A) Introduction

1. Product characteristic

1.1 Dual antenna plus Dual module with control of algorithm to ensure reliable communication by full angle high gain antenna. Also thanks to latest FHSS(Frequency Hopping Spread Spectrum)technology to achieve perfect control of the FUAV and operation of camera.

1.2 Tx and Rx output sent flight data to ground station. Fully maximize advantages of 2.4G to solve the unstable and interference problem of 433Mhz and 915Mhz

1.3 Integrated internal broadcast station

1.4 adjust parameter anytime through App (FUAV Helper)

1.5 Link by USB cable or Bluetooth. Also support S. Bus, PPM, PWM, I2C serial port and expandable

1.6 Flight parameter can be adjusted through App in your phone. It can be linked by either USB (with OTG) or Bluetooth. You can change any features over the App, mode (mode 1, 2, 3,4) , Nor/Rev, failsafe,Sbus, ppm output and baudrate. Data is saved so that you can use anytime.

1.7 Base on "Tower" App to make groundstation perfectly matched each other, larger view on the map. So you may do point to point planning and self operation. Also one key home return.

1.8 Internal 4000mah Li-ion battery can last for more than 25 hours with 100mw

Ground Station Specification				
Model	T12	Channel	12	
Working voltage	4.2V	Current	130mA	
Frequency	2.400-2.4833Ghz	System	FHSS	
firmware update	App online	Weight	560g	
Dimension	225*123*35mm	Battery cap.	4000mA	
Duration	25 hours	Charge port	Micro USB	
Application	Helicopter, fixed wing,drone,car, boat, submarine			

low power consumption . Your phone can be charged through the micro USB port.

1.9 Highly integrated data, video and flight controller board. It makes the size smaller. Aluminium foldable mounting plate. With 360 degree adjustment.

1.10 The camera equipped with a 8w super bright LED for better capture image at night time

B)R12 PRO、R12 FUAV is specially designed for agriculture, video capture, and drone flying

C) Specification of R12 PRO、R12

Specification of camera			
Model	R12 PRO, R12	Working voltage	DC 4.5V-5.5V
Current	Light on/off 14mA/ 140mA	Frequency	2420MHz-2480MHz
Weight	90g	Dimension	103*43*21mm

D. Prepare the first start up
1. Make sure the groundstation (Tx)is fully charged
2. Please check the position of antenna is correctly placed
3. Check the firmware is update

3. Reciever

3.1 Failure LED indication

Red LED flash rapidly: receiver self detect fail, Sent it back to factory if retry fail.

Red/Green LED flash alternately: receiver self detect succeed

Green LED off but self detect is successful: turn on Tx and pair again

No LED on: Check working voltage is 5v and polarity is correctly connected. Sent back to factory if retry failed.

4) R12 PRO、R12 connect to Android phone

4.1 correctly connect receiver and camera. Power on

4.2 install FUAV APK

4.3 Use USB cable come with the kit to link up the Tx and Android phone as shown

4.4 Click "Yes", image will be shown on your phone

5) How to update firmware

5.1　Android upgrade

5.1.1 Open "Device Helper" and link up with Bluetooth. Press the button "A" while turn on the Tx. 5.1.2 Button "A" LED flashing slowly to enter download mode. Check if any new firmware update. 5.1.3 Refresh the firmware if any.

5.2　PC Upgrade

5.2.1 Please browse "www.fuav.xin to select download.

5.3　Tx Upgrade

5.3.1 Link up Tx and PC. Press button "A" while turn on the Tx. Button "A" LED flash slowly to enter download mode.
5.3.2 Double click Firmware Upgrade

5.4　Rx Upgrade

5.4.1 Solder USB cable to upgrade port then press S1 link with PC (window), Red LED show up to enter download mode.
5.4.2 Select bin file and click to upgrade, when 100% the upgrade process is finished. Please unplug the receiver.

6) How to change Mode on R12 PRO、R12

6.0　There are four different mode to be selected, Mode 1(JPN),Mode 2(USA), Mode 3(JPN Reverse), Mode 4(USA Reverse)
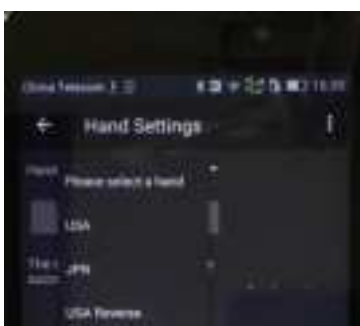
7) Frequent Question and Answer

7.1 Q: Does R12 PRO、R12 support PPM, Sbus?
   A: Yes, The first row pins default as Sbus, Change to PPM signal on the APK.

7.2 Q: How far can R12 PRO、R12 reach?
   A: Under the clean signal circumstances. Video signal can reach 20km while Data signal
Can be 30km.

7.3 Q: How to define two antenna on R12 PRO、R12
   A: Dual antenna are 2.4Ghz, also dual module inside for transmission.

7.4 Q: How to define two antenna on the receiver
   A: Receiver also use dual antenna, they perform as transceiver. Please place the angle of two antenna as we recommended

7.5 Q: What inside the R12 PRO、R12 package?
   A: R12 PRO、R12 Tx one unit, two 2.4G antenna, Data cable, Rx one unit

7.6 Q: How to charge the R12 PRO、R12?
   A: Use a Micro USB cable to charge the R12 PRO、R12. Flashing in charging mode while off in Full charged.

7.7   Q: How to obtain the latest ground station software and updated firmware?
   A: Please visit www.fuav.xin to download and learn from the video.

7.8   Q: Failed to link with APK?
   A: please check the baudrate, connection with flight control board or Bluetooth is occupied by other device. Our groundstation is well linked with

PIX flight controller board. Also the other groundstation Map come with flight controller board.

7.9 Q: How to turn off/On the Tx

   A: Short press the power button then long press to turn on the Tx and vice versa

7.10 Q: Fail to unlock the flight controller?

   A:

7.11 Q: No LED on receiver when link with the flight controller?

   A: Turn on the Tx, if still no signal please check the battery level and pair again

7.12 Q: Change hand Mode

   A: Open "Device Helper" to change the hand mode

7.13 Q: Abnormal stick position

   A: Calibrate again

7.14 Q: what is the signal transmission space

   A: about 400/ms

7.15 Q: Do the R12 PRO、R12 pair with new receiver?

   A: Yes, R12 PRO、R12 sent ID to receiver randomly. It works with the new pair receiver

FCC Statement

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 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.

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