ALL-MC302P2WIRE-SET

USER MANUAL

TABLE OF CONTENTS

Chapter 1 Product Appearance and Description

This user manual is suitable for ALL-MC302P2WIRE.

Product Introduction

Mini PoE Ethernet Extender ALL-MC302P2WIRE is a high-speed Ethernet transmission device. It can transmit Power and Ethernet signals together over any pair of 2-wire such as Cat5, coaxial cable and power line, etc. The max distance can reach 600 meters and the max physical bandwidth can reach 500Mbps.

It contains one Master unit and one Slave. The Master can directly supply power for the Slave unit and PoE device. It can be installed in a small space with its compact size. It can transmit IP & PoE over 2-wire such as Cat5, coaxial cable and power line which greatly simplify the project cabling, applied to transmit middle & short distances of PoE device signals.

Features

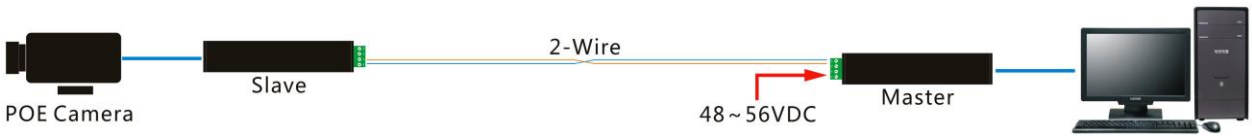
- ◆ Max Transmission distance reach 600m (RVS 2×1mm^2), PoE transmission distance up to 500m
- ◆ Max physical bandwidth reach 500Mbps
- ◆ Support power over cable technology (12VDC or 48~56VDC)
- ◆ Support PoE output (48~56VDC power input)
- ◆ Built-in ESD protection circuit in case of static damage

Technical Parameters

Category		Description
Power	Available Voltage Range	12VDC or 48~56VDC
	Power Consumption	≤3.5W / PC
	PoE Power Output	Standard 48VDC; IEEE802.3af
Transmission / Rate	Standard Compliance	IEEE1901, IEEE802.3
	Up down Agreement	CSMA/CA
	Rate	500Mbps Physical Bandwidth
		88Mbps Transmission Speed
Physical Characteristic	Dimensions (L × W × H)	123mm×26mm×26mm
	Material	Aluminum
	Net Weight	110g / PC
Operating Environment	Working Temperature	-20℃ ~ 60℃

	Working Humidity	< 95% (Non-condensation)

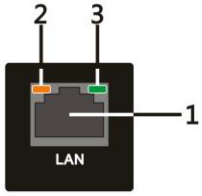
Connection Diagram

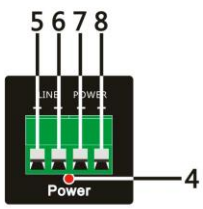


Dimension

Note: Dimension error value ±1 mm

Terminal Description

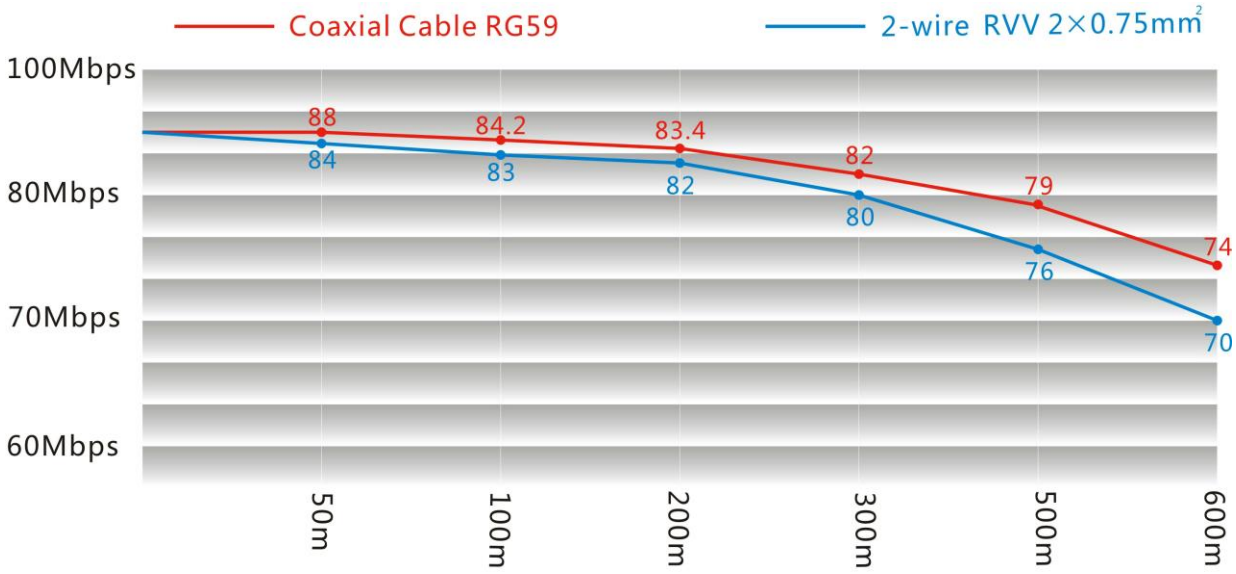




No.	Description	Function
1	RJ45 Port	Ethernet Signal Interface
2	Data Indicator	Show Communication Status
3	Line Indicator	Show Cable Status
4	Power Indicator	Show Power Supply Status
5	2-wire Port	2-wire Interface +
6	2-wire Port	2-wire Interface-
7	Power Port	Power Interface+
8	Power Port	Power Interface-

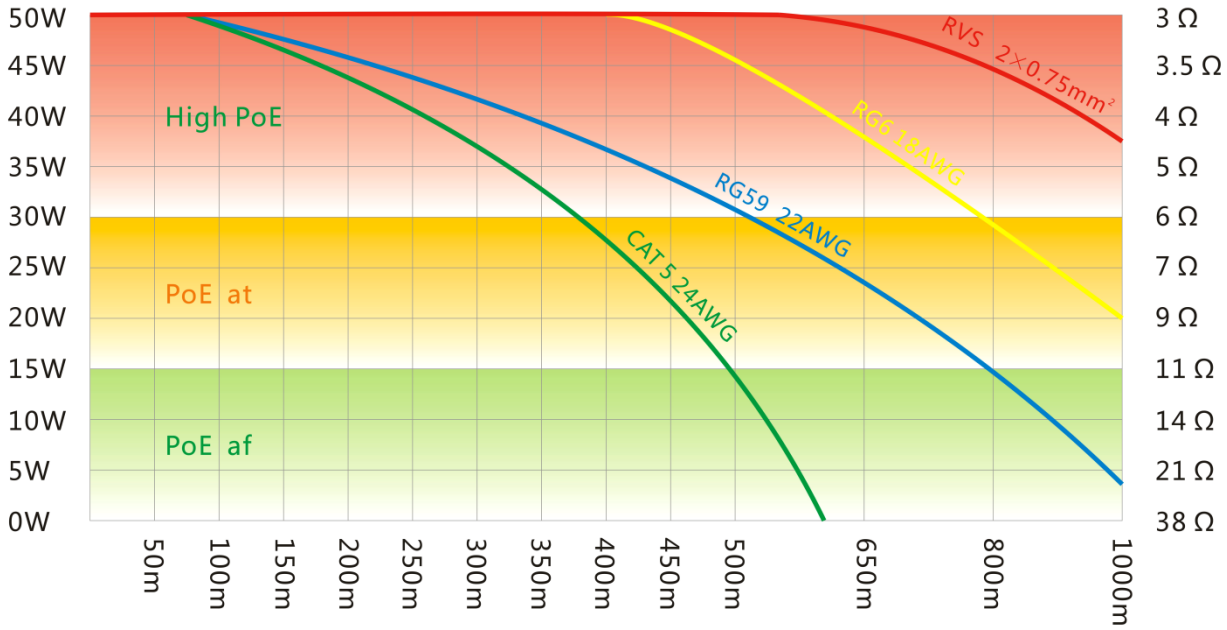
Ethernet Bandwidth Table

ALL-MC302P2WIRE POE Ethernet Extender supports high-speed data transmission. The bandwidth depends on types of cable, and as the cable distance increases, the bandwidth will decrease correspondingly. The following test values are for your reference:



The above date is one-way network parameters, the test is carried out under the condition that the cable has not been fully expanded, which may be different from the actual application data. This data is for your reference only.

Power Loss Diagram

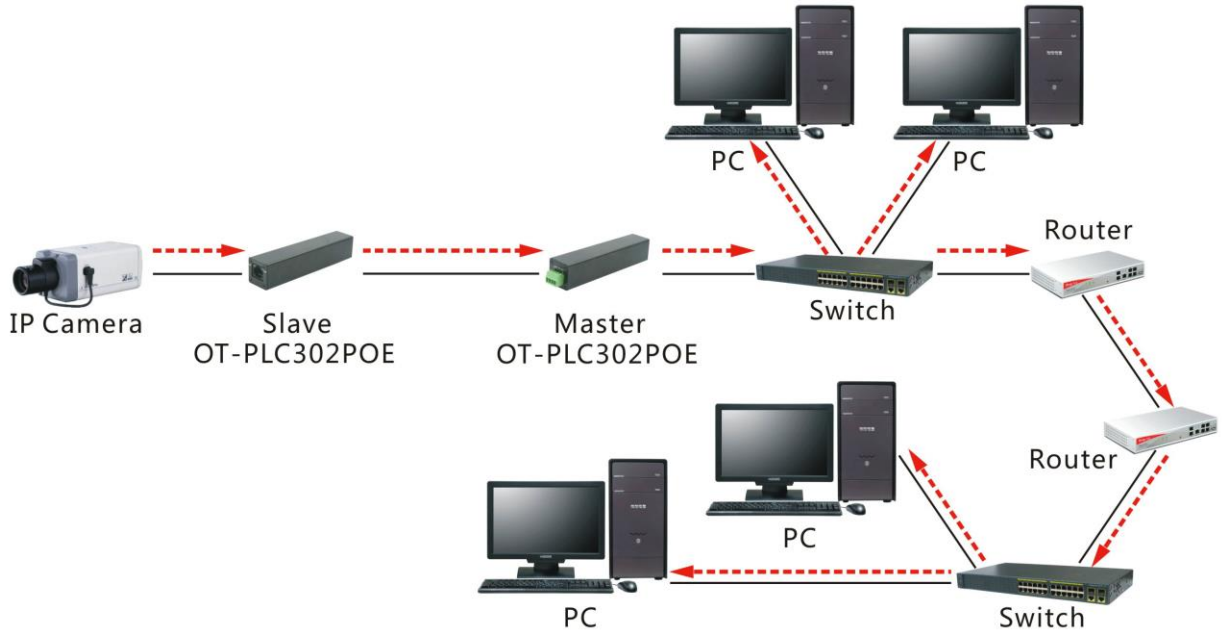


Note: Power loss and attenuation differs from the cable types, the above diagram lists the power loss diagram of four types specification for your reference.

Other Features

Multicast Qos

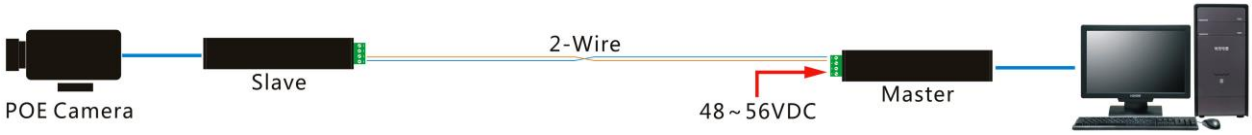
ALL-MC302P2WIRE supports multicast function which can realize one point to multi-point data forwarding, bringing the high transmission efficiency. Under the condition of small Ethernet bandwidth, it can stably transmit data flow and support the network equipments of giving the priority to transmit data stream.



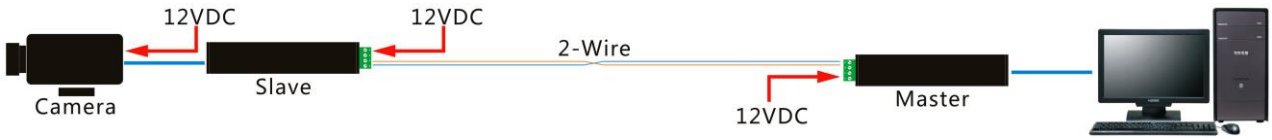
PoE Power Supply

PoE Ethernet Extender can transmit Ethernet and power over cable, which greatly simplify the project cabling and save cost, the connection diagram of different power supply ways as below:

1. Provide 48~56VDC for the Master unit, slave unit and PoE powered device no need extra power supply



2. Provide 12VDC for front-end IP device, Master and Slave units need extra power supply separately

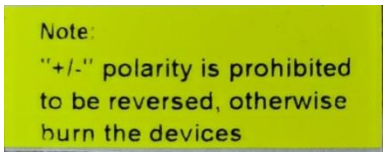


Note:

A. This device can't support PoE modules power supply, including PoE switch, PoE recorder, etc. It only supports 48-56VDC power input, during PoE transmission, power have some loss, which differs with different cable types, the effective transmission distance of RVV2×0.75mm² is about 300m.

B. Please pay more attention to the **Positive** and **Negative pole** when you connect the 2-wire transmission cable.

C. When you use the POE Ethernet Extender, please note the **warning label** on the device as below:



Installation Steps

Installation Instructions

Definition of Master / Slave & Terminal device / Remote device:

Master / Slave: POE Ethernet Extender Unit connected to the computer is Master by default. POE Ethernet Extender Unit connected to the camera is Slave by default.

Terminal device / Remote device: Terminal device generally refers to the direction of computer / machine room, and remote device generally refers to the direction of camera.

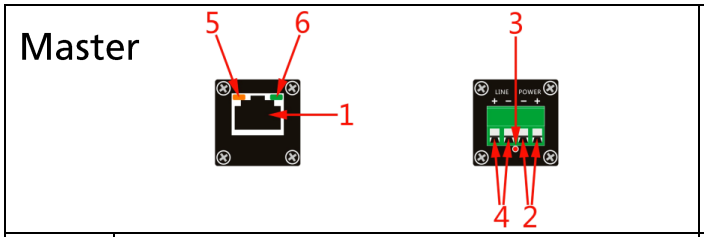
Installation Preparation

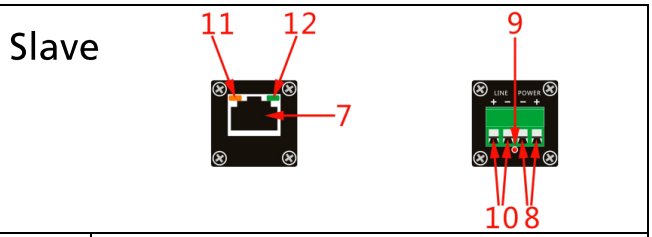
Confirm installation place as per the label details on the product. If shows Master, it should be installed in machine room; if shows Slave, it should be installed near the remote device.

Please check the grouping code, two or multiple POE Ethernet Extenders with the same grouping code should be installed on both sides of a line, and can't connect to POE Ethernet Extenders with other grouping code, otherwise it will cause communication failure.

For example:

Installation Steps

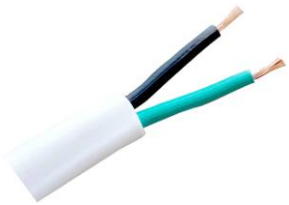




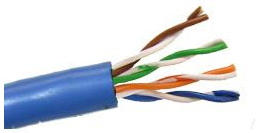
Step	Installation Instruction	Step	Installation Instruction
1	Network equipment is connected to RJ45 port of Master unit (1)	7	Network equipment is connected to RJ45 port of Slave unit (7)
2	Positive and negative terminals of the low voltage power (2)	8	Positive and negative terminals of the low voltage power (8)
3	Power indicator is always on (3)	9	Power indicator is always on (9)
4	Positive and negative connection terminal of 2-wire cable (4)	10	Positive and negative connection terminal of 2-wire cable (10)
5	Network data indicator quickly blinks when data is normal (5)	11	Network data indicator quickly blinks when data is normal (11)
6	Line indicator is always on (or quickly blinks)(6)	12	Line indicator is always on (or quickly blinks) (12)

Accessory Requirements

Cable: POE Ethernet Extender can use different types cable, you can choose the below cables for your reference.

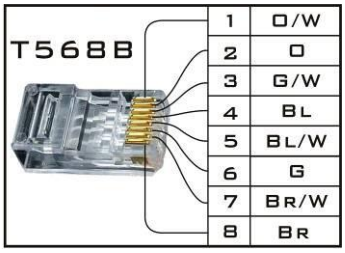


Power Line: RVV, RVS, RVVP, RVB 2×0.5mm2



UTP Cable: Cat 5 or above

Connector: RJ45 port uses standard crystal head connection; coaxial cable can use 2-wire to BNC connector.



RJ45 port by EIA / TIA568B

Use Tips

When you use ALL-MC302P2WIRE, please follow the below tips as a reference, in order to reduce the fault in the process of using and the inspection work.

1. The device supports auto-negotiation allocation master and slave. It also can be set master-slave side and grouped by software. Master unit should be installed in the terminal side.

2. Signal transmission cable must be the copper cable. Other material cables will cause the decrease of signal transmission quality and distance.

3. Long-distance cable connections must be by standard connection method, such as welding or

using connectors.

4. Make sure the electrode of transmission cable of 2-wire cable, twisted pair and power line is consistent, otherwise, it is easy to cause the power failure.

5. Please choose matching power adaptor (12VDC or 48～56VDC).

6. There is no waterproof design for this product, please make sure it is used in dry environment.

7. If device fails, do not disassemble or repair it by yourself. Please contact us timely.

Chapter 2 Equipment Maintenance and Management

Troubleshooting

Notice: During the installation, please refer to user manual and use tips to avoid the human failure.

▲ Do not use centralized power supply or remote switching power supply, please use separate, small power adaptor.

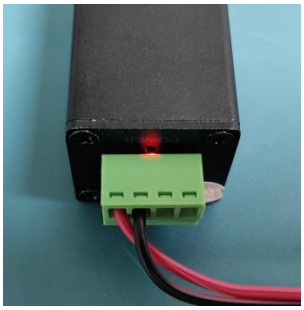
▲ Please distinguish the the positive and the negative pole of 2-wire, reverse polarity will cause power failure.

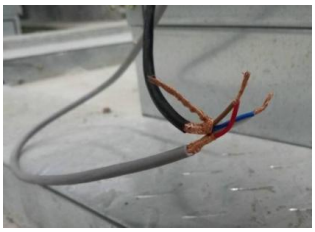
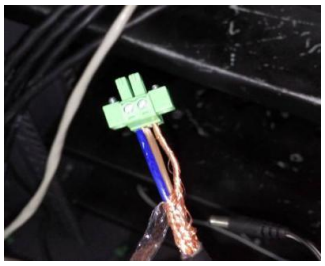
▲ If there is network fault, please firstly check whether it is POE Ethernet Extender failure.

▲ Please directly connect POE Ethernet Extender to terminal devices, if POE Ethernet Extender work well, then please check the failure except POE Ethernet Extender.

▲ If directly connect POE Ethernet Extender to terminal devices, the network does not work. Do not disassemble or repair POE Ethernet Extender by yourself, please contact us timely.

Fault Phenomenon	Solutions	Images
About the troubleshooting of signal indicators, please refer to the pictures on the right.		
No power	Please check the power adaptor, and replace it if it was broken.	
The power indicator is off and on in every 2 minutes	When POE Ethernet Extenders do not transmit network signal, automatic rebooting belongs to normal phenomenon.	

<table>
<tr><td>The green indicator turns off after a few seconds</td><td>Cable disconnected and no connection, check and restore cable connection.</td><td rowspan="3">  </td></tr>
<tr><td>The yellow indicator is off</td><td>POE Ethernet Extenders do not detect the network devices, check whether Cat5/6 cable is normal and power is supplied to cameras or not.</td></tr>
<tr><td>The yellow indicator flashes several times and goes off</td><td>Network signal is blocked; POE Ethernet Extenders are wrongly grouping or installed, please check and re-group all the POE Ethernet Extenders.</td></tr>
<tr><td colspan="3">Power failures cause network failure.</td></tr>
<tr><td>The power indicator is dim</td><td>Power adaptors are aged to damage, low voltage; replace power adaptors.</td><td rowspan="2">  </td></tr>
<tr><td>The green indicator and the yellow indicator are both off</td><td>Voltage and current is lower than the working value of POE Ethernet Extender, it is caused by remote and centralized power supply, please change into 12VDC/1A or 48~56VDC to near power supply.</td></tr>
<tr><td colspan="3">About the troubleshooting of POE Ethernet Extender grouping, please refer to the chapter of grouping or consult our engineer team.</td></tr>
<tr><td>No data transfer</td><td>Group the POE Ethernet Extender.</td><td rowspan="5">Wrongly group or install the POE Ethernet Extender; there are multiple masters in one line, which cause network failure.</td></tr>
<tr><td rowspan="4">The slaves of POE Ethernet Extender cannot be found completely</td><td>Install Master in terminal side, slave install in remote side, strong cable connection.</td></tr>
<tr><td>Please check all the network devices’ power supply.</td></tr>
<tr><td>There is only one master in one line.</td></tr>
<tr><td>Change the repeated MAC into different MAC and write to the devices.</td></tr>
<tr><td colspan="3">Wrong connection causes network failure.</td></tr>
<tr><td>Correct cable connection, no communication</td><td>POE Ethernet Extenders with different grouping code are installed in one line or there are 2 masters in one line.</td><td>  </td></tr>
</table>

Correct cable connection, large delay and broken network	Multiple POE Ethernet Extenders are stacked together, without grouping and separating Master/Slave, please re-grouping Ethernet Extender and separate installation.	
Cable failure cause network failure.		
CAT5/6 cable problem	Poor quality and poor contact of RJ45 Port.	
	Wrong line sequence of RJ45 Port, please use 568B to make RJ45 Port, directly connect network devices to check them.	
Various cable mixed connection	2-wire, coaxial and twisted pair cable are by mixed connection at will, the joint is not strong, please make improvement.	
Shielded twisted pair cable cannot transmit signal smoothly	Make the shielding layer as one end, select the one core in two as the other end and connect POE Ethernet Extender to solve the problem of the loss of signal.	
Cat5/6 cables are connected in in parallel	Using Cat5/6 cable to transmit, just use one pair, the rest three pairs should stay in disconnection.	
The cable is broken	Using the multimeter to test the line, if the cable was broken, replace a set of cables	
Wrong cable connection	Up and down in place of the cable should be carefully checked and measured, line number should be matched correspondingly, cannot be connected wrongly	

Too many connectors	Avoid too many cable connectors. It is suggested within three connectors.	
The distance is too far	Transmission distance is within 600 meters. The farther the distance, select a larger cable specifications	

Types	Fault Phenomenon	Test Ways	Solutions
The other types of network failure	No network connection	Does the network camera match the terminal facility?	Different brands of network monitoring equipment can support ONVIF, then the connection can be achieved
	Video is freezing and not smooth	Whether network throughput and encoding / decoding ability of terminal devices can support smooth signal display?	Please check network throughput of the switch and processing ability of the decoder
	The network camera often disconnects	Does the protocol of network equipment version match the network protocol?	The network camera directly connects to terminal equipment to test.
	No connection of network multimedia display	Power supply and cable connection status.	To make sure the power supply of each device is normal and cable connections are normal
	Remote devices can’t be detected	Bandwidth limitation.	Group the device and open multicast function
	Video files transfer slowly	The number of multimedia display group is too large.	The number of network multimedia display is too much. Appropriately reduce some, resend and conduct the test.
	Network multimedia display often disconnects	Check the cable terminal and devices fixing.	The cable and power connectors of POE Ethernet Extender should be fixed. POE Ethernet Extender should also be fixedly installed.
	Plug cable to recover network transmission	The temperature control of the environment.	Multiple POE Ethernet Extenders are installed together, should be separated, and install a radiator, it is forbidden to arbitrarily stacked together

ALLNET GmbH Computersysteme declares that the device **ALL-MC303P2WIRE-Set** is in compliance with the essential requirements and other relevant provisions of Directive 2014/30/EU. The Declaration of conformity can be found under this link: http://ce.allnet.de/

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Safety Warnings

For your safety, be sure to read and follow all warning notices and instructions.

- Do not open the device. Opening or removing the device cover can expose you to dangerous high voltage points or other risks. Only qualified service personnel can service the device. Please contact your vendor for further information.
- Do not use your device during a thunderstorm. There may be a risk of electric shock brought about by lightning.
- Do not expose your device to dust or corrosive liquids.
- Do not use this product near water sources.
- Make sure to connect the cables to the correct ports.
- Do not obstruct the ventilation slots on the device.