

IP-COM

Quick Installation Guide

Outdoor CPE

CPE3/CPE5/CPE6S/CPE9/CPE12/CPE13

Package contents

Item	CPE3/CPE6S	CPE5	CPE9	CPE12	CPE13
CPE		1		1	1
PoE injector	1		1	1	1
Power adapter	1	1	1	1	x
Power cord	x	x	x	x	1
Plastic strap	2	1	2	2	2
Ethernet cable	x	x	1	x	x
Screws for fixing the PoE injector	2	2	2	2	x
Expansion bolt	2	2	2	2	x
Grounding screw	x	x	1	x	1
Quick installation guide				√	

Get to know your device

The CPE appearance varies with models. Please refer to the CPE you purchased.

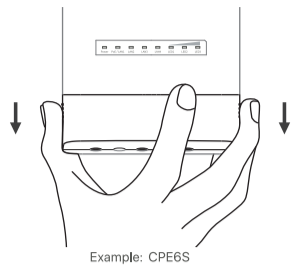
LED indicators/slots

The following table lists all LED indicators that may be used on the CPE. However, the LED indicators and slots may vary with CPE models.

LED Indicator/Slot	Status	Description
Power	Solid on	CPE powered on
	Off	CPE powered off
LAN/WAN, PoE/LAN	Solid on	CPE powered on without data transmission
	Blinking	CPE powered on with data transmitting
LAN/WAN, PoE/LAN	Off	CPE powered off
	Solid on	Corresponding port connected without data transmission
LAN/WAN, PoE/LAN	Blinking	Corresponding port connected with data transmitting
	Off	Corresponding port disconnected
Wi-Fi	Solid on	Wi-Fi enabled without data transmission
	Blinking	Wi-Fi enabled with data transmission
Wi-Fi	Off	Wi-Fi disabled
	LED1, LED2, LED3 (referred signal strength indicators)	Solid on
Blinking		- Solid on: CPE working in AP, Repeater, P2MP or Router mode - Blinking: CPE working in Client, Unmanaged or WISP mode The more indicators are on, the better the connection quality is. * You can change the signal strength values for each indicator on the Wireless > Advanced page in the web UI of the CPE. * You can adjust your CPE's direction or location.
Will mounting slots	Off	No device connected to the CPE wirelessly, or weak signal strength. Adjust your CPE's direction or location.
	On	Proxim 4 expansion bolts and 4 screws for will mounting. Recommended specifications: - Expansion bolt: outer diameter: 6mm; length: 40mm - Screw: thread diameter: 3mm; length: 20mm 5.5 mm x head diameter < 8.5 mm
Pole mounting slots	Off	You can thread the included plastic straps through these slots to attach the CPE to the pole.

Ports/button

For some models, you need to remove the cover to see the ports and buttons. CPE6S is used for example in the following figure.

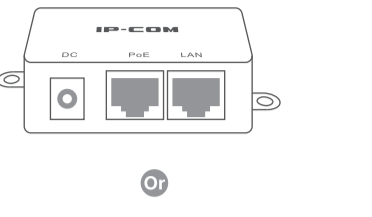


The following table lists all ports and buttons that may be used on the CPE. However, the ports and buttons may vary with CPE models.

Port/Button	Description
12V \pm 1A, DC	DC power jack. Connect the power adapter (if any) to this port for power supply.
Power	Power jack. Connect the power adapter (if any) to this port for power supply.
PoE LAN/WAN, PoE/LAN, LAN2, LAN3, LAN4	Multiple ports for power input and data transmission. - If passive PoE is used for power supply, connect this port to the PoE port of the PoE injector. - If you power on the CPE using a power adapter, this port can be connected to a computer, switch or IP camera. - If standard PoE is used for power supply, connect this port to the PoE port of the IEEE 802.3af or PoE power supply device. You can check whether the CPE supports standard PoE power supply on the package box of the CPE's Specifications page on www.ip-com.com .
LAN/WAN, PoE/LAN, LAN2, LAN3, LAN4	- If the CPE works in the Router mode (if supported), this port functions as a WAN port connected to an upstream network device. - LAN/WAN PoE port only supports passive PoE. LAN2, LAN3 and LAN4 only supports standard PoE.
LAN, LAN2, LAN3, LAN4	Ethernet port for connecting to a computer, switch or IP camera.
Reset	Reset button. Used to reset the CPE to factory settings. For details, see Q2 & FAQ.
REST, RESET, Reset	Reset button. Used to reset the CPE to factory settings. For details, see Q2 & FAQ.
Cable grommet	Used to fix the power cord or Ethernet cable.
Grounding terminal	Use a grounding cord and included grounding screw to connect the grounding terminal to the earth to provide lightning protection.
GNP	Use a grounding cord and included grounding screw to connect the grounding terminal to the earth to provide lightning protection.
Power cord/grounding cord/Ethernet cable	Used to fix the power cord of the power adapter, grounding cord, or Ethernet cable.

Get to know the PoE injector

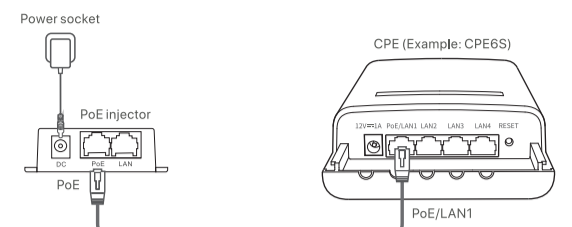
The included PoE injector may vary with CPE models.



Port	Description
DC	Power jack
PoE	PoE power output port. Use an Ethernet cable to connect this port to the passive PoE port of the CPE.
LAN	LAN port. Used to connect to an upstream network device, computer, switch, camera, or other device.

Power on the CPE

Option 1: Use the PoE injector



CATS or better Ethernet cable recommended. Size Q3 in FAQ for maximum distance.

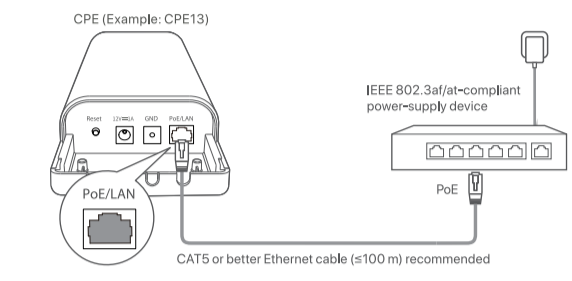
Option 2: Use the power adapter

If your CPE has a DC power jack, use the included power adapter to power on the CPE.

- Tip: Use the included power adapter to avoid damage to the CPE.

Option 3: Use other PoE power-supply device

This option is available for the CPE that supports standard PoE power supply. You can check whether the CPE supports standard PoE power supply on the package box of the CPE's Specifications page on www.ip-com.com.



Scenario 1: CCTV surveillance or point to point data transmission

1. Set up the CPEs (AP mode & Client mode)

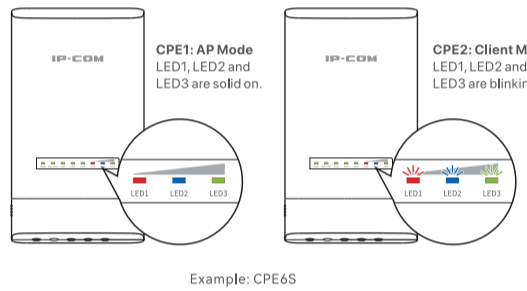
Tip: At least two CPEs are required for bridging.

Option 1: Automatic bridging (recommended)

Peer-to-peer bridging

- Tip: Automatic bridging only works with CPEs in factory settings.
- For peer-to-peer automatic bridging, refer to Q2 in FAQ.
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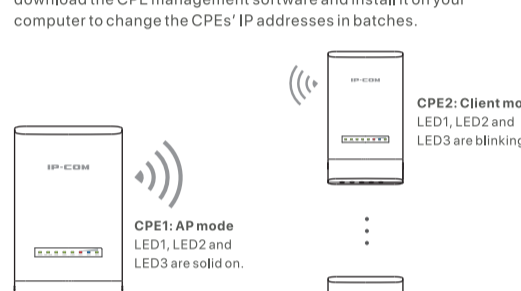
Place two CPEs in factory settings next to each other, open their covers and power them on.
After the CPEs complete startup, they start automatic bridging and their LED1, LED2 and LED3 indicators blink quickly. About 1 minute later, when the LED1, LED2 and LED3 indicators of one CPE light solid on and those of the other CPE blink slowly, the automatic bridging succeeds.
After the bridging succeeds, the DHCP server of the CPEs will be disabled automatically. The IP address of the CPE working in AP mode remains 192.168.2.1, and the IP address of the CPE working in Client mode is changed into 192.168.2.2.



Peer-to-multiple peers bridging

- Tip: For peer-to-multiple peers bridging, perform peer-to-peer bridging first, and then power on the rest of CPEs within 30 minutes. Otherwise, the bridging may fail.
- One CPE can bridge with 15 CPEs at most.

Step 1: Choose any two CPEs, then perform **Peer-to-peer bridging**.
Step 2: Within **30 minutes** after peer-to-peer bridging succeeds, put other CPEs in factory settings near the CPE working in AP mode (LED1, LED2 and LED3 are solid on), and power them on.
After the other CPEs complete startup, they start automatic bridging and their LED1, LED2 and LED3 indicators blink quickly. About 1 minute later, when their LED1, LED2, and LED3 indicators blink slowly, the bridging succeeds.
After the bridging succeeds, the DHCP servers of the CPEs are disabled, and the IP addresses of CPEs working in Client mode are all changed into 192.168.2.2. You can visit www.ip-com.com to download the CPE management software and install it on your computer to change the CPEs' IP addresses in batches.

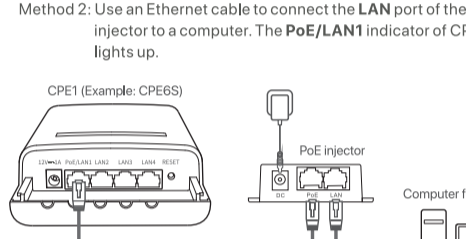


Option 2: Manual bridging

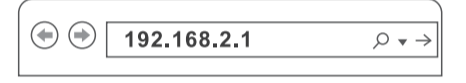
Step 1: Place two CPEs next to each other.

Step 2: Log in to the web UI of CPE1.

- Open the CPE1 cover and power it on (PoE injector used in this example).
- Connect client to CPE1.
Method 1: Connect your wireless client (such as a smartphone) to the WiFi network of CPE1. By default, the WiFi name of CPE1 is IP-COM_XXXXXX (XXXXXX indicates the last six characters of the MAC address). If a WEP QR code is provided on the CPE1 nameplate, you can scan it to connect to the WiFi network directly.
Method 2: Use an Ethernet cable to connect the LAN port of the PoE injector to a computer. The PoE/LAN indicator of CPE1 lights up.



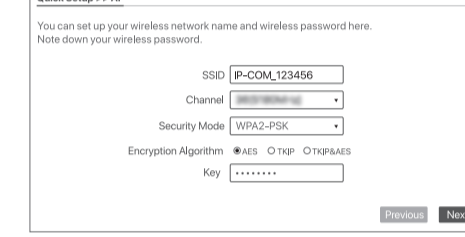
Step 3: Start a web browser on the client connected to CPE1 and visit 192.168.2.1. Enter the login username and password and click Login.



- Tip: If the login page does not appear, please refer to Q1 in FAQ.

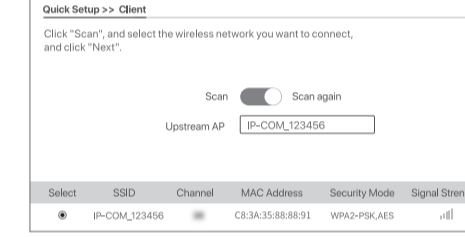
Step 3: Set CPE1 to AP mode.

- Access the **Quick Setup** page, select **AP** and click **Next**.
- Customize your **SSID (WiFi name)** and **Key (WiFi password)**. Select a **Channel**, a **Security Mode** (WPA2-PSK recommended), and an **Encryption Algorithm**. Click **Next**.
Record the **SSID** and **Key** for later setup.

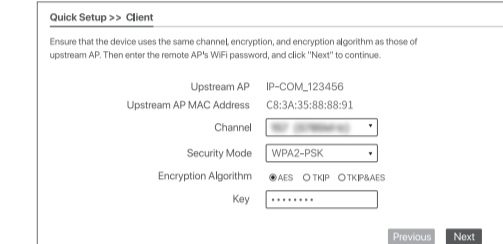


Step 4: Set CPE2 to Client mode.

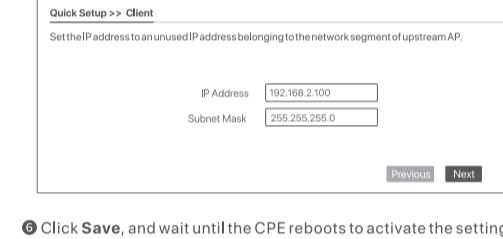
- Perform **Step 2** to log in to the web UI of CPE2.
- Access the **Quick Setup** page, select **Client**, and click **Next**.
- Select the **SSID** of CPE1, which is IP-COM_123456 in this example, and click **Next**.



Step 5: Enter the Key of CPE1, and click Next.



Step 6: Set the IP address to an unused one belonging to the same network segment as that of CPE1. For example, if the IP address of CPE1 is 192.168.2.1, you can set CPE2's IP address to 192.168.2.X (X ranges from 2 to 254). Then click Next.



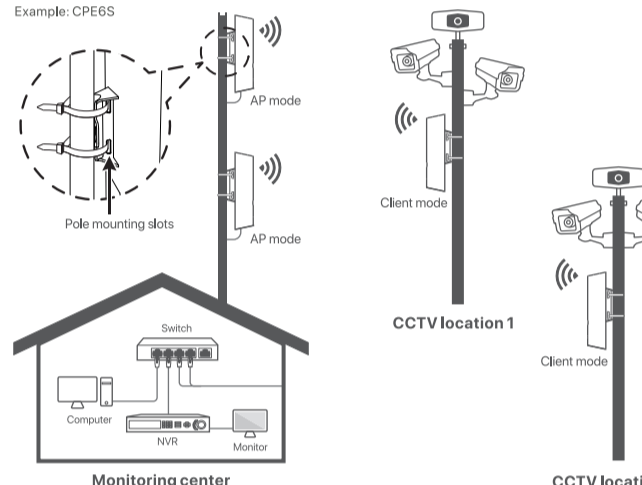
Step 7: Click Save, and wait until the CPE2 reboots to activate the settings.

Step 8: Click Save, and wait until the CPE1 reboots to activate the settings.

2. Install the CPEs

The CPE is usually deployed in schools, communities, factories or streets for surveillance. Pole mounting is used for illustration here.

- Choose the elevated, open location for installation.
- Thread the two plastic straps through the pole mounting slots on the bracket of the CPE, and attach the CPE onto the selected pole. Adjust the CPE's location and direction, and tighten the straps to fix the CPE.
- Power on the CPE.
- Connect the CPEs with the LED1, LED2 and LED3 indicators solid on (AP mode = the transmitting end) to the switch which is connected to a Network Video Recorder (NVR).
- Connect the CPEs with the LED1, LED2 and LED3 indicators blinking (Client mode = the receiving end) to IP cameras or a switch connected to IP cameras.
- Install the CPE cover.

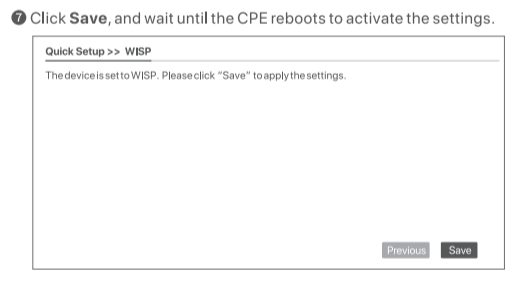
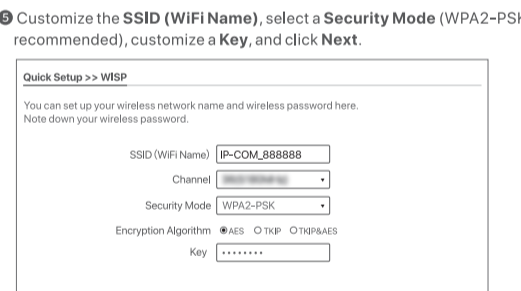
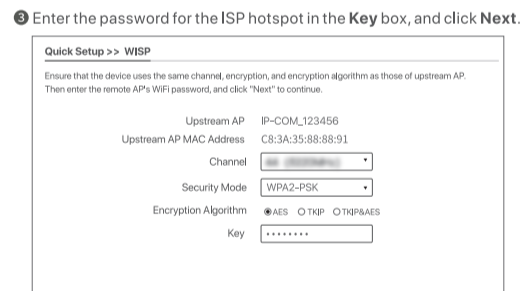
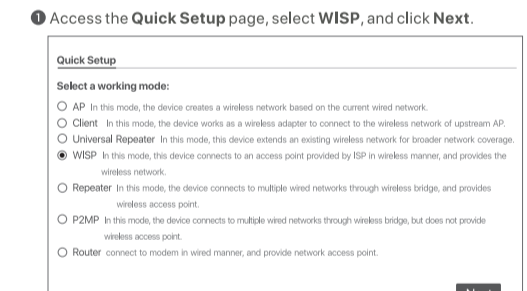


Scenario 2: Wireless ISP hotspot access

1. Set up the CPE

Step 1: Perform Step 2 in Option 2: Manual bridging under Scenario 1: CCTV surveillance or point to point data transmission to log in to the web UI of the CPE.

Step 2: Set the CPE to WISP mode.



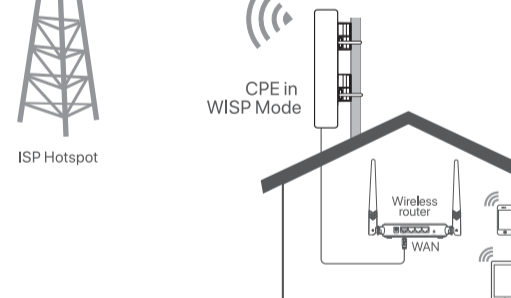
When the LED1, LED2, and LED3 indicators of the CPE are blinking, the CPE is connected to the ISP hotspot successfully.

2. Install the CPE

Pole mounting is used for illustration here.

- Place the CPE over the roof.
- Thread the two plastic straps through the pole mounting slots on the brackets of the CPE, and attach the CPE onto the selected pole. Adjust the CPE's location and direction, and tighten the straps to fix the CPE.
- Power on the CPE.
- Connect the LAN port of the CPE to the WAN port of your wireless router.

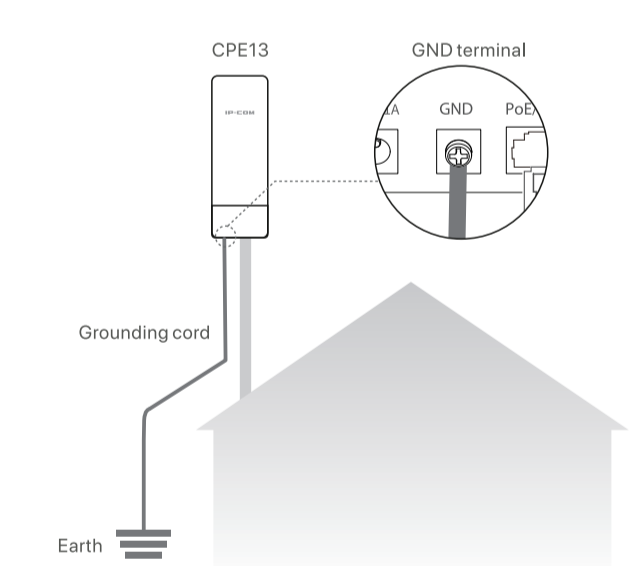
The connection quality reaches the best when the LED1, LED2 and LED3 indicators of the CPE blink.



Grounding

This part applies to the CPE with a GND terminal. CPE13 is used for example here.

- Connect the GND terminal of the CPE to a grounding terminal connected to the earth with lightning, to protect the CPE from overvoltage and overcurrent caused by lightning.
- Connect one side of the grounding cord to the included grounding screw.
- Connect the grounding screw to the GND terminal of the CPE, and tighten it.
- Connect the other side of the grounding cord to the grounding terminal connected to the earth with lightning.



FAQ

Q1: I cannot log in to the web UI of the CPE by entering 192.168.2.1. What should I do?

- A1: Try the following solutions:
- Ensure that the CPE is connected to a power source and your computer properly.
 - Ensure that the IP address of the computer is set to 192.168.2.X (X ranges from 2~254 and is unused).
 - Restore the CPE to factory settings by referring to Q2, and try again.

Q2: How to reset the CPE?

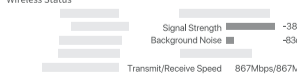
A2: Note: Resetting the CPE clears all settings, and you need to configure it again.
Method 1: After the CPE completes startup, hold down the reset button (RESET or RESET) for about 8 seconds and release when all LED indicators light on. The CPE is restored to factory settings.
Method 2: Log in to the web UI of the CPE, navigate to **Tools > Maintenance**, and click **Reset**.

Q3: What is the maximum distance for PoE power supply when a PoE injector is used for power supply?

Power supply mode	Input voltage	Maximum PoE power supply distance
9V 0.6A DC power supply/PoE power supply	9~15V	30m
12V 1.0A DC power supply/PoE power supply	9~15V	50m or 60m
24V 0.5A DC power supply	18~25V	60m

Q4: How to check that the CPE is under the best connection status?

- A4: Method 1: Observe the LED indicators of the CPE. The connection quality reaches the best when the LED1, LED2 and LED3 indicators of the CPE light solid on or blink.
Method 2: Log in to the web UI of the CPE (default IP address: 192.168.2.1), and check the bridging status in **Status > Wireless Status**. Stronger signal strength (LED indicator better than -70 dBm), less background noise (+0.0 dBm better than -90 dBm), and faster transmission speed received is better bridging signal.
Example: CPE6S



Q5: The automatic bridging fails. What should I do?

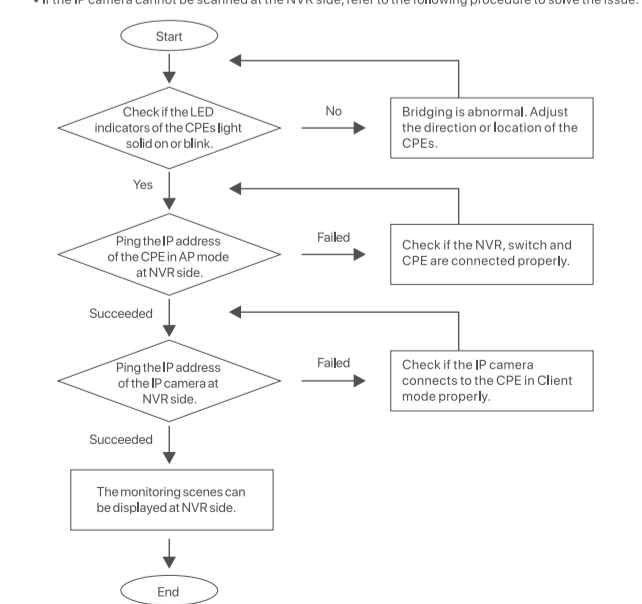
- A5: Try the following solutions:
- For peer-to-peer bridging: If the peer-to-peer bridging fails, restore the two CPEs to factory settings by referring to Q2, and try again.
 - For peer-to-multiple peers bridging: After peer-to-peer bridging succeeds, ensure that the rest CPEs are powered on within 30 minutes.
 - For the CPEs that fail to bridge within 30 minutes after peer-to-peer bridging succeeds, reset them and try again.
 - Repeat 30 minutes after peer-to-peer bridging succeeds, refer to **Option 2: Manual bridging** to set the rest CPEs to Client mode, and then connect them to the WiFi network of the CPE whose LED1, LED2, and LED3 are solid on.

Q6: After the bridging succeeds, the LED1, LED2 and LED3 indicators do not light up or only some of them do. What should I do?

- A6: Try the following solutions:
- Ensure that the bridging distance between the CPEs is within the normal range.
 - Place the CPE in an elevated location at the same height with few obstacles nearby.
 - Make slight directional adjustment of the CPEs by turning it vertically and horizontally. Change the direction with an interval of 20s to 30s each time to observe the change of LED1, LED2 and LED3 indicators until the best signal is received.

Q7: After the installation succeeds, there is no display of the scenes monitored by IP cameras at the NVR. What should I do?

- A7: Try the following solutions:
- Ensure that all devices are working normally and connected properly.
 - Ensure that the computer, NVR and IP camera are in the same network segment, and the NVR configuration and IP camera configuration are correct.
 - If the IP camera can be scanned but cannot be added at the NVR side, ensure that the Transparent Bridge function is enabled and the IP camera is already in initialization (active) state.
 - If the IP camera cannot be scanned at the NVR side, refer to the following procedure to solve the issue.



Get support and services



<https://www.ip-com.com/en/service/default.html>

For technical specifications, user guides and more information, please visit the product page or service page on www.ip-com.com. Multiple languages are available. You can see the product name and model on the product label.

Safety Precautions

Before performing an operation, read the operation instructions and precautions to be taken, and follow them to prevent accidents. The warning and dangers in other documents do not cover all the safety precautions that must be followed. They are only supplementary information, and the installation and maintenance personnel need to understand the basic safety precautions to be taken.

- Do not use the device in a place where wireless devices are not allowed.
- Please use the included power adapter/PoE injector (if provided).
- CPE is used outdoors. PoE injector and power adapter are used indoors.
- If you power on the CPE using a power adapter, the main plug is used as the disconnect device, and shall remain readily operable; the power socket shall be installed near the device and easily accessible.
- CPE operating temperature: -20~40°C; Power adapter operating temperature: 0~40°C.
- Keep the device away from water, fire, high-electric field, high magnetic field, and inflammable and explosive items.
- Do not use the power adapter/PoE injector if its plug or cord is damaged.
- If such phenomena as smoke, abnormal sound or smell appear when you use the device, immediately stop using it and disconnect its power supply, unplug all connected cables, and contact the after-sales service personnel.
- Disassembling or modifying the device or its accessories without authorization voids the warranty, and might cause safety hazards.
- For latest safety precautions, see **Safety and Regulatory Information** on www.ip-com.com.

FC

FC Statement

This statement has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user may be required to correct the interference at his own expense.
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.
Radiation Exposure Statement
This device complies with FCC radiation exposure limits set forth for an uncontrolled environment and it also complies with the SAR of the FCC Rules.
This equipment should not be installed and operated with minimum distance 20cm between the device and your body.

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

Operating frequency:
CPE3/CPE6S/CPE12V3/CPE13V3: 0.2415-0.2482 MHz
CPE9: 2470-2583 MHz
CPE5/CPE6S/CPE13: 915.0-925.0 MHz, 5725-5850 MHz

NOTE: (1) The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. (2) To avoid unnecessary radiation interference, it is recommended to use a shielded RJ45 cable.

RECYCLING

This product bears the selective sorting symbol for Waste electrical and electronic equipment (WEEE). This means that the product must be handled pursuant to European Directive 2012/19/EU in order to be recycled or dismantled to minimize its impact on the environment.
Use the following choices to give the product to a competent recycling organization or to the retailer when he buys a new electrical electronic equipment.

CE

CE Mark Warning

This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.
This equipment should be installed and operated with minimum distance 20cm between the device and your body.
NOTE: (1) The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. (2) To avoid unnecessary radiation interference, it is recommended to use a shielded RJ45 cable.

Declaration of Conformity
Shenzhen IP-COM Networks Co., Ltd. declares that the device is in compliance with Directive 2014/53/EU.
The full list of the EU declaration of conformity is available at the following internet address: <http://www.ip-com.com/en/cpe13.html>

Attention: In EU member states, EFTA countries, Northern Ireland and Great Britain, the operation in the frequency range 915MHz - 925MHz is only permitted indoors. The operation in the frequency range 5470 MHz - 5725 MHz is permitted both indoors and outdoors.

AT	BE	BG	CY	CZ	DE	DK	EE	EL	ES	FI	FR	HR	HU	IE	IT	LI	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	UK	UK
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Operating Frequency/Max Output Power
2470MHz-2472MHz/200mW (CPE3/CPE6S/CPE9/CPE12V3/CPE13V3)
915MHz-925MHz/230mW (CPE5/CPE6S/CPE13)
5470MHz-5725MHz/270mW (CPE3/CPE6S/CPE12/CPE13)

Technical Support
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1/10 Keep for future reference