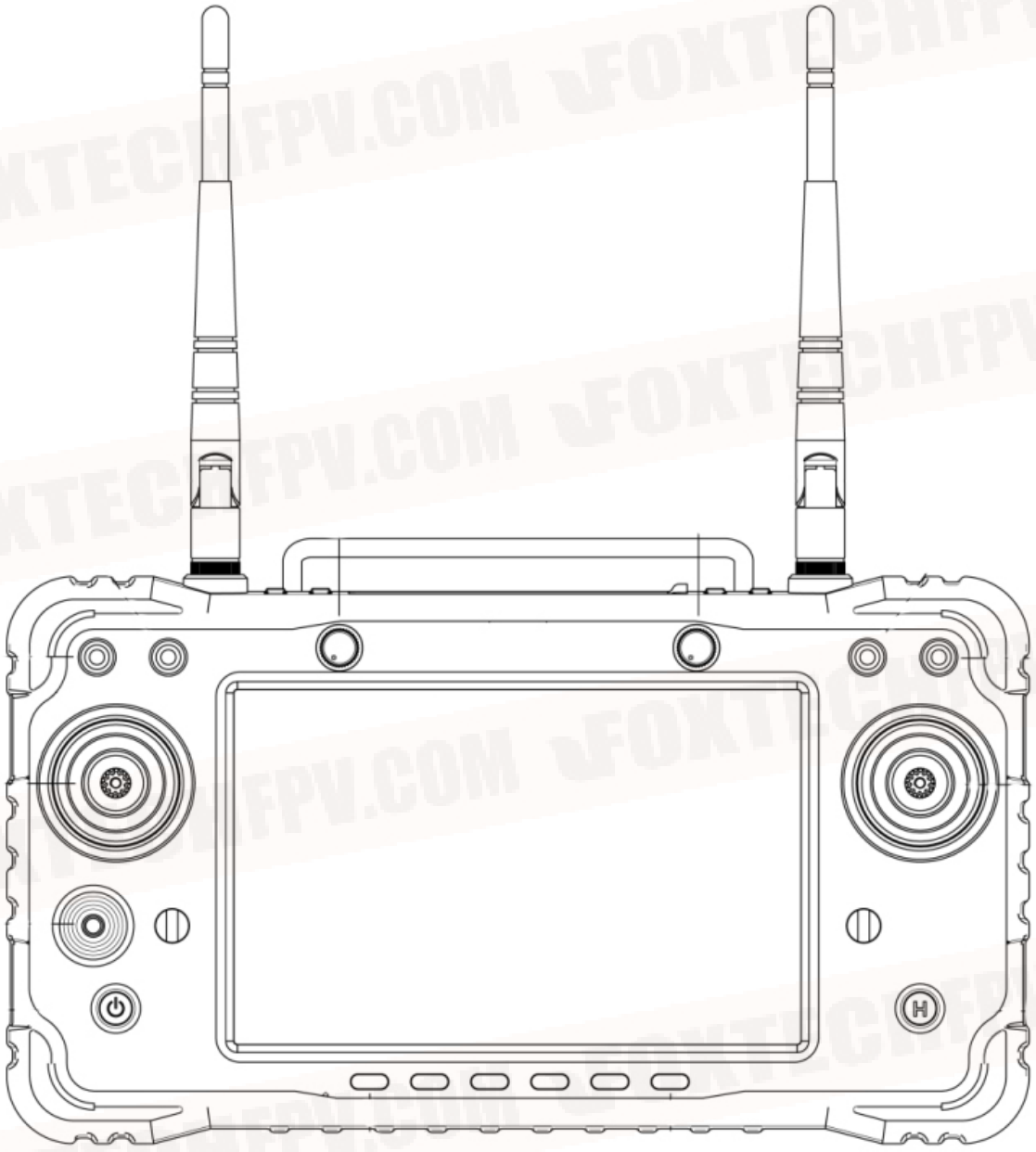
MX16/MX16 Pro

All-in-one Portable Ground Control Station

User Manual

V3.2 2021.04



FOXTECH

FOXTECHFPV.COM

Contents

Introduction **3**

Product Characteristics 3

Application Range 4

Specification 4

Diagram 5

Using Environmental Conditions1 7

Working Conditions 7

Security 7

Preparation and Checking Before Use 8

Preparation and Checking Before Use 8

Usage 12

FAQ 20

©2020 FOXTECH All Rights Reserved

Introduction

Product Characteristics

- MX16 series adopts a new processor, equipped with an Android embedded system, adopts advanced SDR technology, and a super protocol stack to ensure clearer image, lower latency, longer distance, and high anti-interference performance, it can be used to control drones, Robots and other industrial equipment etc.

- Support HDMI, Rj45, sensor port, dual serial port pass-through transmission(UART), SBUS etc, can be used for FPV security and protection, powerline inspection, mapping and border defence rtc.

- Adopts IP67-grade waterproof, dust-proof and drop-proof materials and structure, ensure not only good hand feeling, but also durability.

- MX16 adopts 7 " FHD high-brightness screen, 2000 nit LCD, operators can use it in full sunlight. Support 1080P HD video transmission, the dual antenna signals complement each other, super strong signal, super long distance, with algorithm control and out-of-step frequency hopping algorithm, greatly increasing the communication ability of weak signal .The transmission distance of MX16 can reach 10KM MX16 PRO--30KM

- Adopts high-energy density lithium-ion battery, supports 18w fast charge, and can work for 8 hours on full charge, featuring good reliability.

- MX16/MX16 Pro support HDMI, Ethernet, sensor port,2-channel serial transmission SBUS etc. And also support lots of cameras and gimbals and other video equipment, provide development kit, SDK and technical support, support video suspension,support QGC and Wireless RTSP video streaming sharing.

- The use of meteorological silica gel silica gel, frosted rubber, stainless steel, and aviation aluminum alloy makes it have the ultimate hand feel, but also meet the harsh conditions of outdoor use.The MX16 is dust-proof and waterproof on the fuselage, control switches, and peripheral interfaces, which ensures the stable and smooth operation of the equipment in harsh environments.

- Abundant ground interfaces, coach PPM input and output, RJ45 network interface, long-distance connection to the intranet, Type-C Android high-speed USB interface, OTG interface can be connected to U disk, network card, etc. Expanded TF card slot.

- Independent 2-dimensional gimbal control stick, easy to use.

©2020 FOXTECH All Rights Reserved

Application Range

For multirotor,fixedwing,vehicle, boat control and realize video (equipped with camera), data transmission.

Specification

Radio Controller

Model	MX16/MX16 Pro	Channel	16
Working voltage	4.2V	Radio-frequency power	20DB@CE/23DB@FCC
Frequency	2.400-2.483GHz	Frequency hopping	FHSS
Upgrade	APP upgrade online	Weight	1034g
Size	272*183*94mm	Battery	20000mA/H
Endurance	8h	Charge port	TYPE-C
Application	fixedwing/multicopter/helicopter/boat		

Receiver

Model	MX16/MX16 Pro	Channel	16
Working voltage	7.2-72V	Radio-frequency power	20DB@CE/23DB@FCC
Size	76*59*11mm	Weight	90g

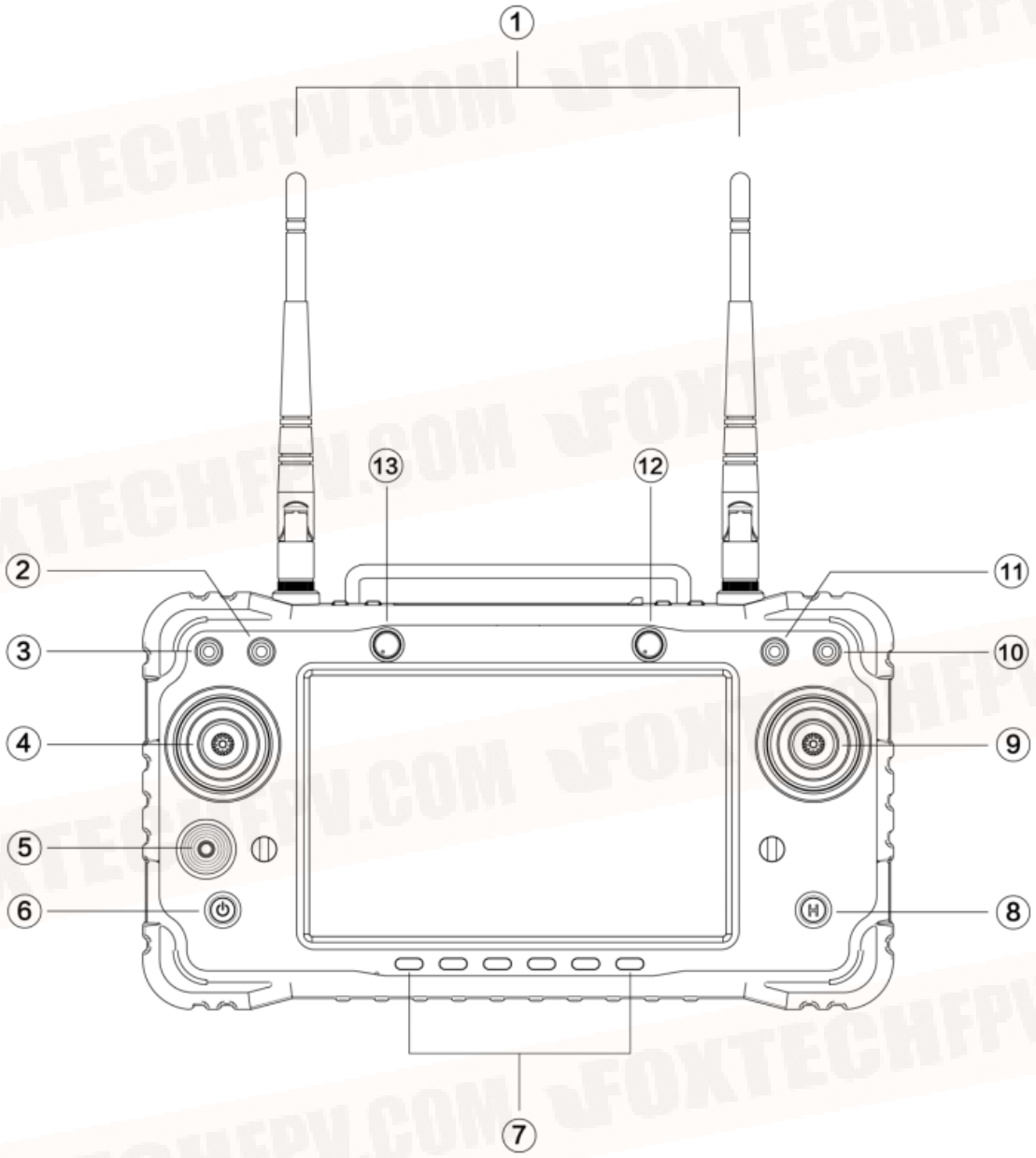
Note: A separate power supply is required, it is forbidden to use the flight controller to power the receiver.

MIPI Camera

Model	MIPI	Working current(with the light on)	140mA
Working voltage	14-72V	Working current (turn off light)	14mA
Size	102.1*42.6*36.5mm	Weight	55g

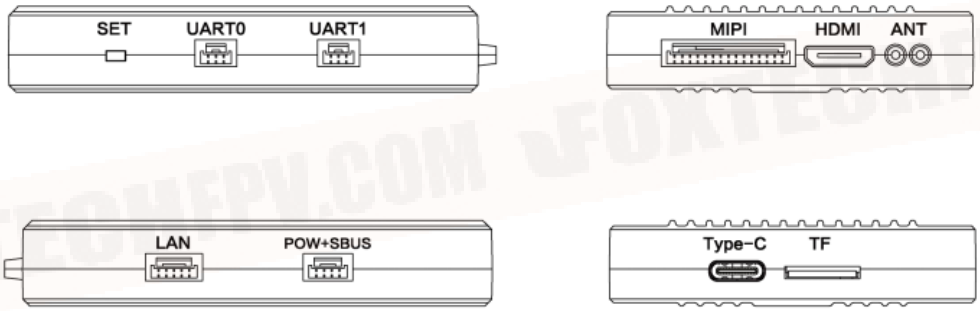
©2020 FOXTECH All Rights Reserved

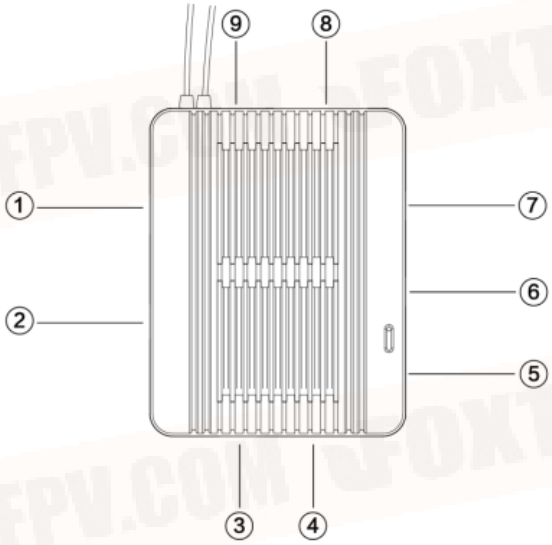
Diagram



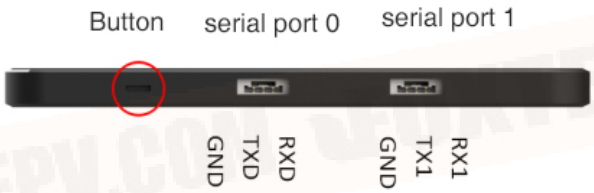
1. 2.4G 3dB antenna 10 3-position SW4
2. 3-position switch SW2 11 3-positionSW3
3. 3-position switch SW1 12 knob AUX2
4. Left joystick X1. Y1 13 knob AUX1
5. Small joystick X3. Y3
6. Power button
7. 6-segment switch
8. Button
9. Right joystick X2. Y2

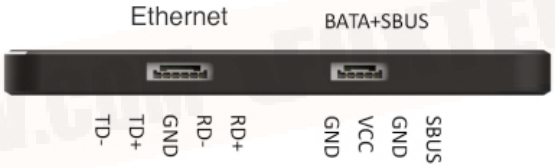
©2020 FOXTECH All Rights Reserved





1. Ethernet
2. Power and SBUS input
3. Type-C port
4. TF card port
5. Frequency pairing button
6. Serial port 0
7. Serial port 1
8. MIPI camera port
9. HDMI input





©2020 FOXTECH All Rights Reserved

Using Environmental Conditions1

-Environment temperature: -10 °C ~ +55 °C.
-Storage temperature: -25 ° C ~ +70 ° C.
-Relative humidity: no more than 85%.
-Atmospheric pressure: 86 kPa to 106 kPa.
-The use of the site is not allowed to explode dangerous media, the surrounding media should not contain corrosive metals and insulating gas and conductive media, not allowed to be filled with water vapor and serious mold.
-The place of use should have facilities to protect against rain, snow, wind, sand and ash

Working Conditions

Power supply method and notes.

MX16 series ground unit has built-in integrated rechargeable lithium battery, which is compatible with the market standard micro USB interface 5v/1.5A power adapter (such as mobile phone, camera and other digital products USB charger) for charging.

If you encounter smoke, odor, or liquid leakage when charging on the ground unit, do not continue to it. Please transfer it to our company for repair. Beginners should pay special attention to the following safety issues! Do not charge the product in the baby's touch area to avoid the risk of electric shock. Do not charge this product in an environment exceeding 60 ° C

Security

It is forbidden to fly when the body condition is not good, such as fatigue or drunkenness! It is forbidden to fly in bad weather such as rain or strong wind!It is forbidden to fly near high-voltage lines, communication base stations,or active places!It is forbidden to fly at airports and other places where it is forbidden to fly! It is forbidden to control the flight model in places where people are concentrated, in parking areas, or in other areas where property damage or personal injury may occur. Before the flight, check the equipment of the aircraft and check whether the transmit and receive system and the aircraft are normal. After the flight, turn off the power of the receiver and then turn off the power of the transmitter to prevent the engine or motor from rotating and causing damage caused by the runaway protection function! Please use a guaranteed professional charger to charge the battery.This product antenna is a fragile component, please pay attention to avoid excessive damage.

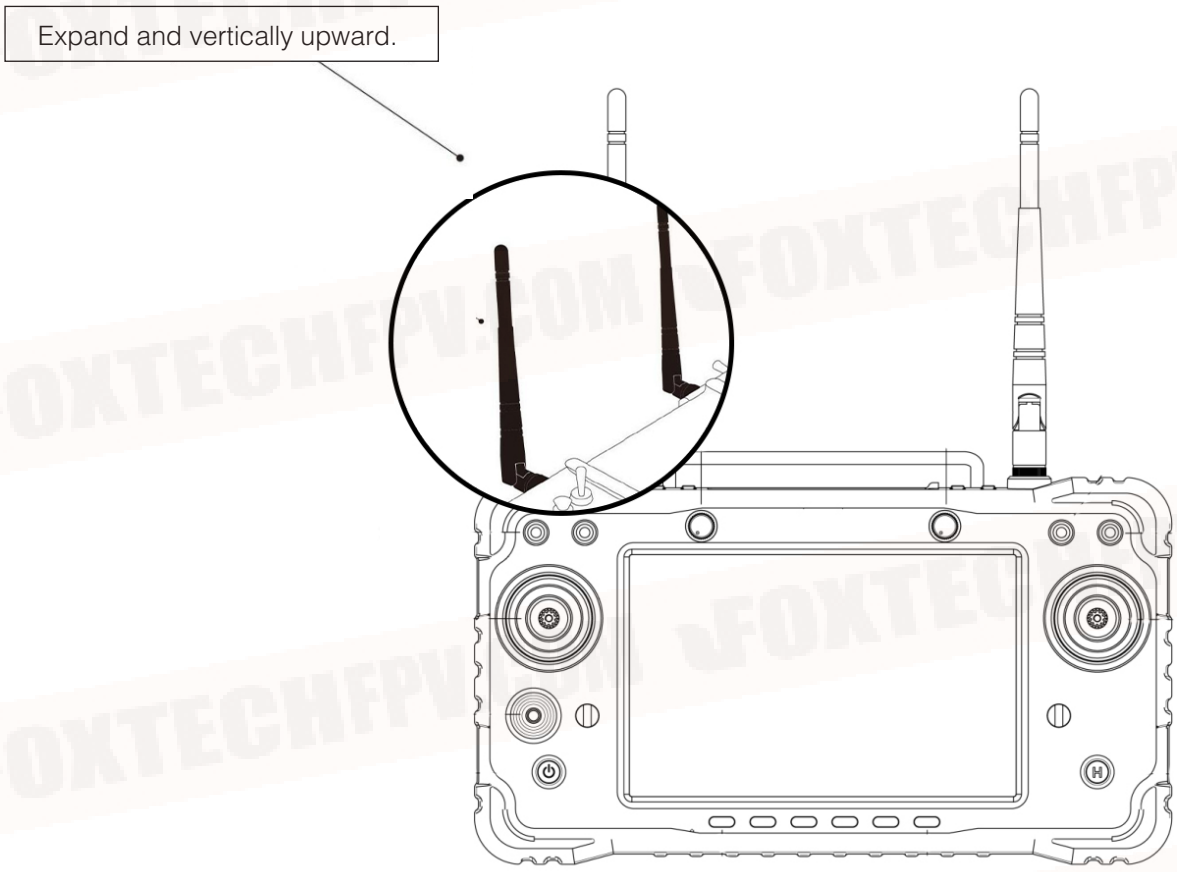
©2020 FOXTECH All Rights Reserved

Preparation and Checking Before Use

Preparation and Checking Before Use

1. Always check that it the remote control is fully charged before use.
2. Please check if the antenna is placed as required before use.
3. For the first time, please ensure that the firmware has been upgraded to the latest version.
4. Users should ensure that they are not operating under the influence of drunkenness or drugs.

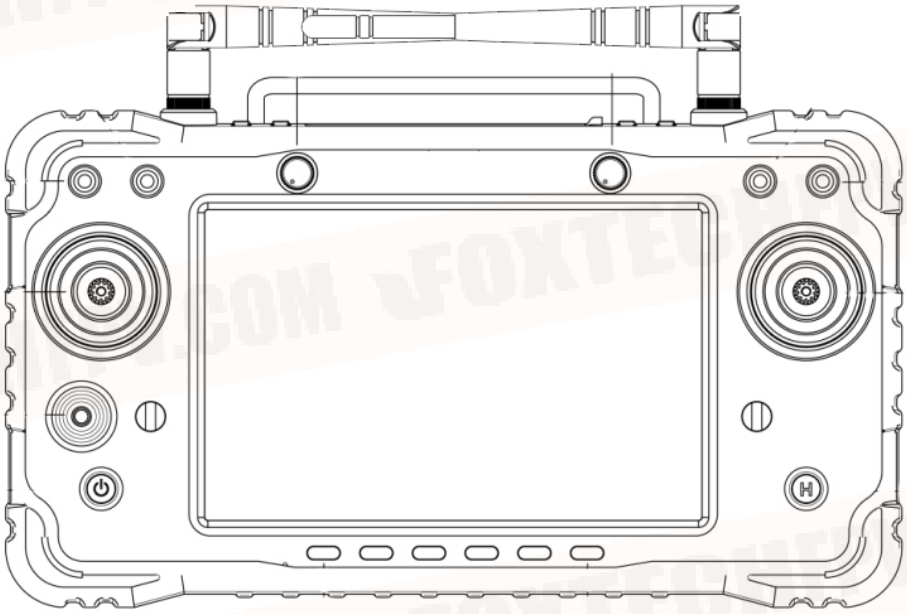
Proper Operation



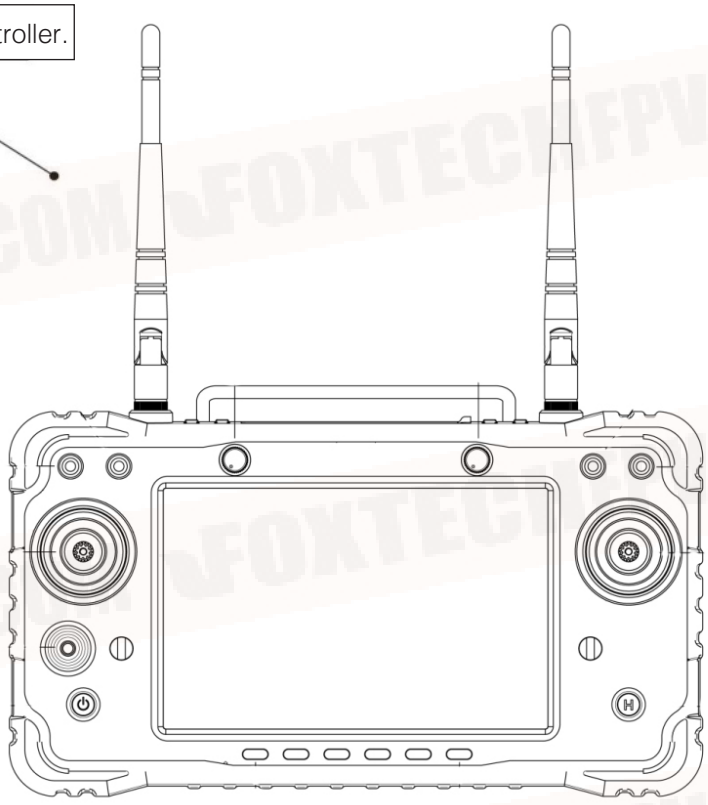
©2020 FOXTECH All Rights Reserved

Faulty Operation

Antennas can not cross.



Cannot be parallel to the remote controller.

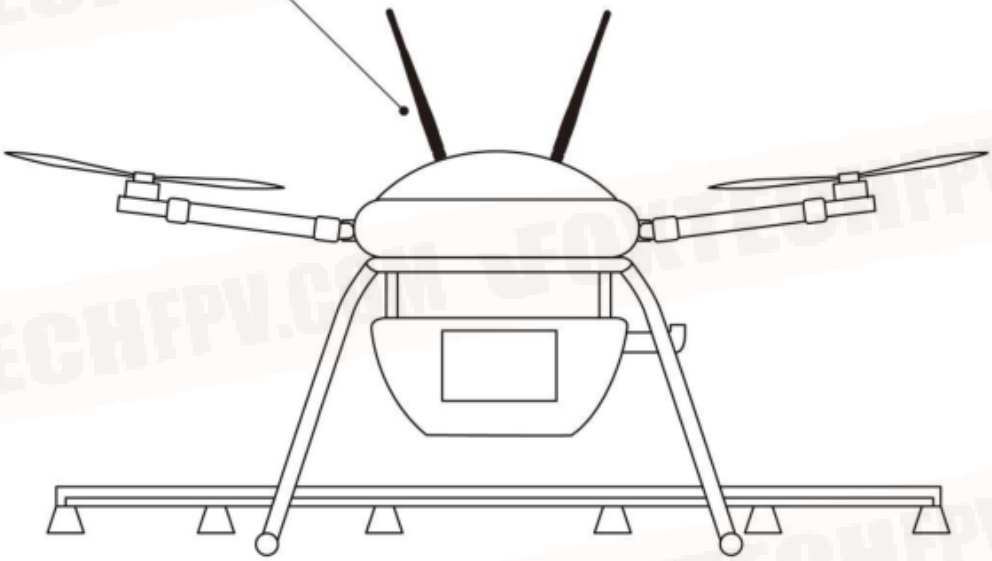


©2020 FOXTECH All Rights Reserved

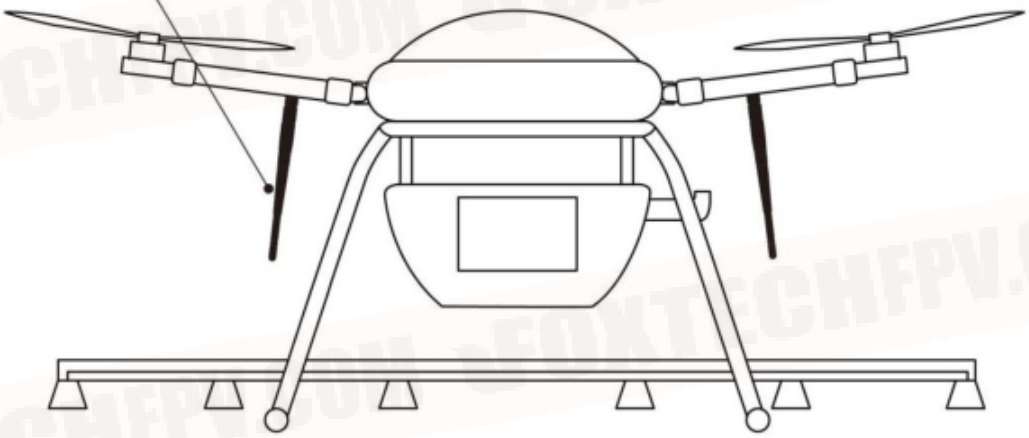
Uav Operation Diagram

Proper Operation

Away from the center plate,vertically upward, no shielding.



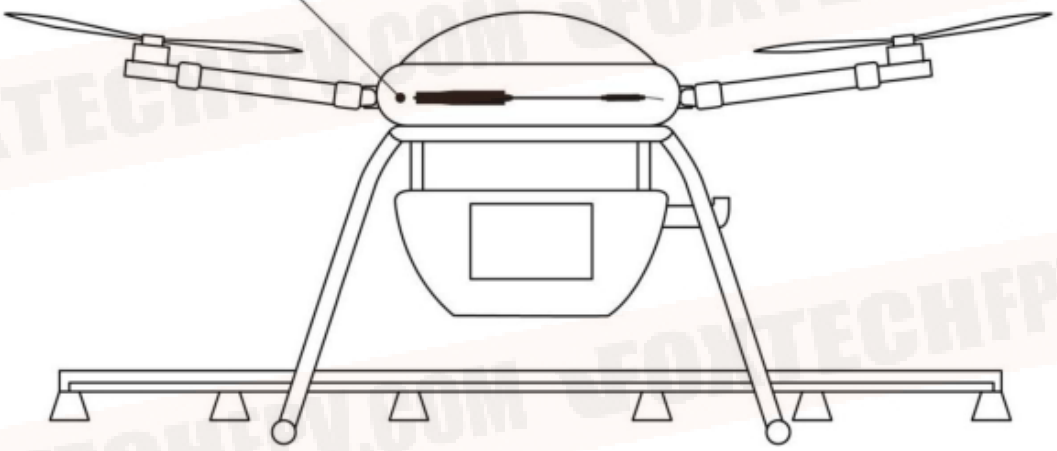
Fixed under the arms.



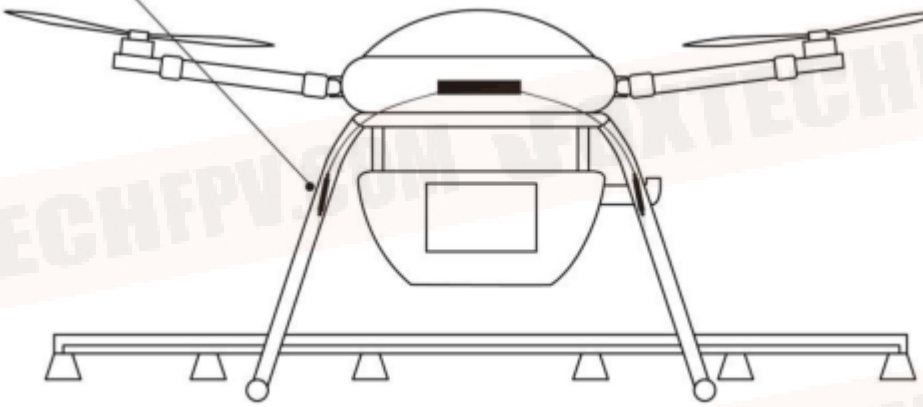
©2020 FOXTECH All Rights Reserved

Faulty Operation

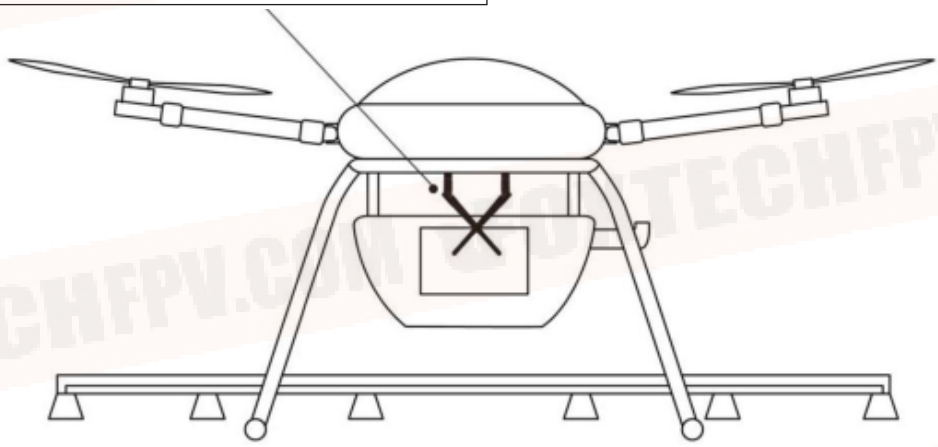
Can not place in the center of the plate.



Antenna can not be close to the CF and metal.



Antennas can not cross, and can not be placed in the middle of the tank.



©2020 FOXTECH All Rights Reserved

Usage

Part 1: Language Setting

1.Enter the system settings, select the language and input method.

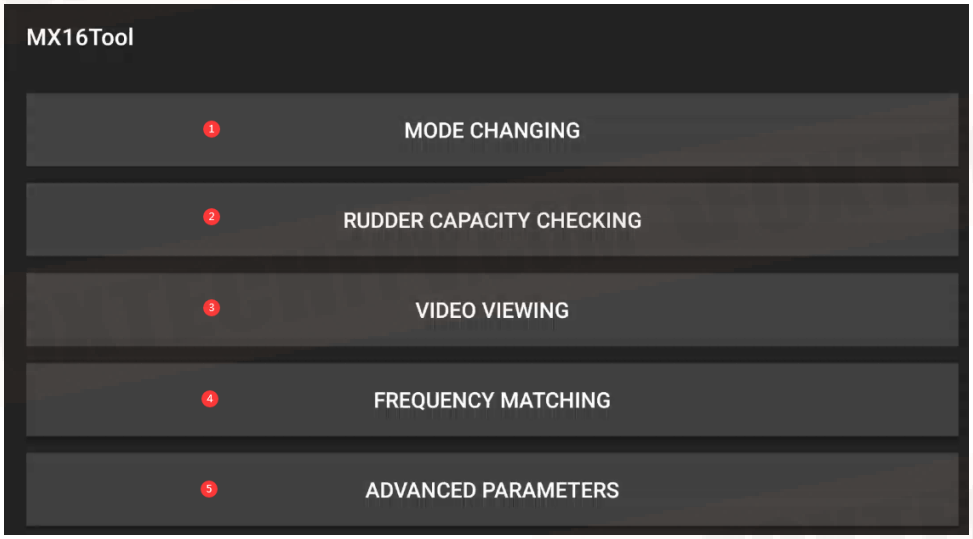
2. After entering “language and input method”, click on the language to switch, add, and delete languages.

©2020 FOXTECH All Rights Reserved

Part 2: Status Prompt Bar

1. Access to internet successfully through Ethernet port or USB
2. Remote controller and receiver signal strength not connected in the picture
3. Power
4. Time
5. Return
6. Return to the main surface
7. Background task management/Split screen buttons

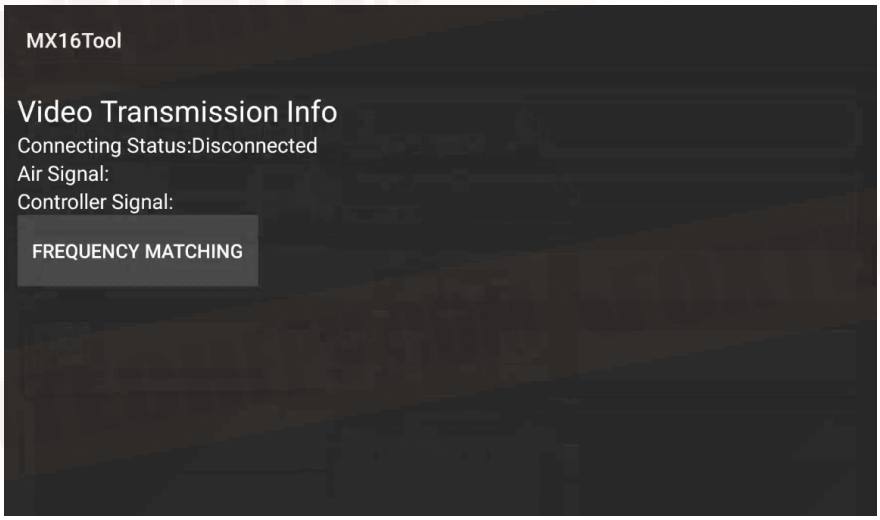
Part 3



1. Switch the joystick control method of the remote controller.
2. Check the channel value of the remote control.
3. Check MIPI HDMI UART VIDEO and other RTSP Video
4. Frequency pairing between remote controller and other receiver.
5. Can adjust the channel, upgrade the joystick firmware, modify the receiver serial port baud rate. Ask the technician for the password

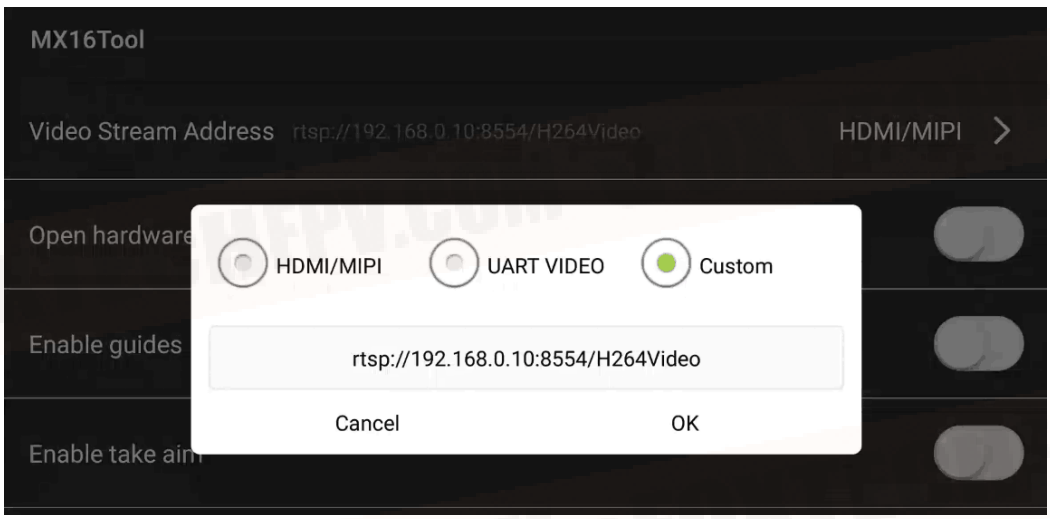
©2020 FOXTECH All Rights Reserved

Part 4



1. Wait for 3s-5s after the receiver is powered on, and then long press the SET button until the white light flashse.
2. Enter MX16 assistant click frequency pairing. it will display 'connected' after the frequency successfully matched)

Part 5



1. The factory default mode is HDMI/MIPI, used to display video transmitted via receiver MIPI/HDMI
2. UART VIDEO Mode display single axis gimbal,MINI camera video(transfer board is needed)
3. Custom mode, display the video transmitted through the air unit ethernet port.

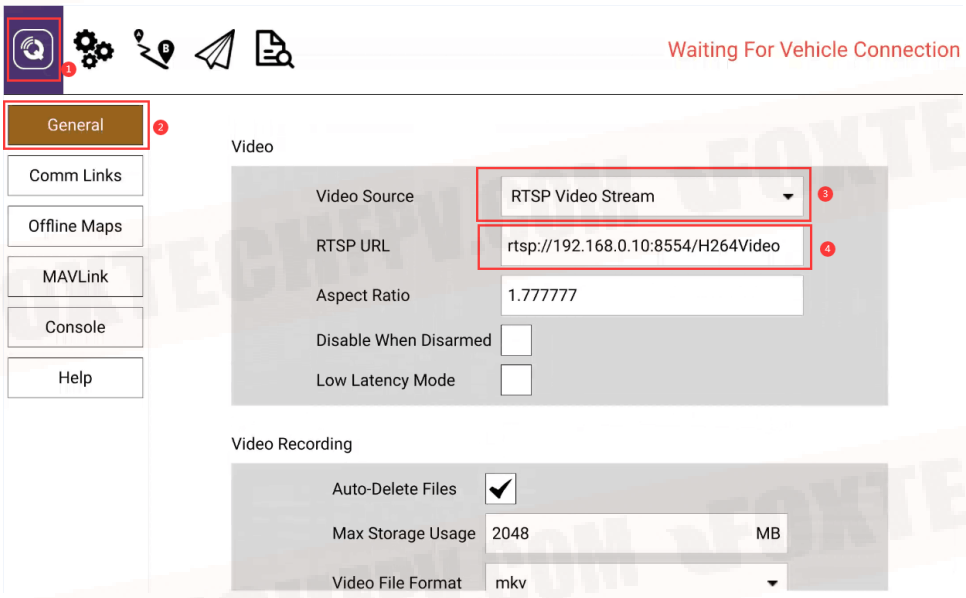
©2020 FOXTECH All Rights Reserved

Part 6: Joystick calibration

Check rudder quantity in the MX16 assistant, calibrate according to reference value.

1. When the screen of the remote control is completely turned off, center the knob. Long press the C and D keys in the six-segment switch, then wake up the screen and slide the screen upward.
2. Release C and D button,and long press D. Start the calibration when the remote control makes a sound.
3. Press D button to exit the calibration mode after reaching the max and minimum values of the left, right, small joystick and knob of the remote controller.

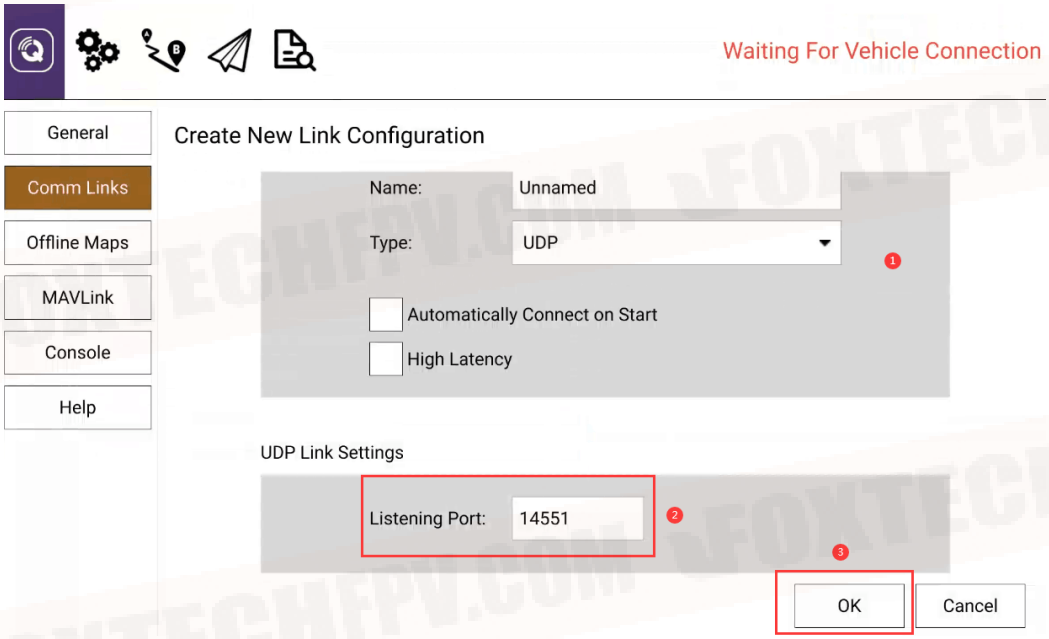
Part 7



1. Click System Setting icon in QGC
2. Click ‘general’
3. change the video sourse to RTSP Video Stresm
4. write the video RTSP address in RTSP URL

©2020 FOXTECH All Rights Reserved

5. Click ‘communication connection’
6. Click ‘add’



7. Change the type to UDP, cchange listening port to 14551.
8. Click OK to save.

©2020 FOXTECH All Rights Reserved

Part 8

Connect to the Internet

(1) 5Gwifi

(2) RC WAN port connection

(3) connect to the Internet by the wireless card through the OTG port on the remote control (support Huawei,zhongxin only).

Part 9

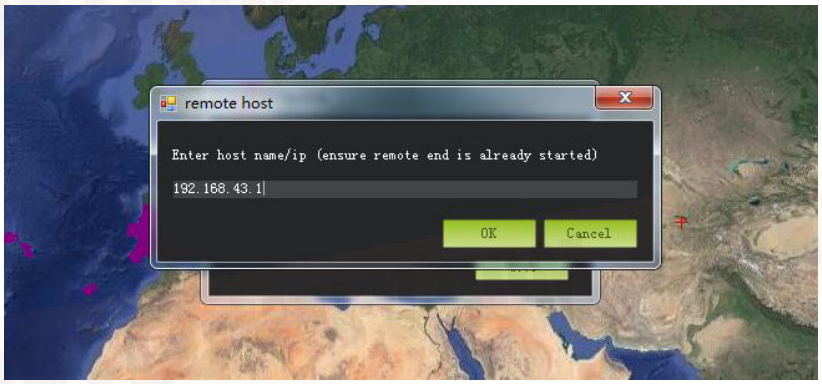
How to share network, video and data information

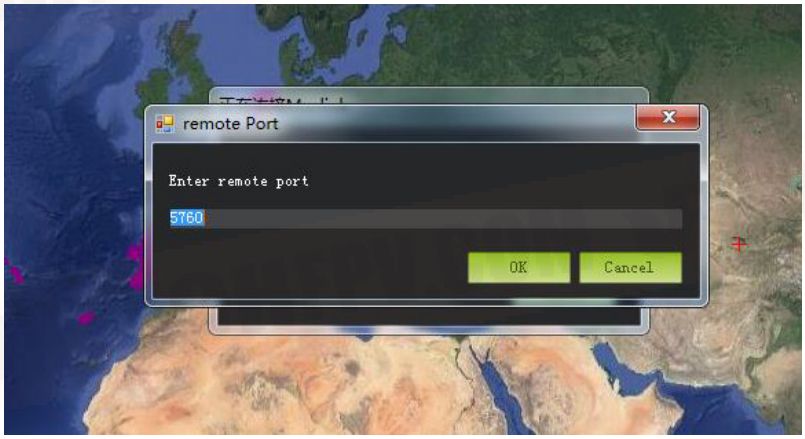
(1) Share the Internet connection

When the remote control is connected to the Internet via the USB wireless card, the hot spot of the remote controller can be turned on for network sharing.

(2) Share the data link

1. Turn on the hot spot of the remote controller.
2. Connect the computer to the remote control's hot spot.
3. Open Mission Planner, choose the TCP connection method.

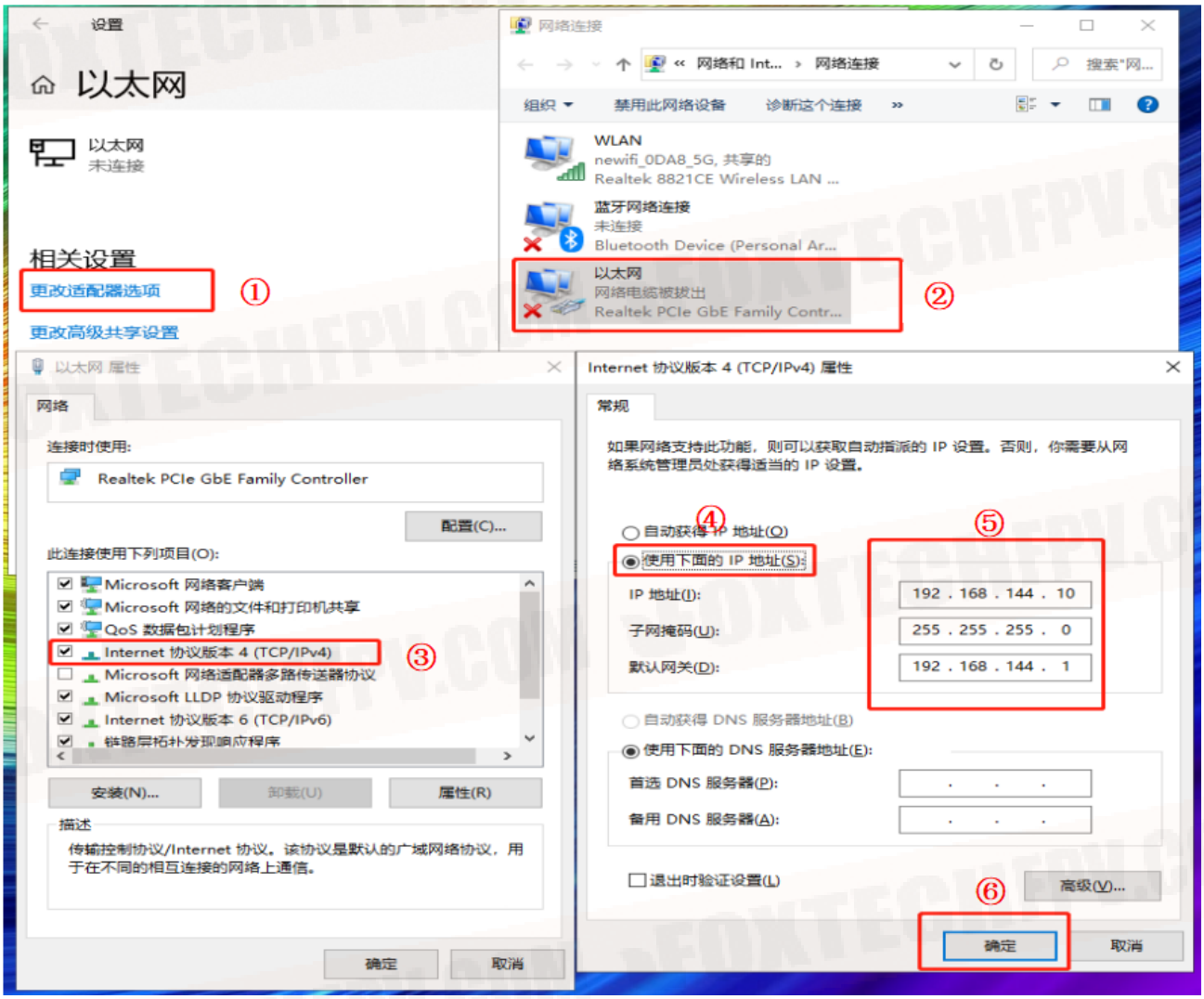


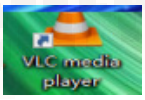


©2020 FOXTECH All Rights Reserved

(3) Share the videolink

1. Turn on the hot spot of the remote controller.
2. Connect the computer to the remote controller's hot spot.
3. Open the computer's settings, click on the adapter, select Ethernet, select the IPV4 protocol, select a custom IP address, enter as shown in the figure, then click on "confirm".



(4) Download VCL 

software to display the video.

(5) Open the VLC software, Select Network Streaming in the media.

(6) In the input field of the network URL, enter rtsp://192.168.43.1:8554/fpv_stream and click play.

©2020 FOXTECH All Rights Reserved

©2020 FOXTECH All Rights Reserved

FAQ

1. Can the remote controller install other apps?
Remote control terminal permissions are fully open, without any special software and restrictions on software installation and uninstallation.

2. How does the remote control enter fast charge mode?
Must use a special charger to enter the quick charge mode. There is a text prompt on the lock screen.

3. How to get the RTSP address if using MIPI or HDMI camera?
Open the MX16 Assistant, open 'video check', click Settings (virtual button), click the video stream address, click Customize to copy the link starting with THE RTSP below. And then paste it

4. No datalink connection
check if the ground control station connet the remote control at the type of UDP, if the listening port is 14551. Check if baud rate is normal. Check if RX TX connected reversely.

5. Images cannot be displayed when connected to the webcam.
Images transmitted over a network port with a dedicated RTSP address, which is not common with MIPI/HDMI address. Please ask the webcam manufacturer for this RTSP address.

6. The remote control fails to connect to the Internet through ethernet port.
Please turn off WIFI when connecting 4G network card and network port.

7. The remote control cannot connect to WIFI.
The remote control can only connect to 5G Wi-Fi, can change the phone hot spot to 5G.

©2020 FOXTECH All Rights Reserved

This content is subject to change.

Download the latest version from

https://www.foxtechfpv.com/mx16-series-16-channel-gcs.html

For everyday updates, please follow

Foxtech Facebook page: https://www.facebook.com/foxtechhobby

YouTube Channel: https://www.youtube.com/user/foxtechonline/featured?view_as=subscriber

©2020 FOXTECH All Rights Reserved