

Wireless Bridge

--User Manual--



CPE220 2 KM

This user manual suit for these model: CPE220 | CPE320 | CPE335 | CPE355 | CPE365 | CPE450 | CPE550, on the user manual we only use the model CPE220's photo, other model product's operation interface is the same.

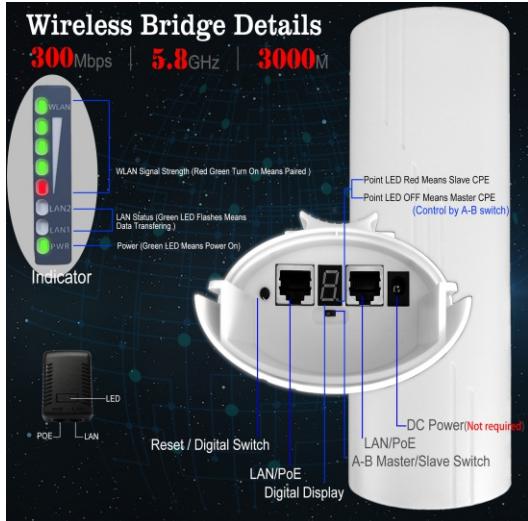
Note:

- A. Thank you for purchasing our product. Please read the user manual carefully before use. If there are any problems, please contact us in time;
- B. The installation of this device requires some network knowledge. If you can't install it, please contact us or ask a professional for help.

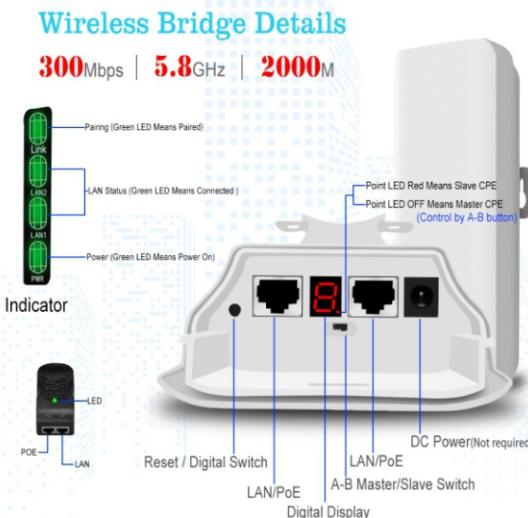
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1. Wireless Bridge Overview



Model: CPE335|CPE355|CPE365



Model: CPE220|CPE320

Note: The operation of the 5 models is the same, we choose CPE220 as the default image.

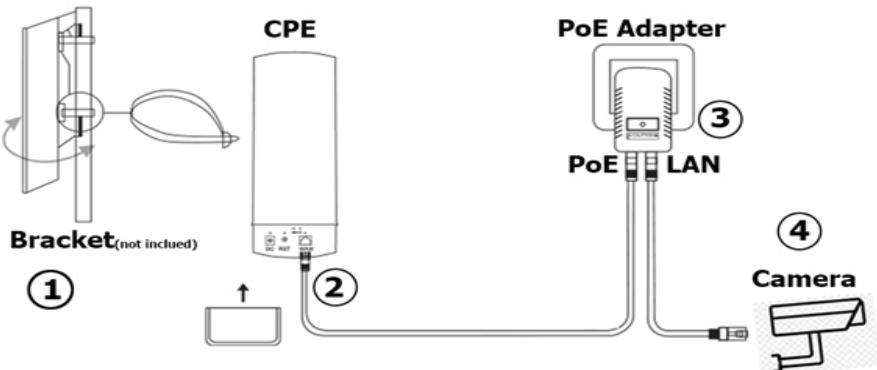
Package Content



Package Included

2 x Outdoor Wireless Bridges
2 x PoE Adapters
2 x Metal Hoops
1 X User Manual
Note: This wireless bridge is powered by a PoE adapter through a network cable, it does not require a DC power supply. The DC power adapter and cable are not included in the package.

2. Install Wireless Bridge



1. Put the bridges front side face to face in the same direction, note: the bracket is not included in the package.

2. Use a long network cable to connect the PoE adapter and the bridge. Connect the LAN port of the bridge to the PoE port of the PoE adapter. It's recommended to use a cat 5(or above) shielded network cable with a ground wire.

3. Connect the LAN port of the PoE adapter to the camera, PC, router or switch. The PoE adapter provides power and data transmission for the bridge.

4. The LAN port of the PoE adapter connects to monitors or the internet for master bridge, and the LAN port of the PoE adapter connects to cameras or routers or other equipment for slave bridge.

Note: before installation, please check whether the wireless bridge is paired well, please refer the master and slave pair setting page.

2. Pre-Paired Wireless Bridges, Plug & Play

We paired the two bridges before shipment. When you get the bridge, you can use an Ethernet cable to connect the PoE adapter and the bridge. Once connected, they will automatically pair and connect. When they are successfully connected, the green signal indicator turns into the solid light state. If you receive the product and they cannot automatically pair and connect, you can read the following instructions to pair and connect.

4. Video Transmission & Network Extend

The wireless bridge is widely used in highways, reservoir river monitoring, elevator monitoring systems, site crane monitoring systems, port terminal monitoring systems, marine aquaculture monitoring systems and so on.

The wireless bridge for video transmission usually covers in master and slave mode respectively. At the slave side(transmitting data) the bridge connects with the IP camera. At the master side(receiving data)the bridge connects with a video recorder.

The master receives wireless data transmitted from multiple clients, and it's easy and convenient for centralized management of the remote equipment.

The wireless bridge not only helps you in remote monitoring, but also helps you extend the network signal to warehouses, barns, garages and other buildings near your home.

5. Wireless Bridge Function

- 1.Long-distance 5.8G wireless transmission
- 2.Support point-to-point, point-to-multipoint mode
- 3.Transmission distance is up to 3km(barrier-free),differ model is different
- 4.Campatible in both WDS networking mode and video networking mode
- 5.Dialing to set the transmitter and receiver, and also support the PC to modify the IP settings.
- 6.Dynamic MIMO power saving mode (DMPS) and automatic power-saving transmission(APST)
- 7.Pre-configured wireless bridge, digital displays A, B automatic networking, plug and play.
- 8.Support 24V POE power supply, convenient installation and deployment, simply construction, safe and reliable.
- 9.The wireless bridge can be relocated and reused, installation is fast, flexible and cost effective.

6.Wireless Bridge Parameters

Model: CPE220 / CPE320 / CPE335 / CPE355 / CPE365 / CPE550

Master Control: Ar9344

DRAM: DDR2 64MByte

FLASH: 8Mbyte

Wire Interface: 10/100Mbps LAN*2

CPE Transmission Rate: 300Mbps

Transfer Method: Direct Sequence Spread Spectrum(DSSS)

Modulation: OFDM/BPSK/QPSK/CCK/DQPSK/DBPSK

Network Standard: IEEE802.11n, IEEE802.11a, IEEE802.3u

Supporting Agreement: CSMA/CA, TCP/IP, IPX/SPX, NetBEUI, DHCP, NDIS3, NDIS4, NDIS5

Frequency Range: 5745-5825MHz

Power Consumption: 3W

Power Scheme: PoE 24V 0.5A-1A

Antenna Gain: 12DBi

Antenna Polarization Direction: Vertical (Horizontal 60°C / Vertical 30°C)

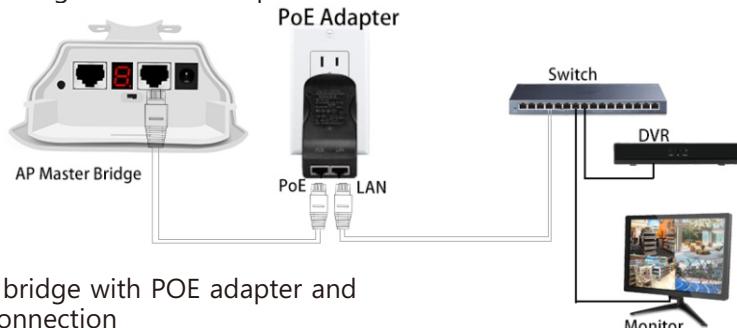
Management Settings: WEP management, Telnet, Serial

Encryption: WEP encryption 64/128bits, WPA, WPA2, 802.1x

Operating Temperature: -30° C ~ 65° C

7.Connect Wireless Bridge to PoE Adapter

7.1 Master bridge with POE adapter and Switch connection



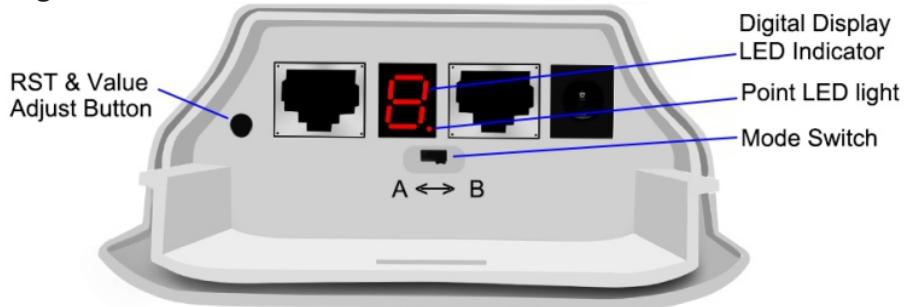
7.2 Slave bridge with POE adapter and camera connection



8.Wireless Bridge Master & Slave Pairing

8.1 Configure the master and slave mode

There are one pair wireless bridges in the package, simply set a bridge to master mode (switch to "A" position), another bridge to slave mode (switch to "B" position), please refer below diagram:



- move the mode switch to "A" position, the device works as master mode, the round LED light on.
- move the mode switch to "B" position, the device works as slave mode, the round LED light turn on.

How to pair it?

set a bridge to master mode, another to slave mode, short press the reset button to change the channel from 1 - 8, the LED indicator will display the numeric to show what channel it is, please keep the master and slave both in the same channel.

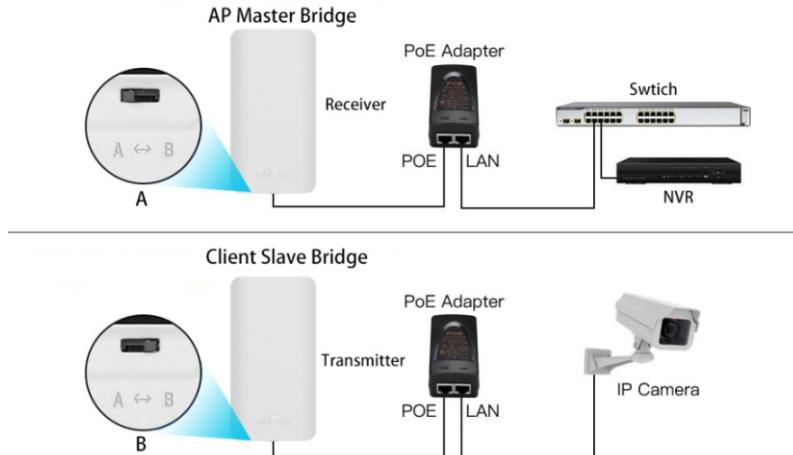
Note: the bridges are pre-paired, just connect to PoE adapter, it will auto pair in a few minutes, you can adjust the channel.

Reset: if the system halt, press and hold the "RST" button over 10 seconds, system will restart, the LED display will flash numeric

8.2 Example

- move the switch to master mode, short press the rest button to adjust the channel to "6", the LED indicator will display "L" for a second, then flashes the set numeric every second, means the master setting is ok, wait for pairing.

2. move the switch to slave mode, short press the rest button to adjust the channel to "6", the LED indicator will display "L" for a second, then flashes the set numeric every second, keep both bridges front side face to face, wait for a few seconds, the flashes numeric of the LED indicator will stop flashing, and change to always light on, please check the master bridge should be the same status, now, the pairing is successful.

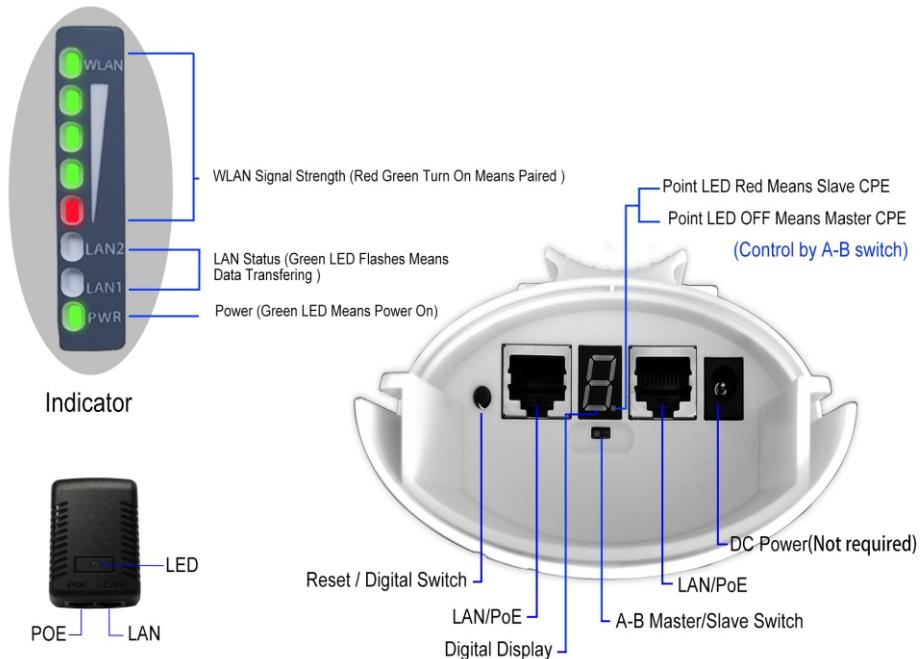


When it is paired connects the internet source to the master PoE adapter's LAN port, the slave PoE adapter's LAN port connects to the router or computer LAN port, it can extend your WiFi to a long range.



The master bridge also provides WiFi hot point, you need to enter the password to get access, please refer page 13 to find the password.

Product Overview



8.3 LED Indication & Function Chart:

WLAN	After the bridge is connected successfully, the WLAN light will be on, not connected the WLAN light will not be lit.
LAN1/LAN2	The data connection is successful, the LED light is on, otherwise, it is not bright.
PWR	Power indicator, the LED is on after the power is connected
LED	Digital LED displays "H" indicates manual configuration status
LED	Digital LED displays "L" and flashing indicates settings status
LED	Digital LED display flashing indicates edit the config or connecting
LED	Digital LED displays "O" and flashing indicates the "DIP switch control" on the bridge control panel is disabled
Point Light	A, B status lights, lighting on is B mode, no lighting is A mode.
RST	Short press, the LED displays number increases, cycle change from 0,1...F.
RST	Press over 10s, release the "reset" button, the system automatically restart

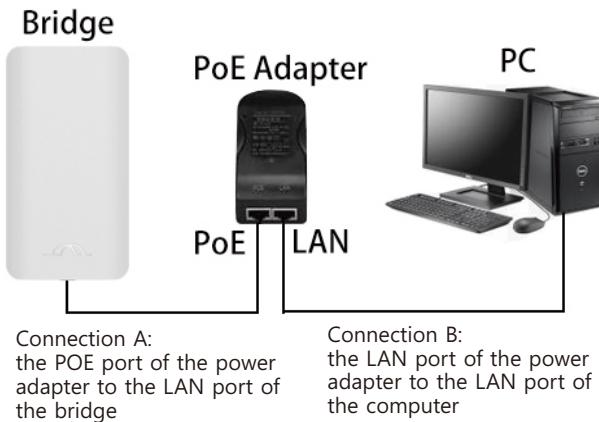
9.How to Access and Set via Computer

9.1 connect to the computer for configuration

9.11. Connect the PoE adapter to the wireless bridge via network cable, the bridge gets power from the PoE adapter, does not need DC power adapter.

9.12. Connection A: the POE port of the power adapter to the LAN port of the bridge

Connection B: the LAN port of the power adapter to the LAN port of the computer



9.13. Check the numeric on the LED indicator of the wireless bridge, for example: the numeric is 1, and the mode switch of the wireless bridge is at "A" position, then the IP address of the wireless bridge is 192.168.255.101, if the mode switch of the wireless bridge is at "B" position, then the IP address of the wireless bridge is 192.168.255.201, please refer the 9.13.1 LED number & IP chart.



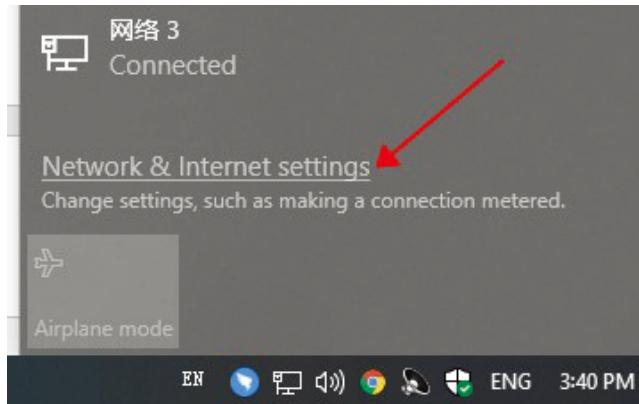
9.13.1 LED Number & IP Chart:

LED	A IP	B IP	2.4G ID	5.8G ID
0	192.168.255.100	192.168.255.200	0	0
1	192.168.255.101	192.168.255.201	1	165
2	192.168.255.102	192.168.255.202	2	161
3	192.168.255.103	192.168.255.203	3	157
4	192.168.255.104	192.168.255.204	4	153
5	192.168.255.105	192.168.255.205	5	149
6	192.168.255.106	192.168.255.206	6	48
7	192.168.255.107	192.168.255.207	7	44
8	192.168.255.108	192.168.255.208	8	40
9	192.168.255.109	192.168.255.209	9	36
a	192.168.255.110	192.168.255.210	10	140
b	192.168.255.111	192.168.255.211	11	132
c	192.168.255.112	192.168.255.212	13	124
d	192.168.255.113	192.168.255.213	96	116
e	192.168.255.114	192.168.255.214	50	108
f	192.168.255.115	192.168.255.215	55	100

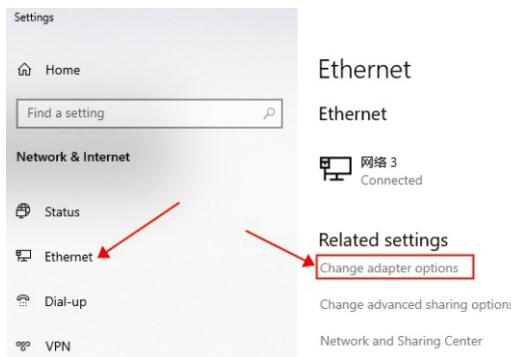
9.13.2. Modify your computer's IP address to 192.168.255.xxx,(xxx is from 1 -254), please be careful, the computer's IP address can not be the same as the wireless bridge, and they must be in the same network segment, please google how to modify computer IP address, it is simple step.

9.14 How to configure your PC IP address: 192.168.255.xxx:

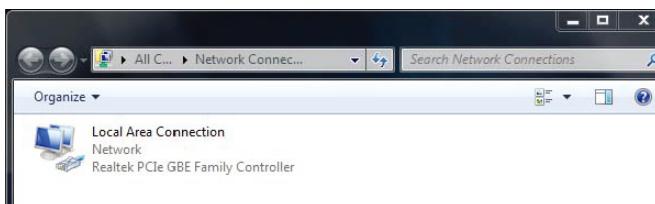
a. Find the network icon at the bottom right corner of the screen, click it to open the Network & Internet settings.



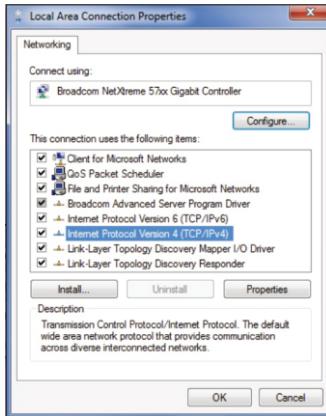
b. Select Ethernet and click "Change Adapter Options".



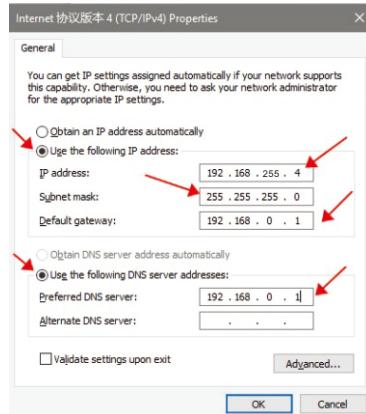
c. Find the network connection you are using, right click it and select "Properties"



d. Double-click the "Internet Protocol version 4(TCP/IPv4)" go to IP config interface



e. Configure your computer IP address as 192.168.255.xxx(xxx is a figure 2-254), note: the PC's IP can not be the same as the bridge.

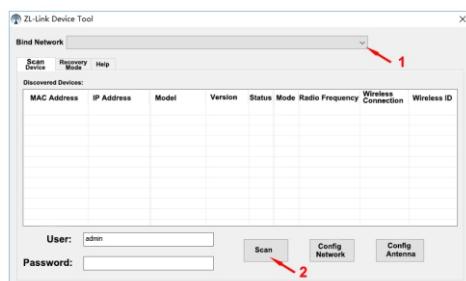


9.15 We provide a software for windows to search the IP address, you can download it on www.eoqo.com/download.html

On the download page, select CPE software tool, click to download and unzip you can see the software as below diagram:



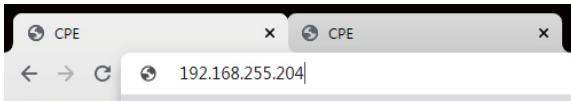
Double click this software, will display below interface:



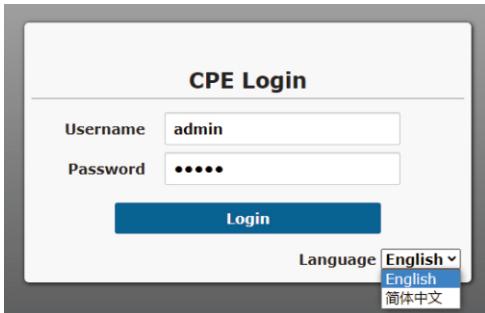
Click the down arrow, refer "1"
 Click Scan button, refer "2"
 System will search the connected wireless bridge, and you can see the IP address in the IP address column

9.16 Log into master bridge and slave bridge **control panel**

9.16.1. After you modified your computer's IP address, open the browser and enter the IP address of the wireless bridge to get access, for example, enter "192.168.255.204" on the browser address column, you can access your bridge control panel.

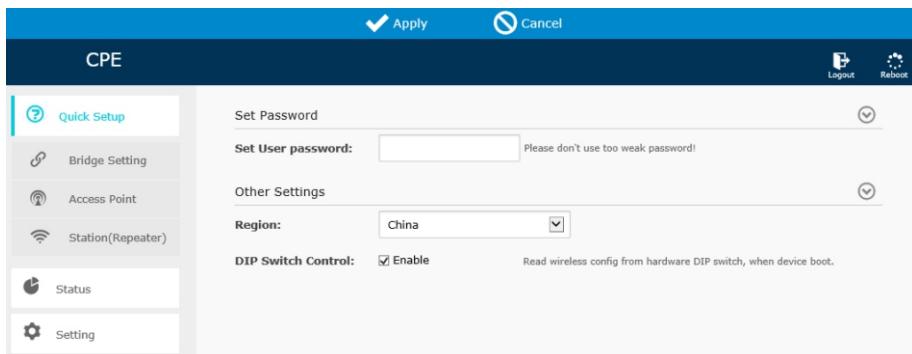


The browser login interface is as below diagram:



Note: If it does not display the login interface, please check the network cable connection, and your computer's IP address, must be **192.168.255.xxx**.

Enter the Username and Password, the default user name and password is "admin/admin", select language to "English", click "Login" to confirm to go to below interface



On Quick Setup menu, you can modify the user password, click "Apply" to confirm

The master bridge output WiFi hot point at auto mode, we need to enter the password to access it, how do we find the password? please refer the following content to learn.

when the “DIP Switch Control: is enabled, the bridge has pre-programmed the WiFi hot point name(SSID) and password, you can click “Setting” of the left menu, and click “wireless” you can view and change the password if needed:

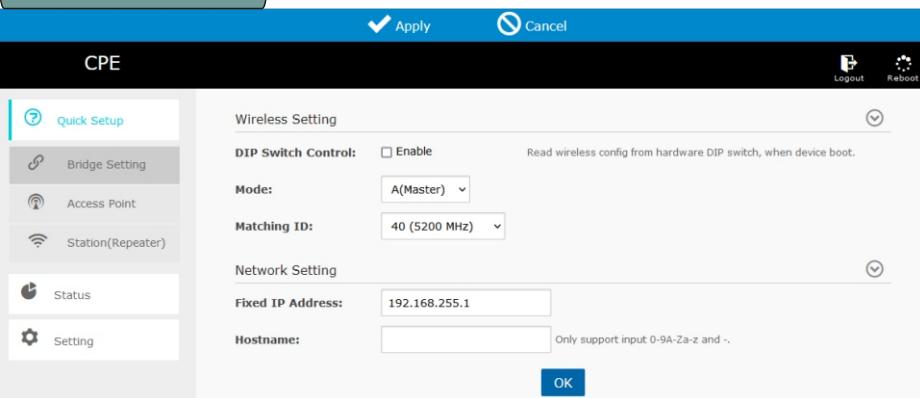
The screenshot shows the CPE configuration interface with the following details:

- Left Sidebar:** Quick Setup, Status, **Setting** (selected), Wireless, Network, System, Tools.
- Radio(phy0) Settings 5G:**
 - Tx Power: 23 dBm
 - Channel Bandwidth: 20/40 MHz
 - Channel: 161 (5805 MHz)
 - Coverage Distance (m): (input field with a progress bar)
 - Timed Off: Enable
 - New Virtual Interface: **Create**
- Virtual Interface(phy0/wlan0) Settings:**
 - Switch: Enable
 - Name (SSID): CPE5G_5G161 Hidden
 - Authorization: WPA2-PSK
 - Password: zllinkcpe123456161
 - Access Control: Only refuse denied stations
 - Wireless Bridge (WDS): Enable
 - Isolate: Enable
 - Max stations: (input field)
 - VLAN: (input field)
 - Delete Virtual Interface: **Delete**

The name and password is pre-programmed depend on different channel, it always change the channel when press “RST” button, so, the name and password is different, but only change the last two or three numbers.

For example: the name is CPE5G_5G161, and the default password is zllinkcpe123456161, if the name is CPE5G_5G153, and the password should be zllinkcpe123456153, the last three numbers of the password is match to the last three numbers of the name.

9.2 Bridge Setting



On the Bridge setting menu, you can set the bridge parameters

DIP Switch Control: check it to enable auto mode, press the “RST” button is functional, the operation please refer page 8, Uncheck to disable it, the “RST” button is not functional, the bridge works in customization mode, you can set the bridge parameters for customized function.

Note: if you uncheck the “DIP Switch Control”, all the setting is not functional, if you are not familiar with network technology, please use auto mode, do not make any change, it may lose connection of your bridges after your configed.

Mode: you can select A(master) and B(Slave) mode

Matching ID: you can select bridge working frequencies, please refer the 9.13.1 chart to find out the number matching to 5.8G frequencies, for example :“40(5200MHZ)”, 40 is match to below:

8	192.168.255.108	192.168.255.208	8	40
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The channel is 8, for master mode ip address is 192.168.255.108 for slave mode ip address is 192.168.255.208

Fixed IP Address: here you can change the bridge's IP address, It must be in this format 192.168.255.xxx, After changed, click “OK” button to save the setting.

Host Name: you can set the bridge a special name to remember

9.3 Access Point Setting

Quick Setup

Bridge Setting

Access Point

Station(Repeater)

Status

Setting

Network

Wireless

Management

DHCP: Enable

Fixed IP Address: 192.168.255.105

Fixed Netmask: 255.255.255.0

DNS Server: []

Next

DHCP: check to enable, uncheck to disable, **Must enable it.**
Fixed IP Address: set a customize IP address
Fixed Netmask: set the netmask address
DNS server: set the DNS server if needed
Click “Next” to go to Wireless setting interface:

Quick Setup

Bridge Setting

Access Point

Station(Repeater)

Status

Setting

Network

Wireless

Management

Radio

phy0 Channel: 40 (5200 MHz)

Virtual Interface

Wireless: Enable

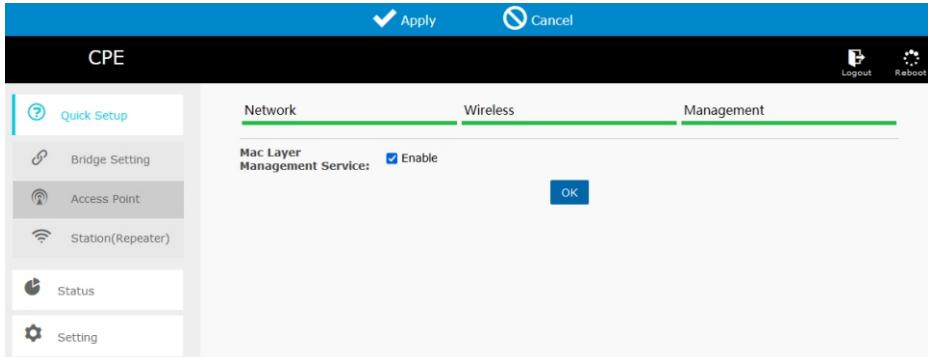
Name(SSID): cpe Hidden

Authorization: Open

Wireless Bridge(WDS): Enable

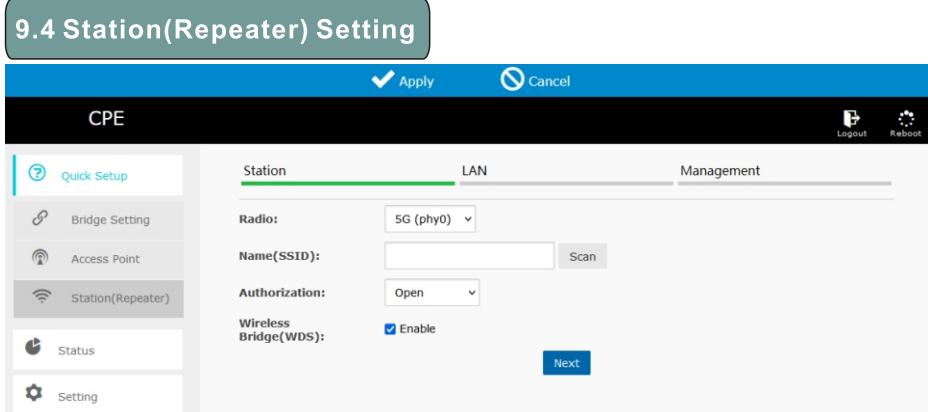
Next

phy0 channel: set the working frequencies, same as Matching ID
Wireless: check to enable wireless, uncheck to close wireless function
Name(SSID): here you can enter your own SSID name
Authorization: you can select “Open” or “WPA2-PSK”
Wireless Bridge(WDS): check to enable wireless bridge function, uncheck to close the function, **for wireless bridge you need to enable it.** Click “Next” to go to Management setting interface



Mac Layer Management Service: check to enable, uncheck to disable, we suggest to check.

Click “OK” button to confirm the settings.



This interface to set your device works as repeater, can be repeat LAN or WiFi source

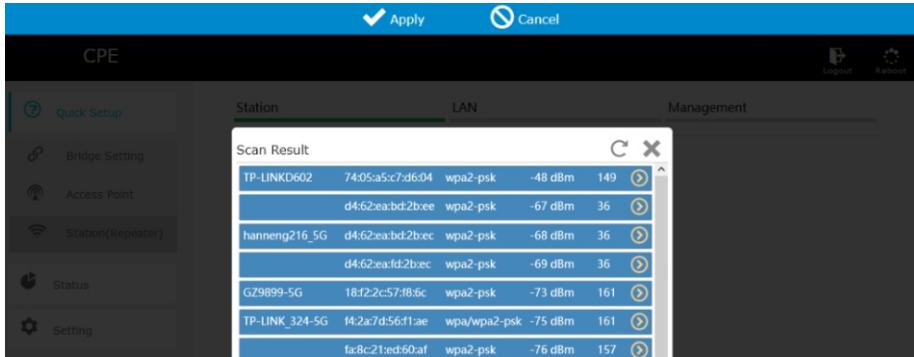
Radio: 5G(phy0), only support 5G

Name(SSID): click “Scan” button to searching the WiFi source, it will pop a window for you choose, refer the WiFi source selection chart on next page

Authorization: it will auto change after your scanned WiFi

Wireless Bridge(WDS): check to enable, uncheck to disable if use for repeater use you need to disable this function, for wireless bridge connection usage you can enable it

WiFi Source Select Chart

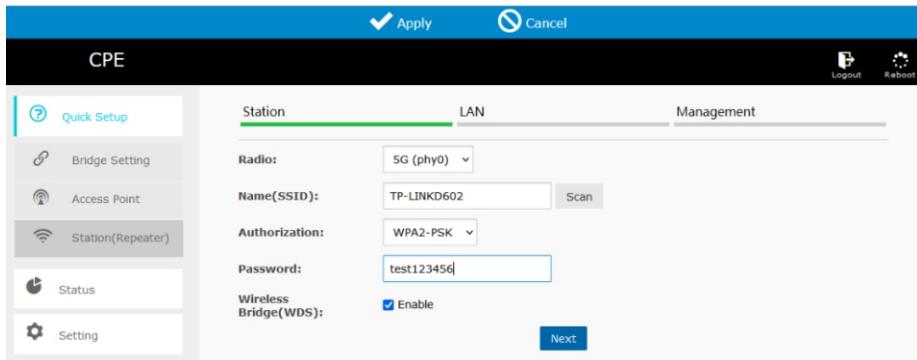


The screenshot shows a list of WiFi networks found by the device. The table has columns for Station, LAN, and Management. The 'Station' column lists the network names and MAC addresses. The 'LAN' column shows signal strength in dBm and signal quality in dBm. The 'Management' column contains a yellow circular icon with a downward arrow. The table is as follows:

Station	LAN	Management
TP-LINKD602 74:05:a5:c7:d6:04	wpa2-psk -48 dBm 149	
d4:62:ea:bd:2b:ee	wpa2-psk -67 dBm 36	
hanneng216_5G	d4:62:ea:bd:2b:ec wpa2-psk -68 dBm 36	
	d4:62:ea:fd:2b:ec wpa2-psk -69 dBm 36	
GZ9899-5G	18:f2:2:c5:7f:86c wpa2-psk -73 dBm 161	
TP-LINK_324-5G	f4:2a:7d:56:f1:ae wpa/wpa2-psk -75 dBm 161	
	fa:8c:21:ed:60:af wpa2-psk -76 dBm 157	

On this pop window, you can select your router name and click > to select the WiFi router, here we select TP-LINKD602

Please enter your router WiFi password in the password column



The screenshot shows the WiFi configuration interface with the 'Station' tab selected. The 'Radio' dropdown is set to '5G (phy0)'. The 'Name(SSID):' field contains 'TP-LINKD602'. The 'Authorization:' dropdown is set to 'WPA2-PSK'. The 'Password:' field contains 'test123456'. The 'Wireless Bridge(WDS):' checkbox is checked. A 'Next' button is visible at the bottom right.

Click "Next" button to go to "LAN" setting interface

Note: if you use as a repeater, must disable Wireless Bridge(WDS) option, otherwise it will not work.

Quick Setup

Bridge Setting

Access Point

Station(Repeater)

Status

Setting

Wireless Repeater: Enable

Name(SSID): cpe Hidden

Authorization: Open

DHCP: Enable

Fixed IP Address: 192.168.255.1

Fixed Netmask: 255.255.255.0

DNS Server:

Next

Wireless Repeater: check to enable, uncheck to disable, for repeater you must enable it.

Name(SSID): Enter the WiFi hot point name

Authorization: you can select Open, or WPA2-PSK, if you choose WPA2-PSK, you also need to set the password.

DHCP: check to enable, uncheck to disable, must enable

Fixed IP Address: set a customize IP address

Fixed Netmask: set the netmask address

DNS Server: set the DNS server if needed

Check “Next” button to go to Management setting interface

Quick Setup

Bridge Setting

Access Point

Station(Repeater)

Status

Setting

Mac Layer Management Service: Enable

OK

Mac Layer Management Service: check to enable, uncheck to disable, we suggest to enable.

Click “OK” button to confirm the settings.

Click Setting of the left menu, and click wireless, it will display below interface, you can check the parameters again

Radio(phy0) Settings 5G

Tx Power: 23 dBm

Channel Bandwidth: 20/40 MHz

Channel: Auto

Coverage Distance (m): Set the value as needed, large value will effect performance. If not set, an default value will be used.

Timed Off: Enable

New Virtual Interface:

Virtual Interface(phy0/wlan0) Settings(Station)

Switch: Enable Recommended to set channel to auto, when enabled this.

Name (SSID): TP-LINKD602

Authorization: WPA2-PSK

Password: test123456

Fixed BSSID:

Wireless Bridge (WDS): Enable

VLAN:

Delete Virtual Interface:

Virtual Interface(phy0/wlan1) Settings

Switch: Enable

Name (SSID): home-cpe353 Hidden

Authorization: WPA2-PSK

Password: test123456

Access Control: Only refuse denied stations

Wireless Bridge (WDS): Enable

Isolate: Enable

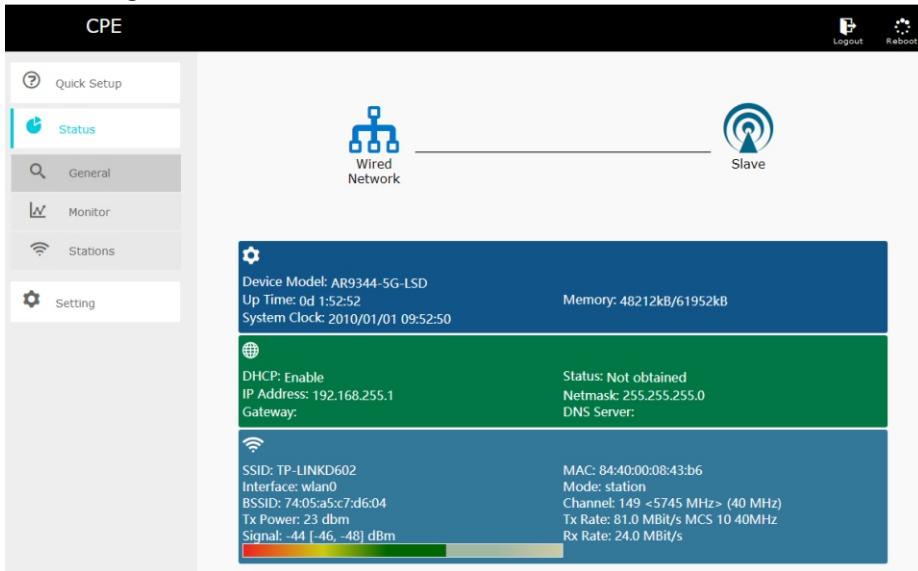
Max stations:

VLAN:

TP-LINKD602 is the WiFi router source, home-cpe353 is the bridge's WiFi hot point, for AP repeater access please disable the wireless bridge(WDS), must enable the home-cpe353, click "Apply" button at the top of the screen to confirm,

Now you can use your cell phone or laptop to connect the WiFi hot point for internet surfaces.

Click “Status” of the left menu, system will display the following interface:



For customization setting is a little bit hard for newbie, if you can not set or system halts, please press and hold the bridges's “RST” button over 10 seconds, when the LED display flashes numeric then release it, system will return to factory mode.

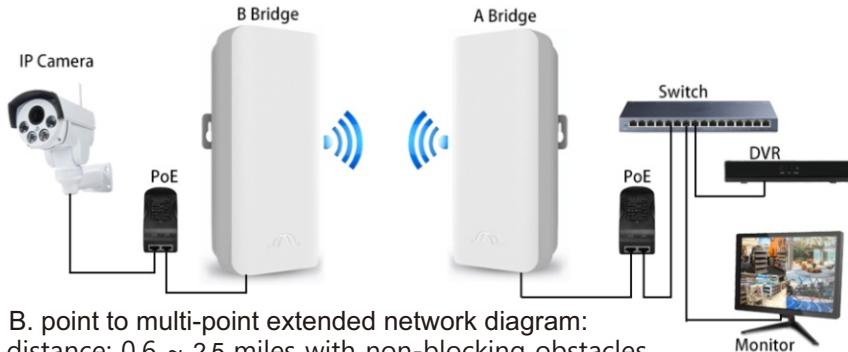
The factory mode is enough for most of usage, it will auto pair and easy to change the channel without computer access, the master bridge also output WiFi hot point, you just need to find the password and enter it to get access.

The customization mode could be used for point to multiple points for networks access and video surveillance, once it is connected, you can use the computer to access each bridges by different IP address, your computer's IP should be same segment to bridges, the format is 192.168.255.xxx, when connected to your WiFi router source, the IP will change to this format 192.168.0.xxx, you need take care, if there is no response, please reset it.

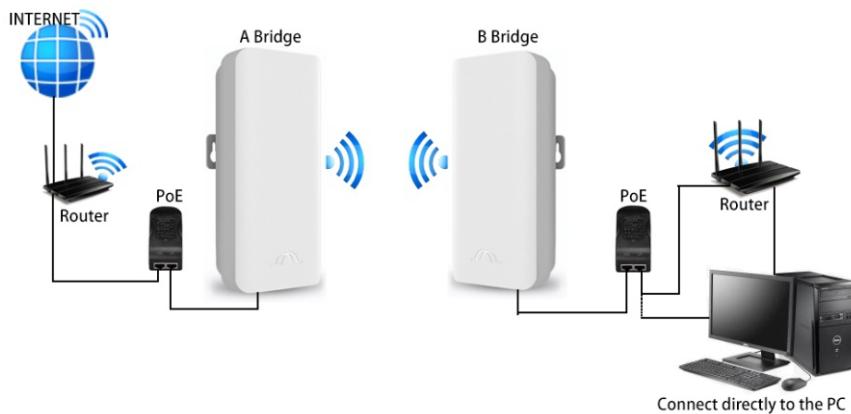
10. Application

10.1 Point to Point Connection:

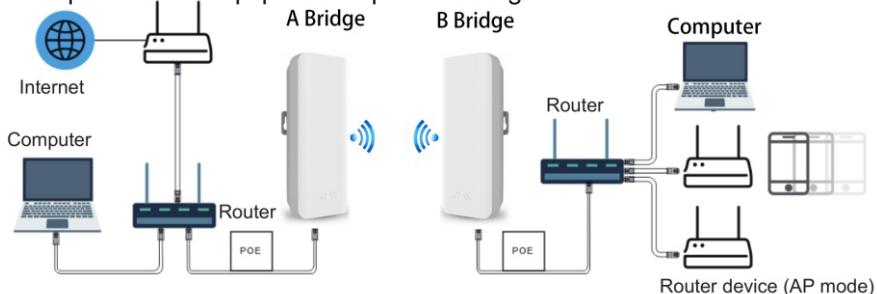
A. point to multi-point extended video surveillance diagram:
distance: 0.6 ~ 2.5 miles with non-blocking obstacles



B. point to multi-point extended network diagram:
distance: 0.6 ~ 2.5 miles with non-blocking obstacles



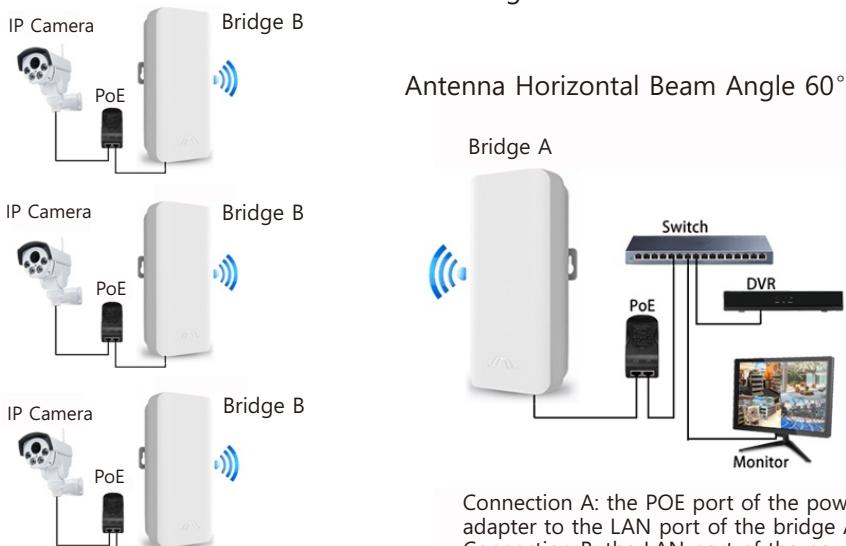
Multiple network equipment expansion diagram:



Extend the network to your warehouse, barns and garages near your home

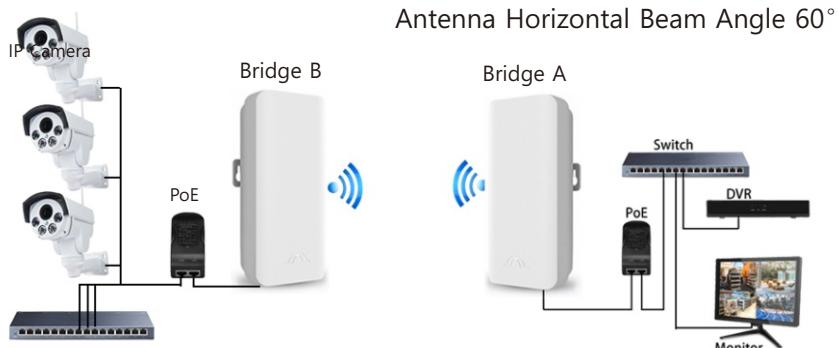
10.2 Point to Multi-Point Connection:

Point to multi-point extended video surveillance diagram:
distance: 0.6 ~ 1.2 miles with non-blocking obstacles



Connection A: the POE port of the power adapter to the LAN port of the bridge B
Connection B: the LAN port of the power adapter to the LAN port of the IP camera

10.3 Multiples Clients Connection:



Connection A: the POE port of the power adapter to the LAN port of the bridge B
Connection B: the LAN port of the power adapter to the LAN port of the switch,
Connection C: the IP cameras are connect to the LAN port of the switch

Connection A: the POE port of the power adapter to the LAN port of the bridge A
Connection B: the LAN port of the power adapter to the LAN port of the switch or DVR

11. Tips

1. The installation of this device requires network knowledge, if you can not install it, please contact us or ask a professional for help, if the product you receive is damaged or miss any accessories, please contact us for exchange or resend
2. The wireless transmission maximum speed(wireless bridge A to B unit) is 300Mbps, the LAN network transmission maximum speed(POE adapter to wireless bridge connection) is 100Mbps, the LAN port is 100Mbps standard

Tech Service email:

johnwen0822@gmail.com / zpwsqsd@gmail.com

You can visit the installation video guide on:

<http://www.eoqo.com>

FCC Caution:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.