MISCOM7210 Series

Industrial Management Gigabit Ethernet Switch

User Manual

(Edition: V1.0)

Wuhan Maiwe Communication Co., Ltd.

Trademark

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Mwring is the trademark used for link redundancy and self-recovery technology, owned by Wuhan Maiwe Communication Co., Ltd.

Microsoft and **Windows** is registered trademark owned by Microsoft.

Clarification

The user manual is applicable to MISCOM7210 series industrial management gigabit ethernet switch.

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Statement

Due to continuous update and improvement of products and technology, the contents of this document may not be completely consistent with the actual products, appreciate for your understanding. If necessary to inquiry the updates of the product, please check our official website or contact our representative directly.

Safe Use Instruction

This product performance is excellent and reliable in the designed range of use, **but it's necessary to avoid man-made damage or destroy for the equipment**.

- Read the manual carefully and keep this manual for reference if need afterwards.
- Do not put the device close to the water sources or damp places.
- Do not put anything on the power cable, it should be placed out of reach.
- To avoid causing fire, do not knot or wrap the cable.
- Power connector and other device connectors should be firmly connected with each other, frequently inspection is needed.
- Please keep the fiber socket and plug clean. Do not look directly at the fiber section when the equipment is working.
- Please keep the equipment clean and wipe it with a soft cotton cloth if necessary.
- Please do not repair the equipment by yourself, unless there is clear instructions in the manual.

Under the following circumstances, please cut off power immediately and contact us.

- Equipment water damage.
- The equipment is broken or the casing is broken.
- The equipment works abnormally or the performance has completely changed.
- The equipment produces odor, smoke or noise.

Statement: Information requiring explanation in use of the managed software.
Attention: Matters requiring specific attention in the use of the managed software.

Catalogue

1. Product Overview

1.1. Product description

The MISCOM7210 series industrial ethernet switch is developed for the high speed industry ethernet communications .It makes industrial communication more fluent, more stable and more fast.

This switch can support both hot plugging and complicated web managed style. All the copper ports support auto-negotiation, 10/100Mbps full duplex and half duplex, Auto-MDI/MDI-X functions. It supports Web management or SNMP management. This switch can supply high-grade management function including Mwring, VPN , Trunk, Quality of Service, IGMP Snooping, rate control, mirrot port configuration, Static MAC address transfer, diagnostic function, Email/Relay, fault alarm relay.

The Mwring is a redundancy ring network technique which is developed for the industrial application.It provides a ring network recovery function for the ethernet communication.The recovery time is less than 20ms.This switch can use any of the ports to construct the ring network.

This switch provides total 10 ethernet communication ports,include 2 gigabit SFP fiber ports and 8 10/100Base-TX RJ45 copper ports.

1.2. Product characteristic

1.2.1. Industrial network performance

- Support 2 gigabit SFP fiber ports and 8 10/100Base-TX RJ45 copper ports
- Support a configurable alarm relay output
- Ring technology based on self-recovery technology link redundancy
- Embedded Web server, through remote management and configuration of the browser
- Trunk port aggregation
- Real-time monitoring of broadcast storm control
- Online firmware update
- Multicast capabilities to support dynamic IGMP Snooping, multicast traffic filtering
- Store and forward mechanism, backplane bandwidth is 5.6Gbps
- Copper port 10/100M adaptive, full / half duplex, MDI / MDIX adaptive mode
- Full-duplex flow control and half duplex back pressure flow control
- Port VLAN and IEEE 802.1Q VLAN
- Support QoS, IEEE802.1P and ToS / DiffServe, improve communication

quality

- Support SNMP V1/V2C different levels of network management
- Redundant dual power input, to meet the high availability requirements
- Environment to meet the strong electromagnetic interference requirements between failures
- Support RMON and private MIB table, an effective remote data monitoring and management capabilities

1.2.2. Industrial application design

- Redundant dual power input design
- Din-rail installation
- Bandwidth management, network problems to prevent unpredictable
- Backup and restore system configuration parameters
- Graphical interface, one key to restore factory default
- Port mirroring for online debugging
- Effective network diagnostic tool
- Power-down and broadcast storm alarm relay
- Fast recovery for cable change
- Real-time network time synchronization
- Restrict access IP, switches in the network security management

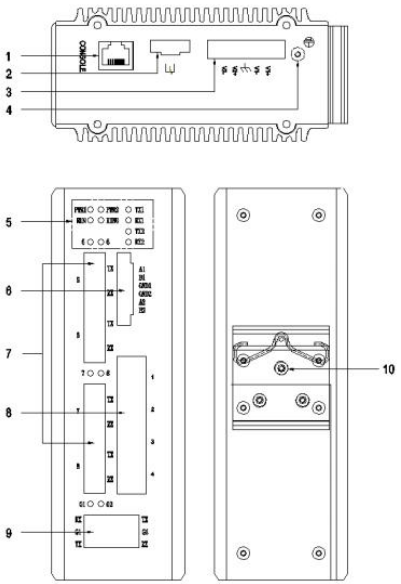
1.2.3. Remote management configuration

- It can use the Web page, console applications and Windows applications to manage configuration
- Supports standard SNMP management protocol

1.3. Packing list

Item	QTY
MISCOM7210 Industrial Ethernet switch	1pcs
User manual	1pcs
RS232 console cable	1pcs

2. Interface description



1. Console port
2. Relay output terminal
3. P1 / P2 power input
4. Ground screw
5. Device status indicator
6. RS485 bus interface
7. 100M fiber port
8. 100M copper port
9. Gigabit fiber port
10. DIN rail card holder

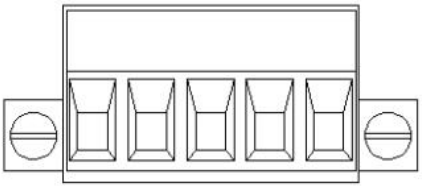
2.1. Power interface

The upper panel of this series of switches provides 5-position power input terminal blocks, supporting AC Or DC input. DC power supply voltage input range is 12VDC (9~18VDC), 24VDC(18~36VDC), 48VDC (36~72VDC), support redundant power input function,Two pairs of input terminals, PWR1 and PWR2, are provided, which can be used individually or externally. Connecting two sets of independent DC power supply systems, use two pairs of terminals to introduce equipment at the same time,

When any power system fails, the equipment can operate normally without interruption.

AC power supply voltage input range is 85~264VAC 47-63Hz or 110~370VDC

AC power: L N
DC power:V1+ V1- V2+ V2-



Notice:

Power-on operation: first connect the power cord to the power connector of the device according to the definition shown in the figure above.

Power-off operation: first unplug the power plug, then remove the power cord,

Please pay attention to the sequence of operations above.

2.2. Relay interface

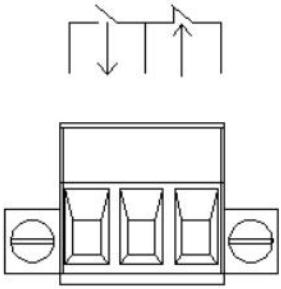
The wiring terminal adopts 3-position 3.81mm pitch terminal. This relay is normally open and

One normally closed relay, the one in the middle is the common terminal, and the two terminals on the left are the normally open relay. For electrical appliances, the two digits on the right are normally closed relays. When the switch is working normally, always open the relay.

The device is energized and closed, and the normally closed relay is disconnected. When the system is powered off, the normally open relay is

powered off.

Normally closed relay is closed. The recommended switching load capacity of the relay is 1A (24VDC).



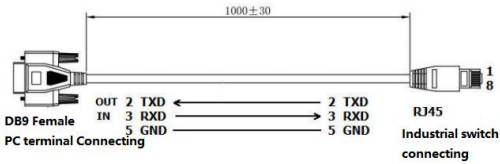
2.3. Grounded

The industrial Ethernet switch has a ground screw, connect one end of the ground wire to the cold press

After the terminal is crimped, fix it to the grounding hole of the chassis with a grounding screw. The other end of the ground wire can be rely on the ground to access the earth. The cross section of the grounding wire is not less than 2.5mm².

2.4. Console port.

The network management port is an RJ45 interface, as shown in the figure below. Please use the serial port extension cable provided by our company to connect to the PC's serial port. The interface communication standard is 3-wire RS-232.



2.5. Indicator lights

System status indicator description		
LED	Indicate	status description
P1	On	Power supply 1 connection is operating normally
	Off	Power supply 1 is not connected or operating abnormally
P2	On	Power supply 2 connection is operating normally (AC none)
	Off	Power supply 2 is not connected or operating abnormally(AC None)
ALM	On	Power alarm
	Off	No power alarm
RUN	On	Equipment operate nomal
	Off	Equipment abnormal
LINK/ACT	On	Port has established a valid network connection
	Blinking	The port is in network communication state
	Off	The port has not established a valid network connection
SPEED	On	Indicates the maximum rate
	Off	No connection or not reaching the maximum rate

2.6. Ethernet communication interface

2.6.1. SFP Gigabit fiber interface

This product has two full-duplex 1000Base-LX single mode / multimode fiber interface, the port number for the G1 and G2, using hot-swappable SFP during the optical interface using LC connectors. Optical interface to be used in pairs (TX and RX as a pair), TX mouth to light the originator, the remote switch connected to another optical interface of the light receiving end RX; RX ports for the light receiving end, to connect with a remote switch with an optical interface light originator TX. The use of two redundant 1000Base-LX optical interface fiber optic redundant ring network can be formed in the system failure redundant ring switching time less than 20ms, can effectively improve network reliability.

SFP optical module shown in the figure :

Gigabit fiber SFP interfaces

This product has two full-duplex 1000Base-LX single mode / multimode

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SFP optical module shown in the figure :

Hot-swappable SFP modules as follows:

Hot-plug procedure:

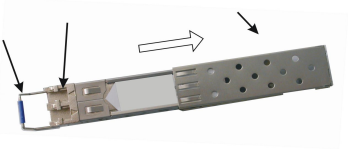
1.SFP during the observation of a finger end of the PCB.

2.the finger end into the SFP metal shielding cage, hear a click sound indicates that the device has been inserted in place, then the SFP plug handle, into the interface parallel to the normal position, you can use.

Hot drawing steps:

1.first unplug the SFP's plug handle perpendicular to the interface, this time the device should be shielded with SPF cage mount hook disengaged.

2.parallel to pull the SFP module.



After the SFP module hot-plug

Heat pull handle when the position

2.6.2. 100M fiber port interface

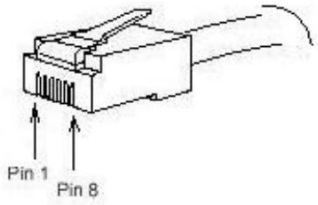
This product can choose multiple 100Base-FX full-duplex single-mode or multi-mode optical fiber interfaces, and the connector can be SC, ST or FC. Optical fiber interfaces need to be used in pairs (TX and RX are one

Yes), TX port is the optical transmitter, connected to the optical receiver RX of the optical interface of another remote switch; RX port is the optical receiver, connected to the optical transmitter of the same optical interface of the same remote switch TX.

The 100M optical interfaces mainly include: SC, ST, FC.

2.6.3. Ethernet RJ45 port

This product has multiple RJ45 10Base-T/100Base-TX Ethernet ports. Each RJ45 port with auto-negotiation, auto MDI / MDI-X connection. Internet can be used straight line / cross-over cable to connect the switch to terminal equipment, servers, hubs or other switches. Each port supports IEEE802.3x adaptive, so the optimum transmission mode (half or full duplex) and data rate (10Mbps or 100Mbps) can be automatically selected (the connected devices must also support this feature). If the device is connected to these ports do not support adaptive, then the port will send the correct speed, but will default to half duplex transmission mode.

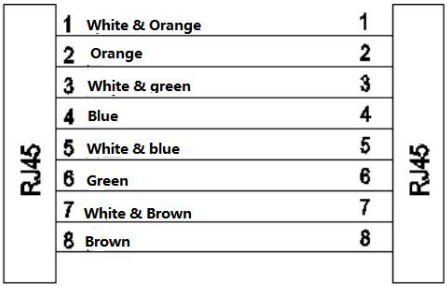


All RJ45 ports support the MDI/MDIX self-identification function of the cable.

so when the switch is interconnected with other Ethernet terminals, either a Category 5 direct connection cable or a Category 5 crossover network cable can be used, which facilitates our practical cable selection.

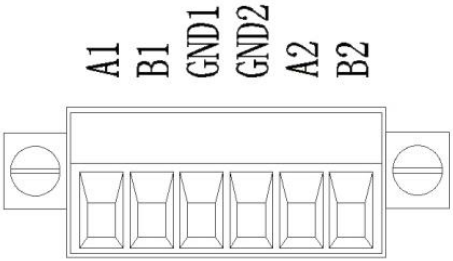
Pin number	MDI-X signal name	MDI signal name
1	Receive data+ (RD+)	Send data+ (TD+)
2	Receive data- (RD-)	Send data-(TD-)
3	Send data+ (TD+)	Receive data+ (RD+)
6	Send data-(TD-)	Receive data- (RD-)
4.5.7.8	Unused	Unused

The RJ45 port connection is shown in the figure below. The 100M direct connection crossover cable is compatible with Gigabit.



Note: The color definition of the cable in the picture refers to the EIA/TIA568B specification

2.7. RS485 bus communication interface



3. Hardware installation

3.1. Installation requirement

The Industrial Ethernet switch is used standard 35mm DIN-Rail install.Please make sure a suitable work environment, including power requirements, enough space, connect equipment and other equipment status. Please confirm the following installation requirements:

●Power supply: Standard redundant DC12BV ~DC36V power supply, other kind of power supply, please customer order.

●Environmental requirements: Temperature -40 ℃ ~ 85 ℃, relative humidity 0 ~ 95% (no condensation).

●Grounding resistance requirement: <.Ω5

●Configuration requirements under the contract, check the cable is in place, fiber optic connectors is appropriate.

●Avoid direct sunlight and awayλ from heat sources or areas with strong electromagnetic interference.

●Standard 35mm DIN-rail installation. Check for suitable cables and connectors.

Attention :

●Before installing or connecting Ethernet switch please make ensure that disconnect the power line. Do not exceed Max. current. If exceeds the maximum current, make the wire overheat, causing serious damage to the equipment.

●Separate the power cable and other cables, if the two paths must cross, must ensure that the intersection of these lines are vertical.

●Grounding and cabling can effectively suppress the noise caused by electromagnetic interference. Before connect the switch with equipment please connect GND first. Connected to the grounding screw from the ground surface

3.2. Switch installation

3.2.1. Din-rail installation

When taking out the device from the packing box, the connecting seat of the DIN rail should be fixed on the back of the switch. If the switch needs to be installed on the DIN rail, the installation of the DIN rail should be checked before installation. Mainly include the following two contents

Main including 2 terms :

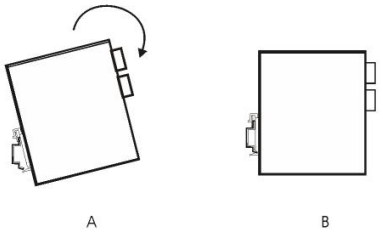
●Checking DIN-Rail is fixed firm, DIN-rail is installed on other equipment, whether there is enough space .

●Checking DIN-Rail whether suitable for power input.

Please selected the correct position. As below behind picture shows:

Insert DIN-Rail into DIN-Rail slot and as schematics 2-1 shows turning equipment.

As schematics 2-1 shows, insert DIN-rail into DIN-Rail slot and confirm the switch reliable equipment installed on the DIN-rail.



3.2.2. Cable connection

After the correct installation, the cable can be installed and connected, mainly including the following interfaces cable connection.

Copper port

The 100M copperl port of the terminal equipment provided by this product is a 10Base-T/100Base-TX Ethernet RJ45 interface. Using a straight-through network cable to connect to the terminal device, and a crossover network cable to connect to the network device.

Connecting the network management port

The CONSOLE port of this product can be connected to the serial port of the control computer.

Connect power

When all other cables are connected, you can connect to the power supply of the product identification specification.

3.2.3. Fiber connection

The Gigabit optical port of this product is a 1000Base-LX full-duplex single-mode/multi-mode fiber connection port, using SFP hot-swappable components, optical fiber interface using LC interface.

Attention：

This switch uses lasers to transmit signals over fiber cable. Laser Class 1

laser/LED products can cause serious damage on the eyes harmless. When the equipment is power on, please do not stare directly into the laser beam.

Connection fiber cable , please use following steps:

●When use fiber cable port, remove SC/FC/ST port cover; When it finish work, please put the plastic cover to protect the fiber optic head, keep clean.

●Check the fiber optic cable head whether it clean or not. If it not clean, will effect port and communication quality.

●One fiber optic head connect with Ethernet switch optic port, the other fiber head connect with another equipment fiber optic interface equipment.

●After connection, please check switch the front interface's LNK/ACT LED lights. If lights on, connection is available.

3.2.4. Cable layout

●Laying of cable should as following conditions:

Before laying cable please checking if it is suitable for project.

●Before laying cable laying please checking quantity, route to, location an other related , construction design whether suitable. Separate users cable and power supply cables.

●Please check the cable do not broken or other connector.

●Fiber optic cable should be straight in the aisles neatly inside, turning uniform, smooth and straight.

●cable in the channel, it should be straight, not close to channel, blocking the other inlet and outlet holes in the cable channel out of the corner site or cable should be binding and fixed.

●Do not mix cable, power cable, GND cable. Do not overlap.

●If cable is too long, it must be structured cable support rail site on the middle, do not pressure the cable.

●It is necessary to prevent the cable too tie and turns should be minimized, turning radius should be suitable. Banding should be appropriately tight, not too tight.

●Cable should be the appropriate identity, easy to maintain.

Attention:

Laying cable, it is necessary to prevent the cable tie and turns should be minimized, and the turning radius is not too small, the turning radius is too small will lead to a serious loss of optical signal link. The quality of communication.

4. Appendix

4.1. Technical parameter

Technical specifications	
Ethernet Standard	IEEE802.3-10BaseT IEEE802.3u-100BaseTX/100Base-FX IEEE802.3x-Flow Control IEEE802.3z-1000BaseLX IEEE802.3ab-1000BaseTX IEEE802.1ab IEEE802.1D-Spanning Tree Protocol IEEE802.1w-Rapid Spanning Tree Protocol IEEE802.1Q -VLAN Tagging IEEE802.1p -Class of Service IEEE802.1X-Port Based Network Access Control
Switch properties	
Priority queue	4
VLAN ID	1-4096
IGMP Groups	256
MAC table	8k
Switch Bandwidth	5.8Gbps
Switch Latency	<5μs
Interface	
Gigabit ports	Port numbers:2
	Connector: SFP for fiber port(LC, single or multi-mode)or auto-negotiation 10/100/1000M-Tx module
	Baud rate:1000Base-LX(fiber port), auto-negotiation 10/100/1000M-Tx port
10/100Base port	Port numbers:8
	Connector:9 fixed FX(single/ multi-mode; SC/FC/ST) or RJ45 port
	Baud rate:100Base-FX; auto-negotiation 10/100Base -Tx
Console port	RS232/RJ45
Terminal block for power input	5.08mm terminal block
Terminal block for relay alarm	5.08mm terminal block,1A@24VDC
Communication distance	

Twisted-pair	100m(CAT5/CAT5e cable)
Multi-mode fiber	Gigabit multi-mode: 850nm 550m; 10/100Base multi-mode: 1310nm 2km
Single mode fiber	Gigabit single mode: 1310nm 20km; 10/100Base single mode: 1310nm 20/40km; 1550nm 60/80km
LED indicator lights	
Front panel LED	Port light: LINK/ACT;SPEED; Gx
	Running light: RUN
	Power LED: PWR1/PWR2
	Ring LED: RING
Power Requirements	
Power input	DC110-220V(DC110-370V range) or AC100-240V(AC85-264V range) DC12V/DC24V/DC48V available
Full-load consumption	<10W
Overload protection	support
Inversed protection	support
Redundancy protection	support
Working Environment	
Operating Temperature	-40°C~85°C
Storage temperature	-40°C~85°C
Ambient Humidity	5%~95%(non-condensing)
Physical Characteristics	
Shell	IP40 protection, aluminum alloy shell
Installation	35mm din rail-mounted installation
Dimension	56mmx182mmx128mm
Industry standard	
Impact	IEC60068–2-27
Falling	IEC60068-2-32
Shock	IEC60068-2-6

EMC standards:

IEC61000-4-2 Anti-static (ESD): ±8 kV contact discharge, ±15 kV air discharge

IEC61000-4-3 electromagnetic field (RS): 10V/m (80-1000MHz)

IEC61000-4-4 Electrical Fast Transient (EFT): Power port--±4 kV, data Port--±2 kV

IEC61000-4-5 Surge: ±2 kV (differential mode), ±4 kV (common mode)

IEC61000-4-6 Radio Frequency Conduction (CS): 3 V (10kHz~150 kHz), 10V

(150kHz~80 MHz)

IEC61000-4-8 Power frequency magnetic field: 100A/m
IEC61000-4-10 Damped oscillating magnetic field: 10A/m
EN55022: EN55022 Class A.

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