Operating Instructions

Product name	VDC PRO AFH
Version No.	V1.0
Date	April 12, 2023

CONTENTS

Matters needing attention

1) Make sure that the supply voltage is within the specified voltage range, otherwise damage to the circuit may occur.
2) Always use the specified type of antenna and ensure that the frequency band and other parameters match.
3) When testing indoors, the distance between the equipment must be more than 3m, too close to the module to receive energy saturation affects the test results.
4) A minimum of 2 units are required for this unit to function properly; separate units will not work properly.
5) Before use, the antenna must be connected before powering up, otherwise there is a chance of burning out the equipment amplifier.
6) Typical voltage source 12V/2A Please check the voltage and current match before powering up.

After power on, the voltage is 12V, the current is 0.4A, the power indicator is always on (see equipment status light), and the current increases with the increase of transmitting power.

Ensure that each group of devices has only one central node and multiple transmitter nodes, with a central node on the handheld side and a transmitter node on the device side. The devices in the group have the same IP network segment, the same address, the same device secret key and the same frequency band.

In case of poor signal at either end, you can try to improve it by raising the height of the antenna, choosing unobstructed terrain or contacting our technical support for docking.

Device status light

1. Device status light, green for master nodes and blue for slave nodes;
2. Network port light, always on when connected to the network, blinks when interacting with data.
3. Power light, always on when the unit is powered up.

Interface wire sequence
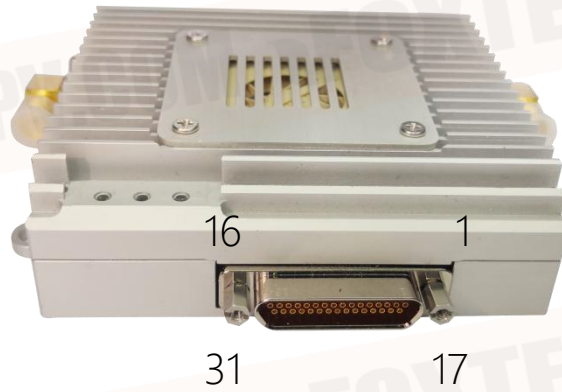
The device uses a military-grade J30 interface.

The interface is defined as follows:

S/N	Definition	Remark	S/N	Definition	Remark
1	GND		17	GND	
2	USB1_DP	Internal debugging and use	18	SBUS2_OUT	(Can be reused as a TTL interface) for network TCP data reading
3	USB1_DM		19	SBUS2_IN	
4	TTL_TX	Unable to read Network TCP data (serial port 4)	20	SBUS1_OUT	(Can be reused as a TTL interface) for network TCP data reading
5	TTL_RX		21	SBUS1_IN	
6	RS232_2_TX	(Can be reused as a TTL interface)for network TCP data reading (serial port 2)	22	TTL_RX	(Can be reused as a 485, 422 interface) for network TCP data reading (serial port 3)
7	RS232_2_RX		23	TTL_TX	
8	GND		24	NC	
9	RS232_1_TX	(Can be reused as a TTL interface)for network TCP data reading (serial port 1)	25	NC	
10	RS232_1_RX		26	ETH0_RX-	
11	ETH1_RX-		27	ETH0_RX+	
12	ETH1_RX+		28	ETH0_TX-	
13	ETH1_TX-		29	ETH0_TX+	
14	ETH1_TX+		30	VCC_12V	
15	GND	Power supply area shall not be shared with the serial port area	31	VCC_12V	
16	GND				

Power connection

Find a 12V power supply and connect it to the supplied power cable, usually 12V to pins 30 and 31 and 15 and 16 to ground.

Before connecting please check that the device antenna is screwed in, before connecting please check whether the power supply positive and negative poles are connected backwards, users do their own line need to pay attention to the power supply positive and negative can not be connected backwards, otherwise it will permanently damage the device.

Serial port connection

Serial port and pix flight control connection

| Line sequences of graphical transmission	Definition	Flight control line sequence	Definition
5/7/10/22	RX	2	*TX*
4/6/9/23	TX	3	*RX*
1/8/17	GND	6	GND

The serial port is connected to the controller, refer to the interface definition to determine which interface is required.

Graphical transmission device string Row number	Picture transmission equipment (232/TTL)	User controlled devices (232/TTL)
5/7/10/22	RX	TX
1/8/17	GND	GND
4/6/9/23	TX	RX

Network port connection

Connection with standard RJ45

Equipment line sequence	RJ45 header
R-	Orange and white
R+	Orange
T-	Green and white
T+	Green
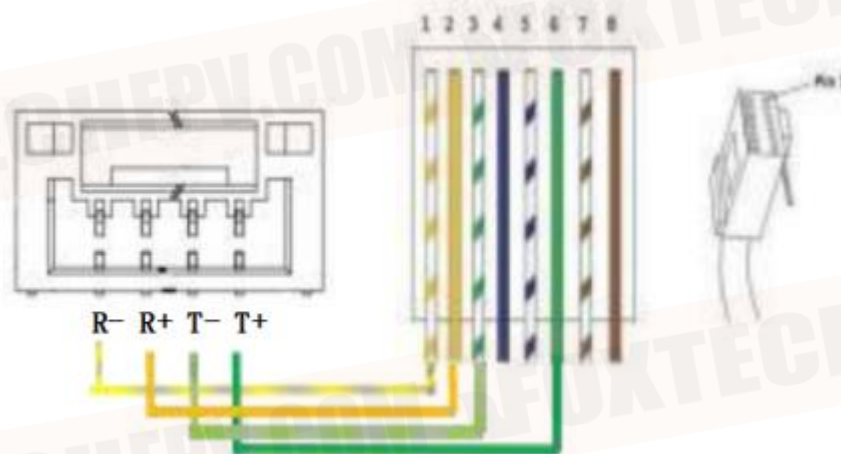
Connection with non-standard RJ45

Serial number of network port of map transmission equipment	Graphical transmission network port	Other network port devices
11/26	R-	T-
12/27	R+	T+
13/28	T-	R-
14/29	T+	R+

Debugging and configuration

Configure basic device attributes and functions.

Login Interface

The user has to log in to the IP address of the device (factory default IP address: 192.168.147.xx) via the web page, enter the user name and password (both are admin) to configure the map transfer settings.

Note: If you cannot login to the configuration screen, please check the computer configuration network segment.

Configuration Interface

The user can set the device key, which is in hexadecimal (0 to 9, A to F) and can only be an even number (each key cannot be the same when multiple sets are coexisting), up to a maximum of 64 bits;

Wireless module IP address (ip address and camera address can be different bands), wireless module working mode (each set of equipment must have only one center, slave nodes can be ≥1) ;

Wireless module frequency band 1.4GHz optional;

Wireless module transmitting power, maximum 25, power reduction distance is not far;

Default ID4U for upstream and downstream allocation (2D3U for trunk configuration); optional 20M/I0M/5M transmission bandwidth, which is the spectrum bandwidth and not the data bandwidth;

Real-time information which, when clicked, displays the current signal strength of the device and the status of the link building environment when the device is building a link;

Each node needs to be modified for each set of graphical transmissions, just click on Submit Configuration to manually re-power the device after the configuration is complete.

Serial port 1

配对密钥	22
无线模块地址	192.168.147.20
无线模块工作模式	⦿中心节点 ○发射节点
无线模块频段	⦿1.4GHz
无线模块发射功率	25
上下行分配	⦿1Down4Up ○2Down3Up ○3Down2Up ○4Down1Up
传输带宽	10M
频道选择	自动
	提交配置
	重启设备

发射节点信息	主/从	EARFCN	RSSI	RSRP	RSRQ	SNR	DIST	TXPOWER	SER	MAX_SNR	MIN_SNR	信号强度

Serial port 1 configuration is mainly for RS232/TTL serial port 1 in the wireless map transmission data chain for related configuration.

Baud rate; setting range: 4800, 9600, 19200, 38400, 57600, 115200, 230400, 460800, 921600, the default setting is 115200.

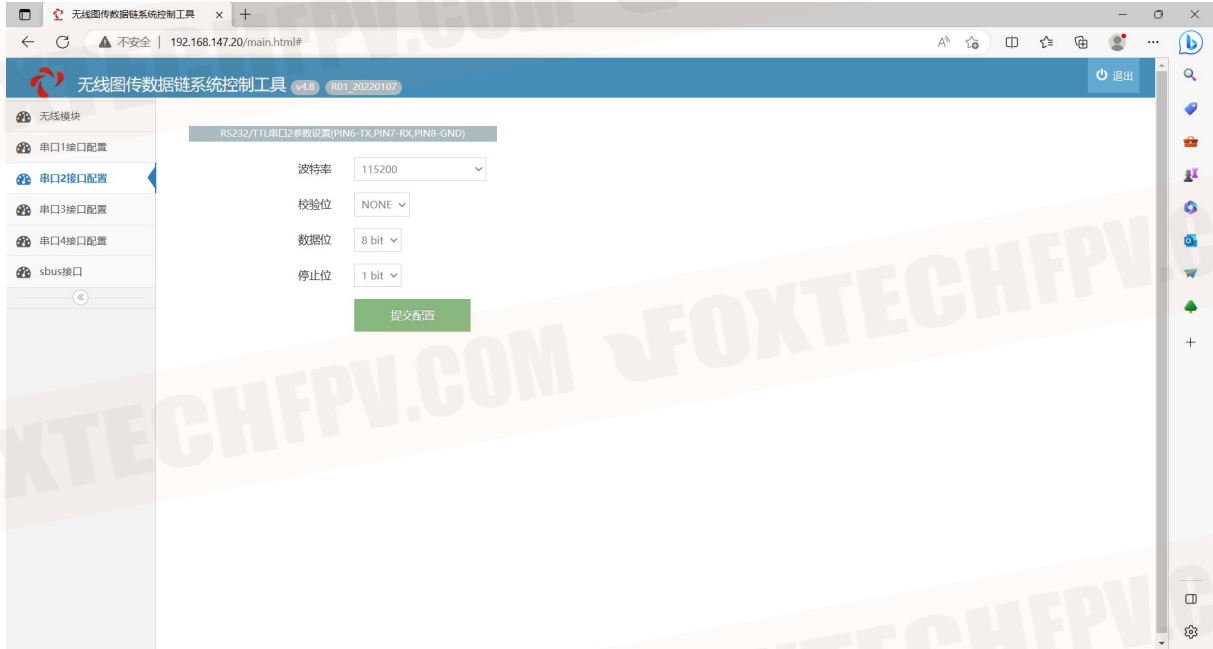Check bit: NONE, ODD, EVEN, the default setting is NONE.

Data bit: 8 bit or 7 bit, the default configuration is 8 bit.

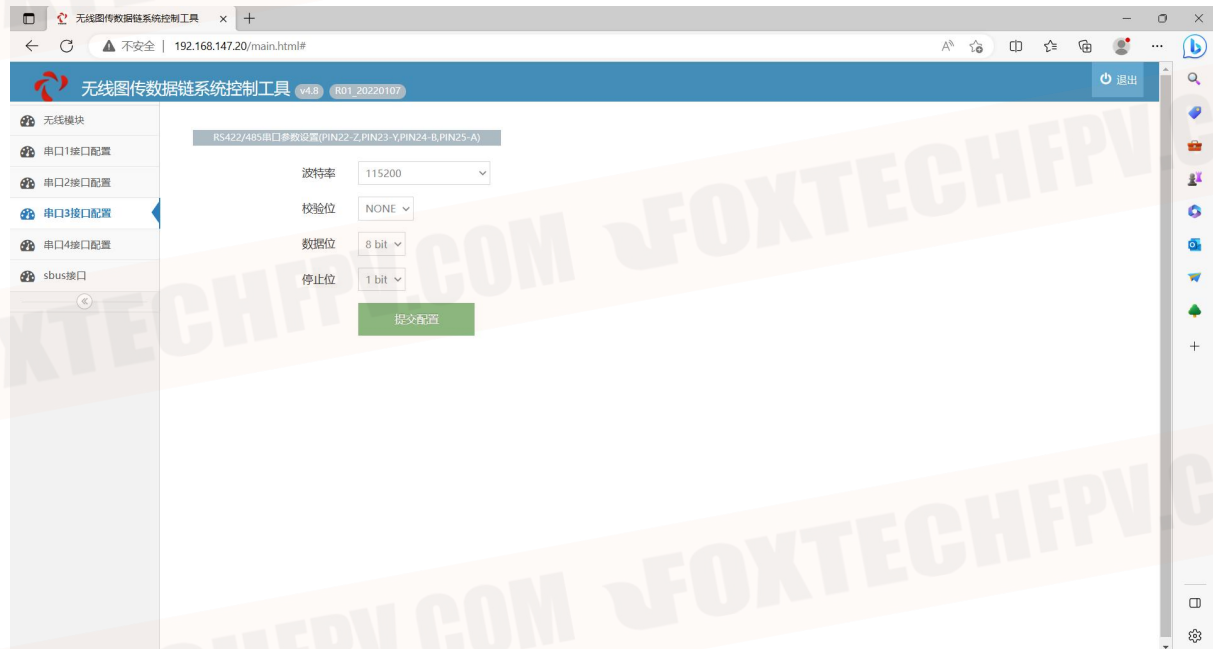Stop bit: 1 bit or 2 bit, the default configuration is 1 bit.

Serial port 2

The serial port 2 configuration is mainly relevant for RS232/TTL serial port 2 in the wireless map transfer data chain.
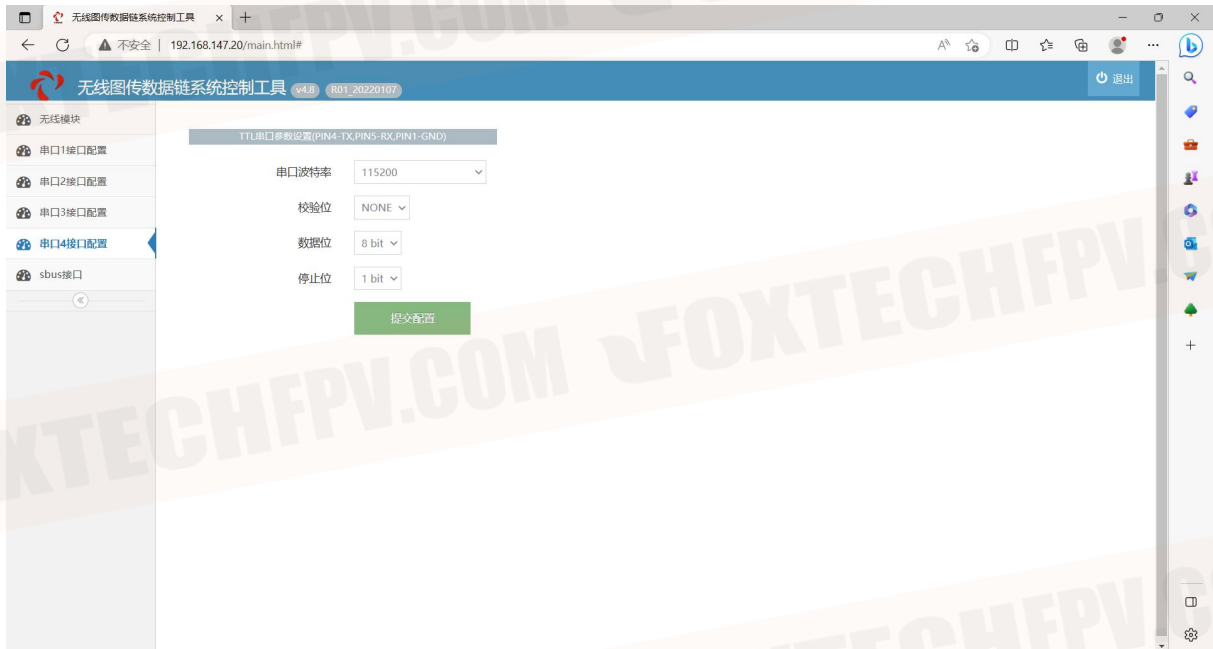

Serial port 3

Serial port 3 configuration is mainly for RS422/485 serial port in the wireless map transmission data chain for related configuration.
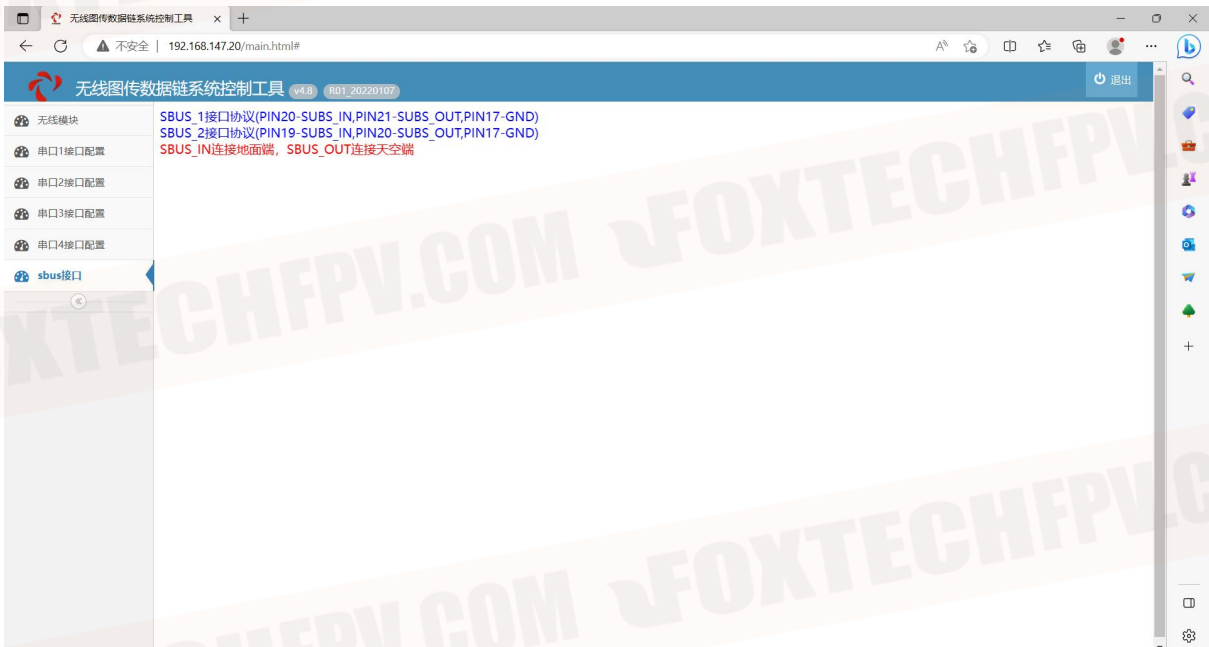
Serial port 4

Serial port 4 configuration is mainly for TTL serial port in the wireless map transmission data chain for related configuration.

Sbus interface

The corresponding pins for the sbus interface are indicated in the Sbus interface.

Relevant parameters

RSSI: Received Signal Strength Indication. The signal saturates at a distance of -44 and decreases as the distance increases.

RSRP: Reference signal received power. After pulling away, the RSRP-SNR will normally be less than or equal to the value of -123.

RSRQ: Reference signal reception quality. The larger the value, the better.

SNR: Signal to thousand disturbance noise ratio. The normal state is between +25 and -20, where a higher positive value means less signal perturbation and vice versa.

DIST: Device distance. Device spacing calculated from a period of RF transmission supplemented by transmission speed.

Solutions to common problems

Problem	Solution
The other node of the device is not working.	1. Check that the other power supply is powered up. 2. Check whether the parameters are configured correctly. A. Ensure one central node and multiple access nodes B. Consistent access ID C. The IP address of the device is correct D. connected to the device of the compelling brain ip address has been configured (computer configuration network segment details see Annex) 3. Check whether the access antenna is correct and whether the equipment build chain light is always on.
Data jams	Go to the configuration screen and check the model snr value. A low snr value indicates a weak signal.
Low signal for proximity devices	The signal saturated and the node did not come up in transmit power, pulling the two nodes apart.
Not far away.	1. Check the antenna connection cable for poor contact. 2. Check whether the transmitting power is changed or set too small 3. Check whether there are sources of interference such as power supply in the whole machine and take isolation or shielding treatment. 4. Try raising the antenna, or replacing it with a high gain antenna. 5. The test site is too much cover affects the test distance meat, change the test site

Computer configuration network segment method.

Control Panel→Network and Internet→Network and Sharing Center→Change adapter settings.

Find the wired network card settings connected to the device, right-click and select Properties → double-click Internet Protocol version 4 (TCP/ IPv4) and click Use the following IP address → Configure the IP address; IP address: 192.168.1.XXX subnet mask: 255.255.255.0 (ip address should be the same network segment as the device with different ip, such as the above 192.168. XXX is the ip).
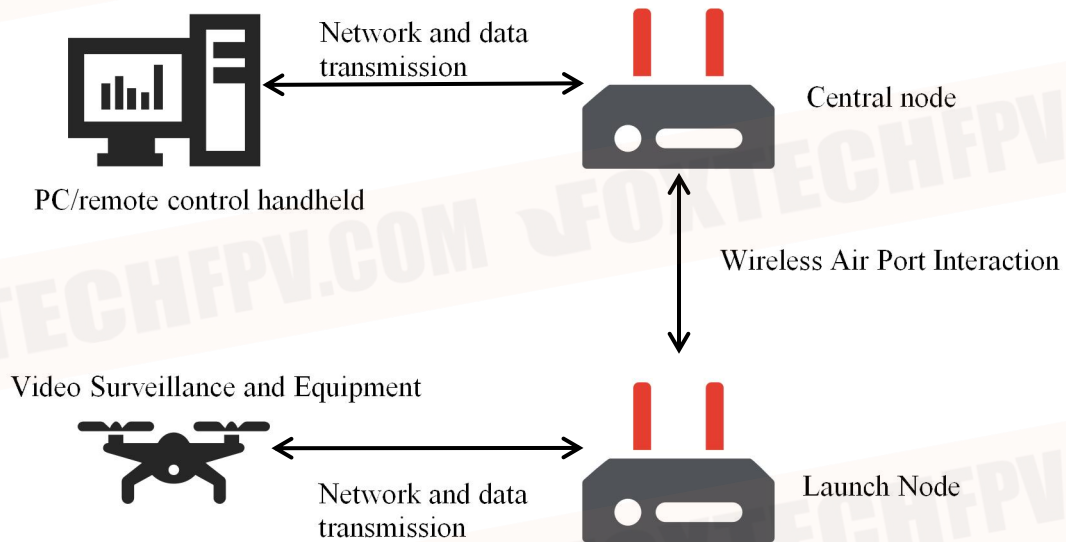
Click on Confirm when finished. If you want to add a camera ip segment, please click on Advanced Add to complete the configuration and click on the three confirmations.
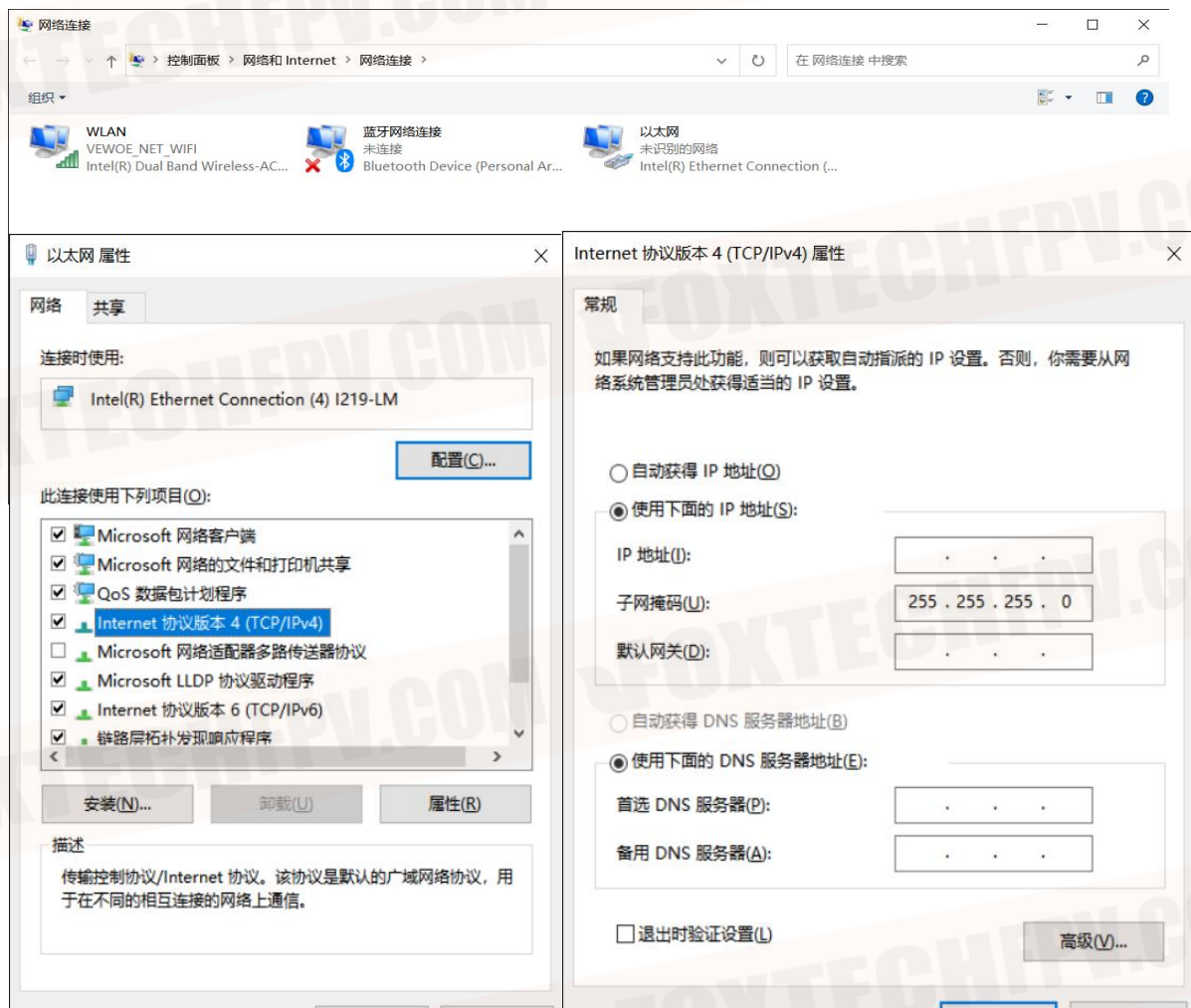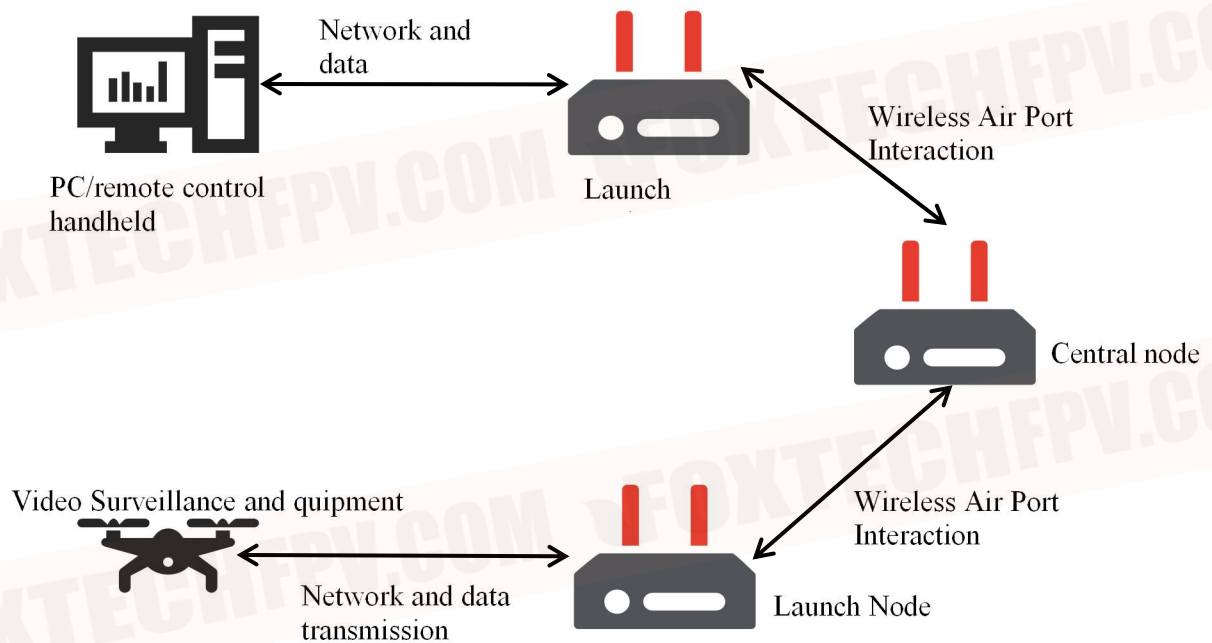
Typical Scheme

Point-to-point solutions

1 center corresponds to 1 launch for communication.

Relay Solutions

Point-to-Multipoint Solution

Network and data transmission

Central node

PC/remote control handheld

Wireless Air Port Interaction

Launch Node   Launch Node   Launch Node

Wireless Air Port Interaction

Video Surveillance and quipment