



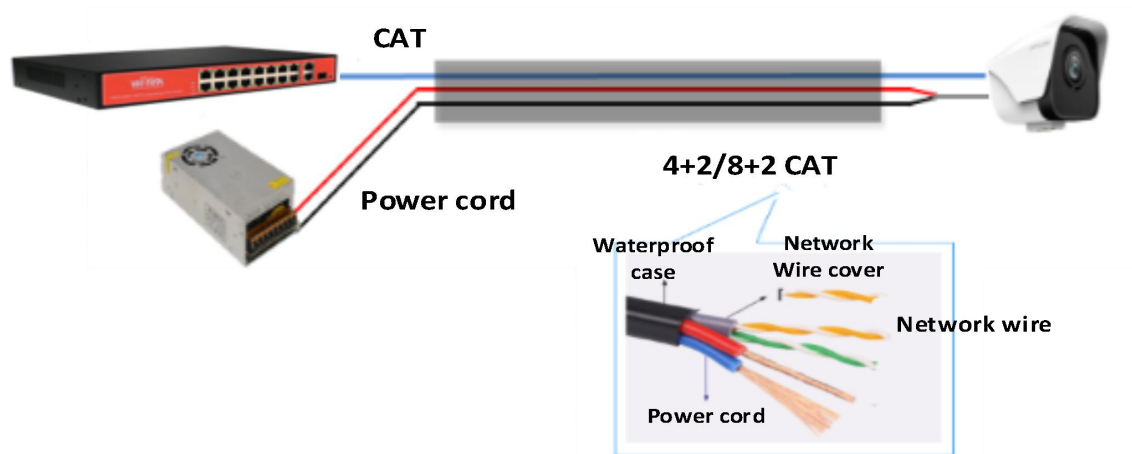
**The centralized power supply camera
does not work properly.
How to solve it?**

Centralized power supply is relatively common in security construction, but users often encounter problems such as the power failure of IPC and frequent restart of IPC at night. In fact, it is usually caused by insufficient power supply. This article mainly introduces the power supply related knowledge and the solution of power supply problem.

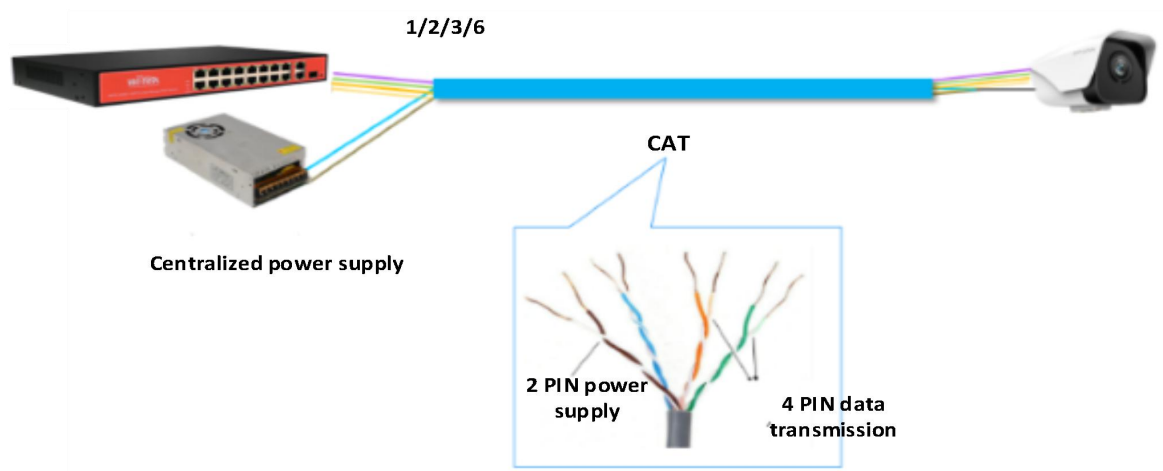
What are the common ways of centralized power supply?

Centralized power supply is 12V centralized power supply, long-distance power supply line supply for multiple IPC, each IPC is connected in parallel to the central power supply positive and negative pole. There are three kinds of power supply for centralized power supply:

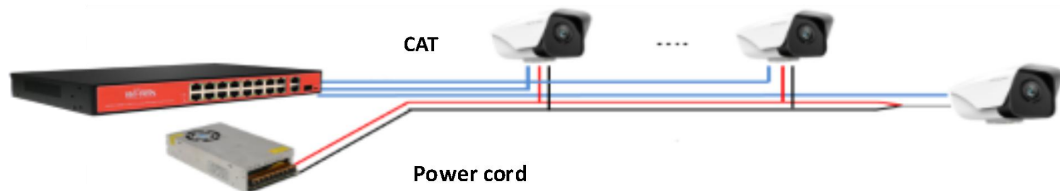
The combination of 4/8 pin CAT and 2 pin power cord(4+2/8+2 CAT)



Two pin of the 8 pin CAT to power supply



Extra power cord to supply 12V electrical power



The voltage of the centralized power supply is generally 12V, therefore, the output power depends on the current. There are 20A, 30A and 40A, and the larger the current is, the higher the output power is. In addition to the different types of power supply wires, the different materials such as the thickness of the wire will also have a significant impact on the power supply. Common materials are: oxygen free copper, Pure copper, Copper clad aluminum, Copper clad silver (high conductivity aluminum), copper clad iron. The diameter of common power supply wire is 0.5mm, 0.75mm and 1.0mm.

What problem are the Centralized power supply often happen?

Unreasonable centralized power supply usually causes the following problems:

- The IPC does power failure, the infrared light is completely unlit, and the light on switch is also unlit;
- When the IPC starts, the infrared light flashes and cannot be started;
- When IPC is started, infrared intermittent flashes and frequent automatic restart;
- The IPC switches to the night vision but the infrared filter does not switch, cause the night vision is very dark.
- The IPC automatic restart during the night vision.
- The NVR video record of the night vision is lost.

Why does centralized power supply have the above problem?

For the above problems, it is mainly caused by the insufficient supply voltage of IPC, and the direct factor of the shortage of power supply voltage is that the circuit resistance is too large, resulting in a large voltage drop of the line. Due to the material, wire diameter and length, the resistance of the line will be affected, and some common materials are selected. The resistance list is as follows:

No.	Type	Material	Resistance /100m
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1	4+2 CAT	1.0 mm diameter pure copper with multiple pin	3.1Ω
2	4+2 CAT	1.0 mm diameter copper clad aluminum with multiple pin	5.6Ω
3	4+2 CAT	0.5 mm diameter copper clad aluminum with multiple pin	19.1Ω
4	4+2 CAT	0.5 mm diameter copper clad silver with multiple pin	12Ω
5	4+2 CAT	0.5 mm diameter oxygen free copper with multiple pin	8.4Ω
6	8 PIN CAT	<0.4 mm diameter copper clad aluminum with single pin	46Ω
7	8 PIN CAT	<0.4 mm diameter copper clad iron with single pin	144Ω
8	Wi-Tek CAT	0.52 mm diameter oxygen free copper with single pin	8.3Ω

Through full testing to centralized power supply 12v power supply output voltage, through a single IPC power supply, if the resistance of the power supply line is more than 3 Ω, IPC may appear abnormal start, automatic restart or switch night-vision abnormal situation.

Taking the No.2 as an example, the proposed line should be no more than $3/5.6 \times 100 = 53\text{m}$. When the single line is power supply for multiple IPC, the line pressure drop will be higher and the above problems are more likely due to the large load current of the line.

How to solve the problem of centralized power supply failure?

When these problems occur in a centralized power supply environment, the following methods can be used to solve the problem.

- Adjust the output voltage.

Most of the centralized power supply is supported to adjust the output voltage in a moderate amount, and the output voltage can be adjusted appropriately by using the cross screwdriver rotation in the position of +V ADJ.

- Power supply by 4 pin CAT

When using the CAT to do power supply and data transmission network at the same time, transmitting 100 MBPS data need only 1, 2, 3, 6 this 4 pins, the remaining four pin can be used for power supply, two pins to the anode, two pins after the cathode. Put two pins in parallel , half line resistance can be effectively reduced and the maximum transmission distance can be doubled.

- Improve circuit and reduce circuit resistance.

Shorten the power supply distance, or replace the power supply wire with better material (such as oxygen free copper and pure copper).

- POE power supply

The power supply voltage of PoE is 44-57v, the load current of the line is low and the pressure is reduced. All the wires except the copper clad iron can support the power supply of more than 100 meters.