

MISCOM7212GP Series

Industrial Gigabit POE Switch

User Manual
(Edition: V1.0)

Wuhan Maiwe Communication Co., Ltd.

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Clarification

The user manual is applicable to MISCOM7212GP series of industrial managed power over 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.

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1. Introduction

1.1. Product Description

The MISCOM7212GP series industrial POE 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 various management method,include the command line interface(CLI) through the hyper terminal,the telnet management system and the SNMP management software.It also supports the network monitoring protocol of LLDP,SNTPv4 and DHCP.

This switch can supply high-grade management function including MSTP,VRRP,IGMP,IGMP Snooping, VLAN, GVRP, QoS, VPN , Trunk, rate control, Broadcast storm suppression, mirror port configuration, Static MAC address transfer, diagnostic function, Email/Relay, fault alarm relay.

This switch is a standard Din rail mounting device.

This switch provides total 12 gigabit Ethernet communication ports,include 4 Gigabit SFP slot ports and 8 Gigabit RJ45 copper ports. All the ports support 802.1Q VLAN, 64 Kbps minimum step speed limit, 16K MAC address table, 4K VLAN, 512 layer 2 multicast, and L2's Ipv4 and Ipv6 message forwarding across the wire.

This switch provides max 8 POE+ ports,all support the IEEE802.3af/at standard,the max power output of each port is 30W. It supports the WEB management of the POE control. It has strong lightning, anti-static and interference protection capabilities, support industrial applications in harsh environments.

1.2. Product Characteristic

1.2.1. Industrial Network Performance

- Support 4 gigabit SFP slot ports and 8 10/100/1000Base-T RJ45 copper ports
- Support a configurable alarm relay output
- Less than 20ms fast redundancy fiber ring network technology enhance the reliability of system communication
- Support VLAN based on IEEE802.1Q, number 4094
- Support for EAPS, MSTP,VRRP and other redundant protocols
- 8 POE+ ports, which support single port maximum power correction and port output priority

- 4M cache satisfy the smooth transmission of 4K video stream
- Support 16K MAC address table
- Support the improved QoS strategy and various queue scheduling algorithms
 - Support SNMP,Telnet network management protocols
 - Support the command line interfaces(CLI) to access switches through super terminals
 - Support hardware ACL function and provide ACL hardware filtering based on L2-L7 level data.
 - Support IGMP Snooping detection function
 - Support for broadcast storm suppression
 - Supporting full duplex and half duplex mode traffic control
 - MTBF≥300000 hours
 - Support power alarm, port alarm, ring alarm function
 - FTP/TFTP based online software upgrade can facilitate user's equipment management and update
 - It has the function of graphical network configuration, management and maintenance. It can monitor the running state and performance of the network remotely and provide network fault.Monitoring, diagnosis, location and alarm capability

1.2.2. Industrial Power Design

- Wide range industrial power range of 48~57VDC.
- Adaptor input: 220AC/DC (85~264VAC)

1.2.3. Rugged Appearance Design

- Aluminum chassis heat dissipation surface design, no fan efficient heat dissipation, can make the system work reliably in -40°C~85°C environment
- High-strength enclosed aluminum enclosures, IP40 protection rating, enable the system to work reliably in harsh and dangerous industrial environments

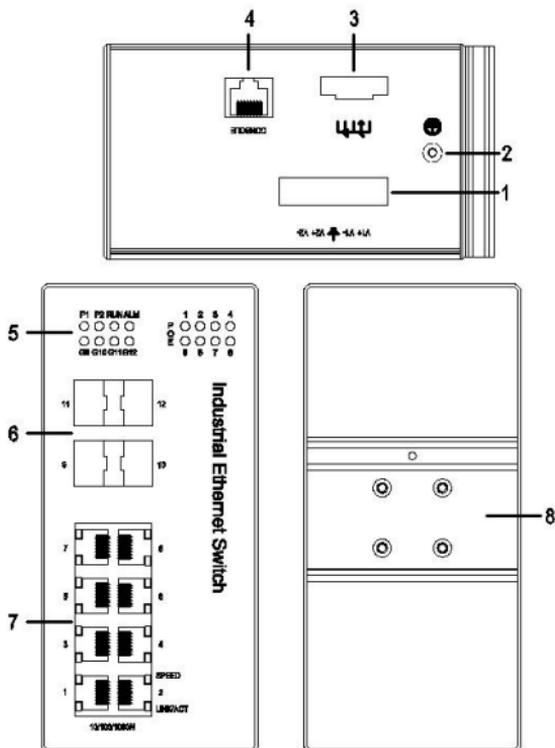
1.3. Packing List

Item	QTY
MISCOM7212GP Industrial Ethernet switch	1pcs
Power adapter(optional)	1pcs
CD	1pcs
console cable	1pcs
Manual	1pcs

2. Hardware function

2.1. Hardware Structure

Panel layout



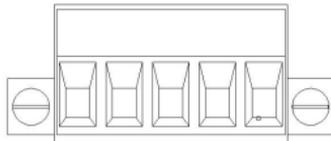
- 1.P1/P2 Power input
- 2.ground screw
- 3.relay output terminals
- 4.CONSOLE port
- 5.indicator lights
- 6.1000Base-LX SFP slot
- 7.10/100/1000Base-T RJ45 copper ports
- 8.DIN-Rail mounting

2.1.1. Power Input Terminals

This switch has a 5-ways terminal block on the top panel for the redundant power supply.

Input voltage range: DC48 ~ 57V

DC power supply: V1+ V1- $\frac{\perp}{\equiv}$ V2+ V2-



important hint:

- Power-on operation: First connect the power cord to the power terminal of the device according to the definition shown in the figure above, and then power on;

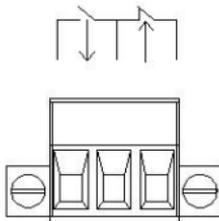
- Power-off operation: first unplug the power plug, then remove the power cord, please pay attention to the above operation sequence.

2.1.2. Grounding

This switch has a grounding screw that pins one end of the grounding wire to the terminal and then fixes the grounding screw to the grounding hole of the casing. The other end of the grounding wire is reliably connected to the earth. The ground wire section is not less than 2.5mm²

2.1.3. Alarm Relay

This switch has a 3-ways 3.81mm terminal block for alarm relay on the front panel. It's a normally open relay(left side) and a normally closed relay(right side), the block in the middle is shared used. When the switch works well, the normally open relay is closed, and the normally closed relay is off. When the device power off (single power or dual power off), the port link down, or cause network storm, the normally open relay is off, and the normally closed relay is closed. Recommended load capacity of the relay switch is 1A (24VDC).

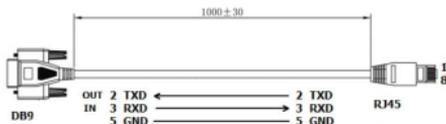


2.1.4. Serial Network Management Interface (CONSOLE)

Network management port is a RJ45 interface, please use our serial extension cable to connect the PC's COM 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



2.1.5. Indicator Lights

The indicator lights of the front panel shows the working status of the switch:

LED	Condition	Status
P1	on	Power 1 is OK
	off	Power 1 is off or error
P2	on	Power 2 is OK
	off	Power 2 is off or error
ALM	on	Power alarm
	off	No Power alarm
RUN	blink	The switch works well
	on/off	System error/not startup
LINK/ACT (G1~G12)	on	connection is active
	blink	Data transfers
	off	connection is not active
Speed (G1~G8)	on	1000M rate state
	off	10/100M rate state or no connection

POE (1~8)	on	POE power work
	blink	POE port power not enough
	off	POE power not work

2.1.6. Gigabit Fiber SFP Interfaces

This product has two full-duplex 1000Base-LX single mode/ multi-mode fiber interface, 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:



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.





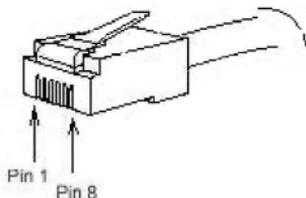
After the SFP module hot-plug



Heat pull handle when the position

2.1.7. Ethernet RJ45 Port

This product has multiple RJ45 10/100/1000Base-T 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.



Each RJ45 port supports 802.3af/at standard, single port maximum output 30W.

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: according to the power marked on the product label.
- Environmental requirements: Temperature $-40^{\circ}\text{C} \sim 85^{\circ}\text{C}$, relative humidity 0~95% (no condensation).
- Grounding resistance requirement: $< .\Omega 5$
- 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. DIN-Rail Installation

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

Main including 2 terms :

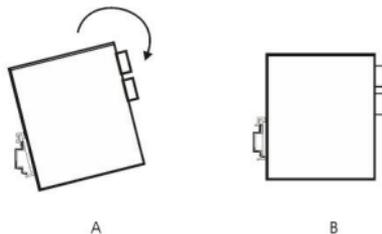
- Checking DIN-Rail is fixed firm, DIN-rail is installed on other equipment, whether there is enough space .

- 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.



2-1 DIN-rail installation

2.2.3. Cable Connection

After install Ethernet switch , please correct install cable. Cable installation please following behind notice:

Equipment port connection

This series provided 10/100Base-TX RJ45 interface port, use the crossover cable direct connect with terminal equipment , use cross wire connect network equipment .

2.2.4. Fiber Connection

This series Ethernet switch provide 3 x 1000Base-FX single mode or multi-mode fiber.

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 optic 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.

2.2.5. Cable Layout

Before laying out the cables, check whether the specifications, models and quantities of all cables are in conformity with the construction drawing design and contract requirements;

- Before laying the cable, check whether the cable is damaged, whether there are factory records and quality assurance certificates that prove its quality;
- The specifications, quantity, routing direction, and location of the cables to be laid should meet the design requirements of the construction drawings, and the wiring length of each cable should be determined according to the actual location;
- The user cables and power cords are laid separately;
- There must be no broken wires or joints in the middle of the laid cables;
- Cables should be laid out neatly in the aisle, with even, smooth and

straight turns;

- The cable should be straight in the trough, and should not go beyond the trough to block other entry and exit holes. The cable should be tied and fixed at the cable exit or the cable bend;
- When cables, power cords, and ground wires are laid in the same slot, the cables, power cords, and ground wires cannot be overlapped or mixed. When the cable is too long, the cable must be neatly placed in the middle of the cabling rack and cannot be pressed on other cables;
- When laying pigtailed, prevent the optical cable from knotting and minimize the turning points, and the turning radius should not be too small. The lashing should be moderately tight and not too tight. When laying on the cable rack, it should be placed separately from other cables;
- Both ends of the cable should have corresponding marks, and the content of the marks is concise and easy to maintain.

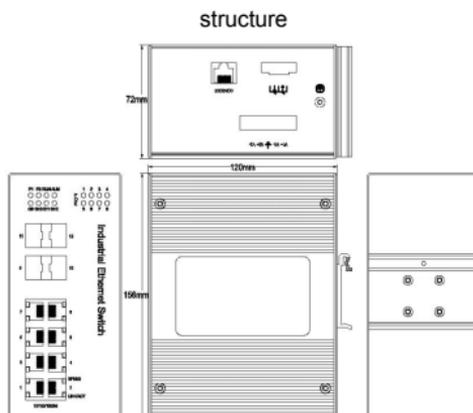
Attention:

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. Performance Specifications

IEEE standard	802.3、802.3u、802.3z、802.3x、802.1P、802.3ab、802.3af/at
Exchange method	store and forward
Backplane bandwidth	24G
Packet forwarding rate	17.856 Mpps
Gigabit ports	8 10/100/1000Base-T and 4 1000Base-LX
The RJ45 copper port	Physics socket: RJ45 Socket(shielded) RJ-45 socket: 10Base-T/100Base-TX,auto negotiation Communicate distance:<100m PoE power method:PSE Terminal bridging method 1/2 (+) ,3/6 (-) PoE power output:single PoE output≤30W(54V),total power output≤240W (need the external

	power >240W)
Optic port parameter	Optical power: >-12dBm(single mode)>-17dBm(multi-mode) Sensitivity: <-38dBm(single mode) <-35dBm(multi-mode) Wavelength: 1310nm(single mode) 1550nm(single mode) 1310 nm(multi-mode) Typical Distance: <20km(single mode),<2Km(multi-mode) connector: LC Transport rate: 1.25Gbps
Power parameter	Input voltage: 48~57VDC Input power: 15W (MAX) without POE Overcurrent protection: inside
Physical parameter	Dimension(H×W×D): 156mm×72mm×120mm Installation method: DIN rail Cooling: Aluminum chassis surface cooling, no fans Protection: IP40 weight: 0.95kg
Working environment	Operation temperature: -40℃~+70℃ Store temperature: -40℃~+85℃ Ambient Relative Humidity: 0~95% (non-condensing)



2.4. Testing Guide

2.4.1. 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 1s.

2.4.2. Electronic 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



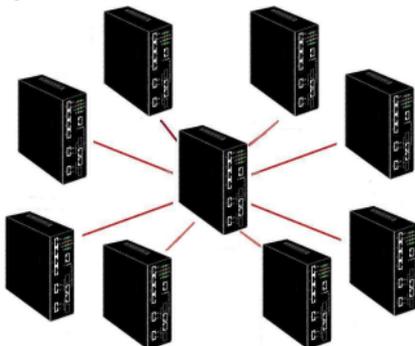
2.4.3. Fiber Optic Port Testing

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.

2.5. Network Construction

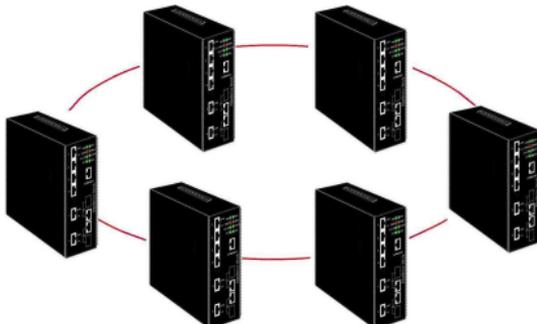
2.5.1. Star Ring Network



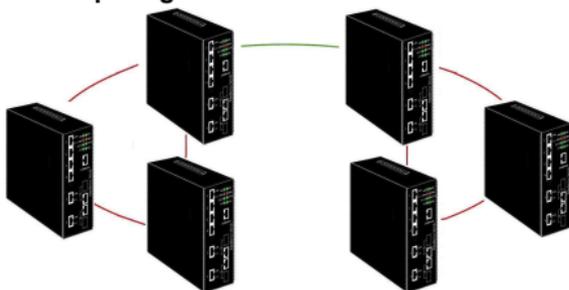
2.5.2. Line Network



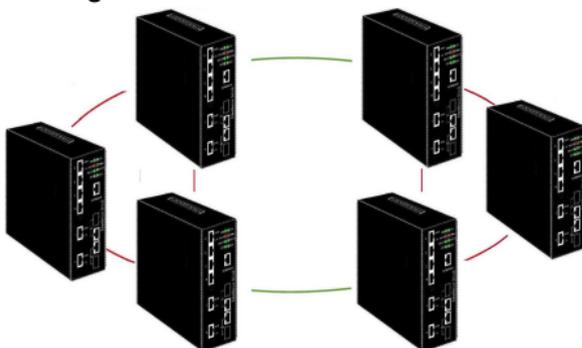
2.5.3. Straight Line Ring Network



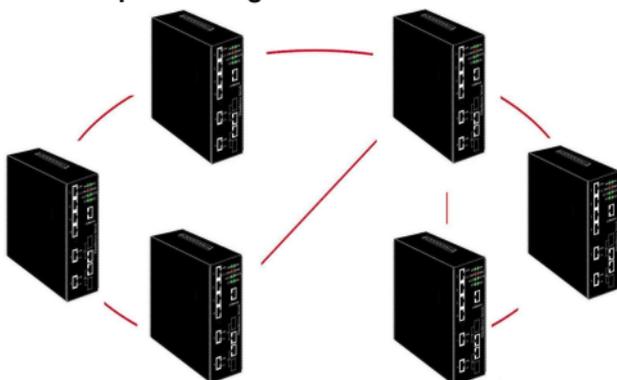
2.5.4. Two Group Ring Network



2.5.5. Dual Ring Network



2.5.6. Two Group Dual Ring Network



3. Maintenance and Service

Since the date of product shipment, we provide five years of product warranty. Within the warranty, 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 connect 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.

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