

**MISCOM7212G Series**

**Industrial Ethernet Switch**

**User Manual**  
(Edition: V3.0)

Wuhan Maiwe Communication Co., Ltd.

Trademark

**Maiwe** This trademark is owned by Wuhan Maiwe Communication Co., Ltd.**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.

Copyright

Copyright © Wuhan Maiwe Communication Co., Ltd.

Clarification

The user manual is applicable to MISCOM7212G Series Industrial Ethernet Switch.

Please read the following license agreement carefully before using this manual. The products described in this manual can be used only if you agree on the following license agreement.

Important Statement

Any information provided by our company in this manual does not represent for corresponding authorization on these information.

Our company attempts to ensure the accuracy and applicability for the information provided in this manual, however our company does not assume any responsibility for the use of these information, and does not assume any joint responsibility for the use of these information. There may be a few technical or typographical errors in the product and manual. The company reserves the right to change all or part of this manual without prior notice.

**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 inquire 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

|   |               |
|---|---------------|
| <b>1. Introduction.....</b>                         | <b>- 1 -</b>  |
| 1.1. Product introduction.....                      | - 1 -         |
| 1.2. Product characteristic.....                    | - 1 -         |
| 1.2.1. Industrial switch with high performance..... | - 1 -         |
| 1.2.2. Industrial level power design.....           | - 1 -         |
| 1.2.3. Solid hardware design.....                   | - 2 -         |
| 1.3. Packaging list.....                            | - 2 -         |
| 1.4. System Parameters.....                         | - 2 -         |
| <b>2. Hardware installation and network.....</b>    | <b>- 4 -</b>  |
| 2.1. Hardware structure.....                        | - 4 -         |
| 2.1.1. System structure.....                        | - 4 -         |
| 2.1.2. Overall structure.....                       | - 4 -         |
| 2.2. Hardware Installation.....                     | - 7 -         |
| 2.2.1. Installation notice.....                     | - 7 -         |
| 2.2.2. Installation.....                            | - 8 -         |
| 2.2.3. Cable connection.....                        | - 8 -         |
| 2.2.4. Fiber connection.....                        | - 8 -         |
| 2.2.5. Cable Layout.....                            | - 9 -         |
| 2.3. Simple Testing guide.....                      | - 9 -         |
| 2.3.1. Self-examination.....                        | - 9 -         |
| 2.3.2. RJ45 port testing.....                       | - 10 -        |
| 2.3.3. Fiber optic port testing.....                | - 10 -        |
| 2.4. Network topology.....                          | - 11 -        |
| 2.4.1. Atar network.....                            | - 11 -        |
| 2.4.2. Chain network.....                           | - 11 -        |
| 2.4.3. Single ring network.....                     | - 11 -        |
| 2.4.4. Two group Ring network.....                  | - 12 -        |
| 2.4.5. Two group dual ring network.....             | - 12 -        |
| <b>3. maintenance and service.....</b>              | <b>- 13 -</b> |
| 3.1. INTERNET Service.....                          | - 13 -        |
| 3.2. Technical Support Phone Services.....          | - 13 -        |
| 3.3. The product repair or replacement.....         | - 13 -        |

# 1. Introduction

## 1.1. Product introduction

The MISCOM7212G series industrial gigabit Ethernet switch is developed for the fast industry Ethernet communications. It makes industrial communication more fluent, more stable, more fast. All the TX ports support auto-negotiation, 10/100/1000Mbps full duplex and half duplex, Auto-MDI/MDI-X Functions. This switch can supply several management styles, include visiting the switch by the hyper terminal (CLI), or manage the switch by telnet system, the SNMP system is also supplied. This switch can also supply kinds of network monitor protocol: including LLDP, STPv4 and DHCP. It can supply various high-grade management function, include the MSTP, IGMP, IGMP Snooping, VLAN, GVRP, QoS, Trunk, Quality of Service, rate control, mirror port configuration and so on.

The MISCOM7212G has total 12 gigabit Ethernet ports, include 8x10/100/1000Base-T and 4 gigabit SFP fiber ports.

## 1.2. Product characteristic

### 1.2.1. Industrial switch with high performance

- Total 12 gigabit Ethernet ports to satisfy different network configure
- The SFP port can support both LC fiber module or RJ45 module
- 8x10/100/1000Base-T support the full duplex and half duplex, MDI/MDI-X connection
- <50ms Ring technology based on self-recovery technology link redundancy
- Support the 4094 VLAN based on IEEE802.1Q
- Support EAPS, MSTP, VRRP various redundancy protocol
- 16K MAC address table supported
- Support the QoS improve communication quality
- Support the SNMP, PMON, Telnet network management protocol
- Support visiting the switch by the hyper terminal (CLI)
- Support the hardware ACL filtration based on L2-L7 layers data
- Support the IGMP Snooping
- Support the monitoring of broadcast storm control
- MTBF ≥ 300000 hours
- Power failure alarm port failure alarm and ring failure alarm
- Online software update based on FTP/TFTP

### 1.2.2. Industrial level power design

Support two power arrange (in different order model):

- DC power: 18~48VDC
- AC/DC power: 220AC/DC(85~264VAC/110~370VDC)

### 1.2.3. Solid hardware design

●Aluminum shell cool design with no fan,make the switch work in -40~+70°C

- Strong shell structure,IP40 protection level

### 1.3. Packaging list

| Item          | QTY |
|---------------|-----|
| The switch    | 1   |
| CD(software)  | 1   |
| CONSOLE cable | 1   |
| Warrant card  | 1   |

### 1.4. System Parameters

|                     |   |
|---------------------|---|
|                     | MISCOM7212G   |
| IEEE standard       | 802.3, 802.3u, 802.3z, 802.3x, 802.1P, 802.3ab etc.   |
| Exchange            | store and forward   |
| Backplane bandwidth | 24G   |
| Packet rate         | 17.856 Mpps   |
| Gigabit port        | 8x10/100/1000Base-T+4x1000Base-LX   |
| TX port             | RJ45(shielded) on IEEE802.3 standard<br>10/100/1000Base-T distance <100m  |
| Fiber port          | Optical power: >-12dBm(single mode),>-17dBm(multi mode)<br>RX Sensitivity: <-38dBm(single mode) ,<-35dBm(multi mode)<br>Wavelength:1310/1550nm(single mode),1310 nm(multi mode)<br>Distance: <20Km(single mode), <2Km(multi mode)<br>Connector: LC      Baud rate: 1.25Gbps |
| Power               | Voltage input<br>DC power: 18~48VDC<br>AC/DC power:<br>220AC/DC(85~264VAC/110~370VDC);<br>Power:15W(MAX) Over-current protect inside  |
| Physical parameters | Dimensions(H×W×D):  |

|                     |   |
|---------------------|---|
|                     | 156mmx72mmx120mm<br>Installing:35mm DIN mounting<br>Cool method: Aluminum shell cool design<br>with no fan<br>Protection level:IP40<br>Weight: kg |
| Working environment | Working temperature:-40°C~+70°C<br>Storage:-40°C~+85°C<br>Relative Humidity :0~95% (non-condensing)   |

EMC standard:

EN61000-4-2(ESD):±8kV/±15kV

EN61000-4-3:10V/m(80-1000MHz)

EN61000-4-6:3V(10kHz~150 kHz), 10V(150kHz~80 MHz)

EN55022:EN55022 Class A

## 2. Hardware installation and network

### 2.1. Hardware structure

#### 2.1.1. System structure

System hardware include following:

- Industrial Ethernet control adapt high performance ASIC chip technology, support data layer 2 wire speed transmit
- Power supply adapt reliable protection for EMC and against over-current/over-voltage
- The fiber port uses the LC module
- All the data ports have EMC protection

#### 2.1.2. Overall structure

The MISCOM7212G casing designed for industrial applications, IP40 protection, rugged high-strength metal case.The dimension is 156mmx72mmx120mm.





## LED indication lights

| LED indication lights<br>P1 P2 | ALAM     |           | RUN         | G9 - G12             |                   |
|--------------------------------|----------|-----------|-------------|----------------------|-------------------|
|                                | RED on   | GREEN off | GREEN blink | GREEN blink          | GREEN on          |
| Power OK                       | No alarm | Alarm     | System OK   | Fiber link is active | Data transmitting |

## LED indication lights for ports

| RJ45      |                          |           |        |            | SFP       |        |            |
|-----------|--------------------------|-----------|--------|------------|-----------|--------|------------|
| YELLOW    |                          | GREEN     |        |            | GREEN     |        |            |
| on        | off                      | on        | blink  | off        | on        | blink  | off        |
| High rate | No connected or low rate | connected | active | No connect | connected | active | No connect |

## Gigabit fiber SFP interfaces

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.

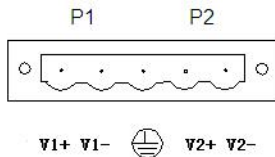
SFP optical module shown in the figure :



## Power input terminals

Use this product as standard 2-channel DC redundant power supply. Connect with 5.08mm pitch terminal block 2-way power input.

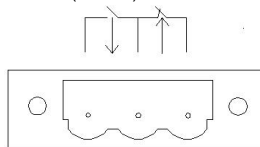
Full load power: 15W.



|   | definition                         |   |
|---|------------------------------------|---|
| 1 | Power 1 input<br>V1+: (AC-L)/+(DC) | <p style="text-align: center;">P1                  P2</p> <p style="text-align: center;">V1+ V1-        V2+ V2-</p> |
| 2 | Power 1 input<br>V1-: (AC-N)/-(DC) |   |
| 3 | GND9(Grounding)                    |   |
| 4 | Power 2 input V2+: +(DC)           |   |
| 5 | Power 2 input V2- :+(DC)           |   |

#### Alarm relay

Power down alarm relay switches. This relay is normally closed relay, when the switch operates normally, the relay is energized to open when the system is powered down, the relay power-down closure. Recommended load capacity of the relay switch 1A (24VDC).



### ALARM

|   | definition                       |  |
|---|----------------------------------|--|
| 1 | Relay output normally open pin   | <p style="text-align: center;">ALARM</p> |
| 2 | Relay output normally common pin |  |
| 3 | Relay output normally close pin  |  |

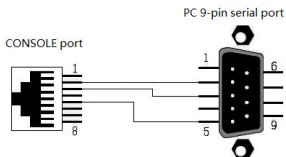
#### Serial network interface (CONSOLE)

Network management port is a RJ45 interface, please use our serial extension cable to the PC's serial port. Interface communication standard

### 3-wire RS-232.

Serial communication parameters are as follows:

Baud Rate: 115200bps, Data bits: 8 ,Parity: none, stop bit: 1 Flow Control: none



## 2.2. Hardware Installation

### 2.2.1. Installation notice

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 DC24V power supply
- Environmental requirements: Temperature -40°C ~ 70°C, relative humidity 0 ~ 95% (no condensation).
- Grounding resistance requirement: <math>< 5\Omega</math>
- Configuration requirements under the contract, check the cable is in place, fiber optic connectors is appropriate.
- Avoid direct sunlight and away from heat sources or areas with strong electromagnetic interference.
- Standard 35mm DIN-rail installation. Check for suitable cables and connectors.

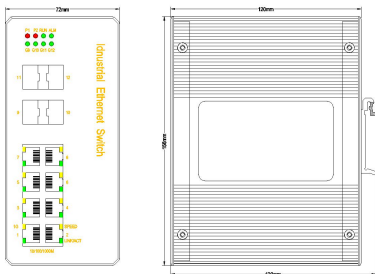
#### Attention

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.

## 2.2.2. Installation



This series equipment back panel have fixed well DIN rail-way connection seat. If need installation, please check DIN rail way condition .

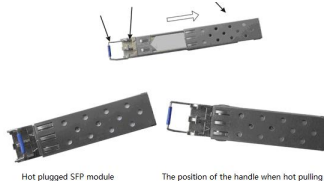
## 2.2.3. Cable connection

After install Ethernet switch , please correct install cable. The switch 10/100/1000Base-TX RJ45 interface ports, use the crossover cable direct connect with terminal equipment , use cross wire connect network equipment .

## 2.2.4. Fiber connection

This switch use 1000Base-LX single mode or multi-mode fiber connector.

- When use fiber cable port, remove 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.



Hot plugged SFP module

The position of the handle when hot pulling

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.

### 2.2.5. Cable Layout

Laying of cable should as following conditions:

Before laying cable please checking whether 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.

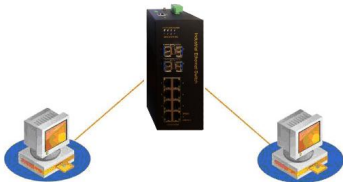
## 2.3. Simple Testing guide

### 2.3.1. Self-examination

When connection equipment, the front panel power supply indicator light will blinking once, it means working well. After a while Power supply indicator light is on. Run indicator light (system status LED) will blink interval.

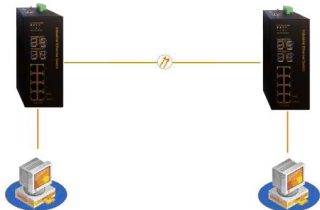
### 2.3.2. RJ45 port testing

As picture show, the power port by any two straight lines and two test networked computers connected to the network port, send a Ping command to each other, both sides were able to correctly Ping to each other without loss. That tested the hardware working properly the two power ports.



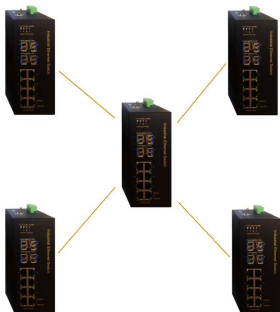
### 2.3.3. Fiber optic port testing

Composed of two devices as shown in the optical chain network. Each device port by any one power line and testing of computer networking directly connected to each other and send the Ping command, both to each other and do not correctly Ping packet loss. While the corresponding optical port Link / Act LED should be lit. Two optical ports that the hardware is tested working properly. Another way to test using the same optical port.



## 2.4. Network topology

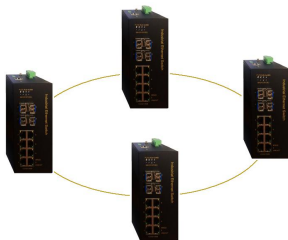
### 2.4.1. Atar network



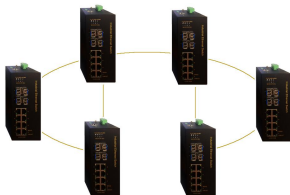
### 2.4.2. Chain network



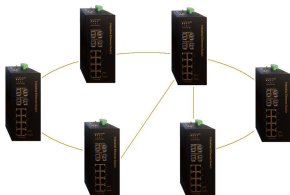
### 2.4.3. Single ring network



#### 2.4.4. Two group Ring network



#### 2.4.5. Two group dual ring network





### **3. maintenance and service**

Since the date of product shipment, it provide five years of product warranty. In the warranty period, if there is any failure or functional product fails, it will repair or replace free of charge for users of the product. However, these commitments do not cover improper use, accidents, natural disasters, improper operation or improper installation caused the damage.

To ensure that consumers benefit of products, through the following ways to get help and problem solving:

- Internet services.
- Call the technical support office.
- Product repair or replacement.

#### **3.1. INTERNET Service**

Through the website of Wuhan Technical Support section, you can get more useful information and tips.

#### **3.2. Technical Support Phone Services**

By using the product user manual, you can connect with our technical support office, we have professional technical engineers to answer your questions, help you the first time resolve your product or issue.

#### **3.3. The product repair or replacement**

Product repair, replacement or refund, should first contact with our technical staff to confirm, and then sales staff to contact and get the problem handled. Above shall technical staff and sales staff through consultations, to complete the product maintenance, replacement or return.

**WUHAN MAIWE COMMUNICATION CO.,LTD**

**Add.:Building 2, Area E, Phase ii, Optical valley core center, No.52,  
Liufang road, East Lake Hi-tech Development Zone,Wuhan,China**

**Phone: 027-87170215/16**

**Fax: +86-027-87170217**

**[www.maiwe.com](http://www.maiwe.com)**