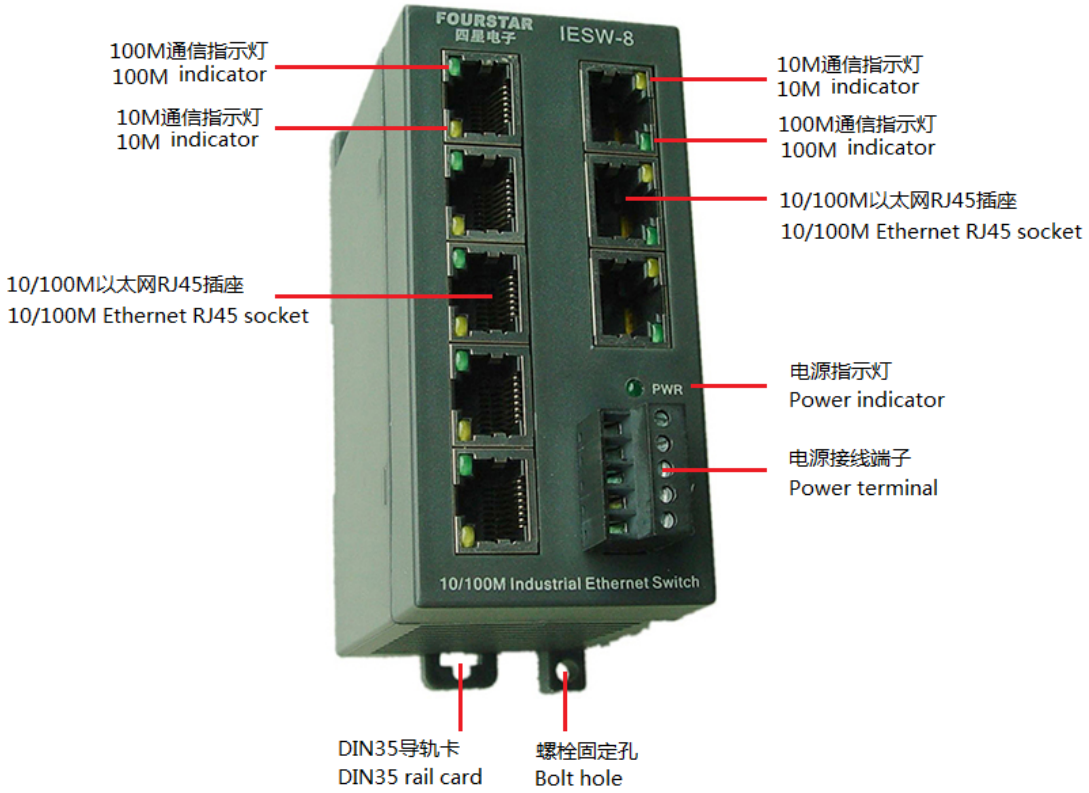
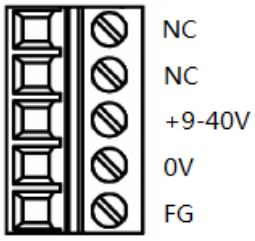


Fig.3-1 Diagram of External Structure of IESW-8

- Power terminals:



Terminal name	Description
NC	Not connected
NC	Not connected
+9-40V	Connected to the positive pole with a voltage from 9 VDC to 40VDC
0V	Connected to the negative pole with a voltage from 9 VDC to 40VDC
FG	Shield ground (chassis ground)

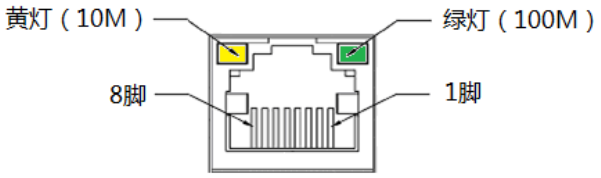


Fig.3-2 RJ45 Socket of Ethernet

Yellow indicator (10M) Green indicator (100M)

- LED indicators:

LED indicator	Remaining lit	Flickering	Out
PWR	The power supply is connected.	There is a fault.	There is a fault, or the power supply is not connected.
Network interface indicator (green)	The network interface link has a rate of 100M.	The network interface is transmitting data.	The network interface is not linked.
Network interface indicator (yellow)	The network interface link has a rate of 10M.	The network interface is transmitting data.	The network interface is not linked.

- Definitions of signals of the RJ45 network interface socket:

Pin	Signal name	Function	Type
1	Rx+	Positive-phase Ethernet data receiving differential signal cable	Input
2	Rx-	Negative-phase Ethernet data receiving differential signal cable	Input
3	Tx+	Positive-phase Ethernet data transmission differential signal cable	Output
4	Not used		-
5	Not used		-
6	Tx-	Negative-phase Ethernet data transmission differential signal cable	Output
7	Not used		-
8	Not used		-

4 Guide for installation and use

Before installing and using the product, make sure the network cable (a Cat.5 twisted pair) connected has a maximum length of 100 meters. In industrial applications, please use a twisted pair network cable with a shielding layer and a RJ45 plug with a shielding layer and communicate the shielding layers, connect the frame grounds on the power terminals with the chassis and have the chassis grounded.

The network interfaces have a MDI/MDI-X automatic jumper function, so both through network cables and crossover network cables can be used. The product is a plug-and-play one needing no debugging or setup.

Note: If two interfaces of the switch are connected directly, or two or more interfaces of two switches are connected at the same time due to carelessness, there will be network overload and network faults due to an illegal loop.

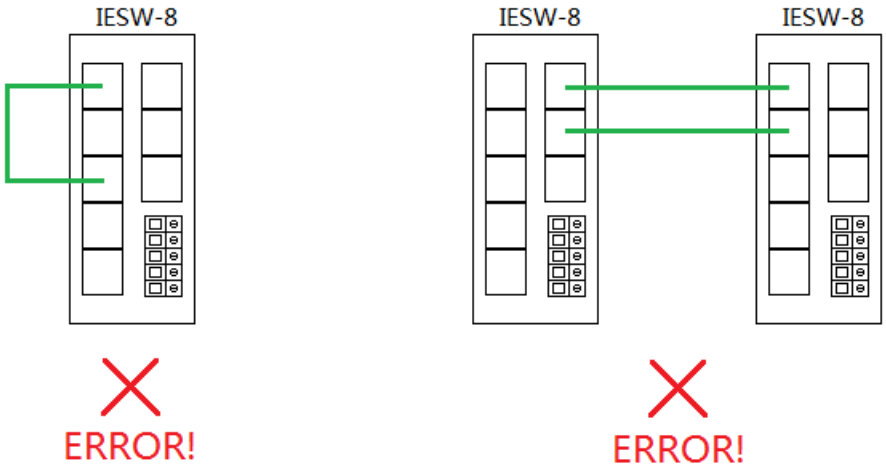


Fig.4-1 Wrong Connection

5 Function of broadcast storm suppression

Broadcast storm is a special term for switches. It is an abnormal phenomenon in which the normal network communication is affected due to quick increase of quantity of the broadcast frames on the network as a result of retransmission. It occupies the network bandwidth seriously. The more network devices, the longer time the broadcasting will occupy. After the network devices reach a certain quantity, the normal information transmission of the network will be affected: the information transmission may be delayed or, more seriously, the network devices may be disconnected from the network or even the whole network may fail to run normally due to jamming or paralysis. This is broadcast storm.

Broadcast storm suppression refers to filtration for the broadcast storm on the network. After the broadcast frames received by an interface reach the preset threshold valve, the interface will discard the received broadcast frames. When the broadcast frames are less than the preset threshold valve, they will be normally broadcast to the other interfaces of the corresponding switch.

6 Typical network topologies

6.1 Bus network topology

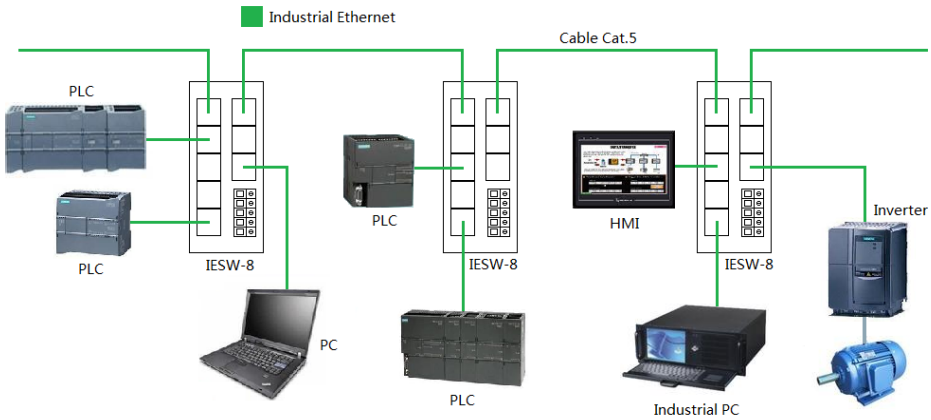


Fig.6-1 Bus Network Topology

6.2 Star network topology

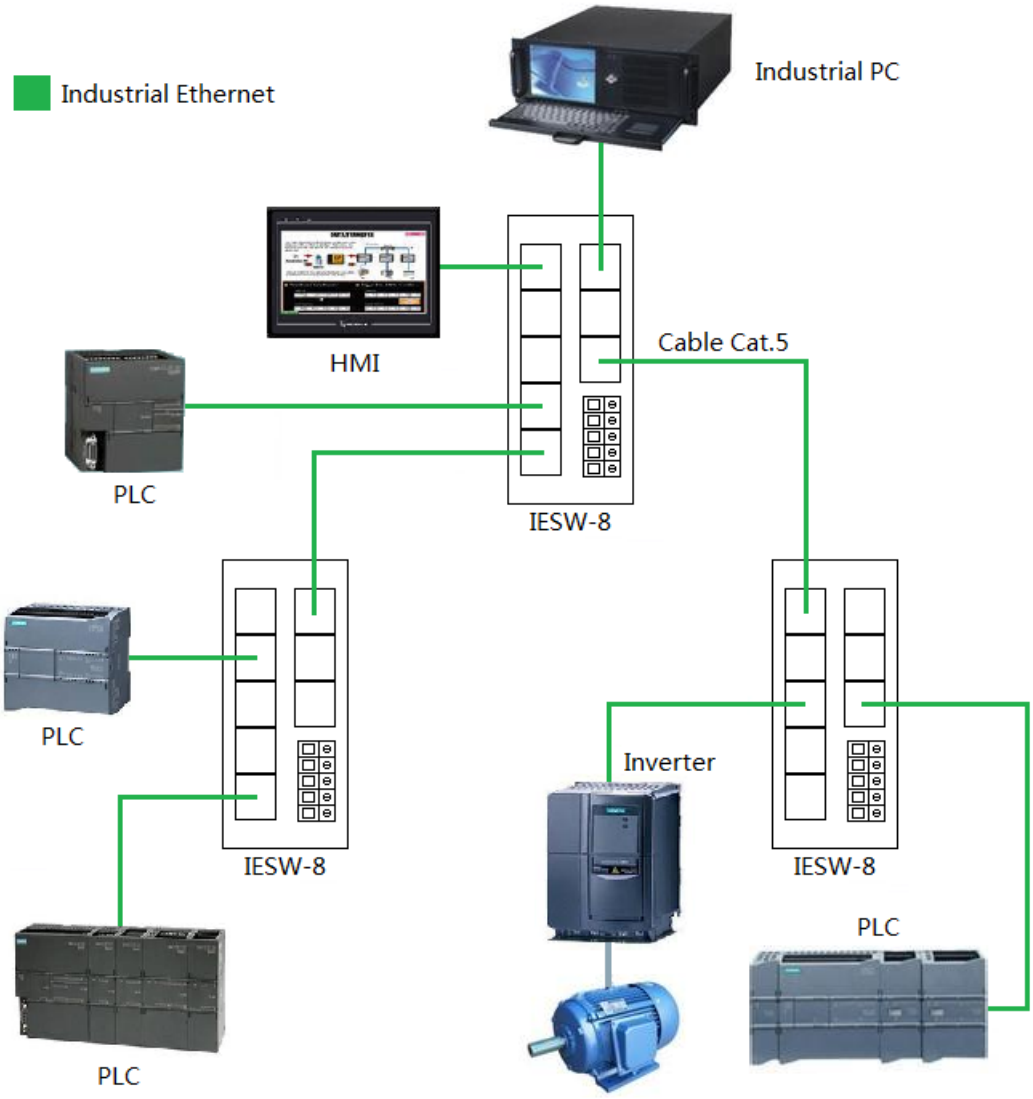


Fig.6-2 Star Network Topology

7 Ordering information

Product name: Industrial-level wide-temperature eight-interface non-network management industrial Ethernet switch

Product model: IESW-8

Declaration: This document is prepared to guide users to use IESW-8 industrial-level wide-temperature eight-interface non-network management industrial Ethernet switches. In consideration of rapid development of new technologies, please refer to the real product for its functions. We reserve the right to revise this document without declaration.

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