



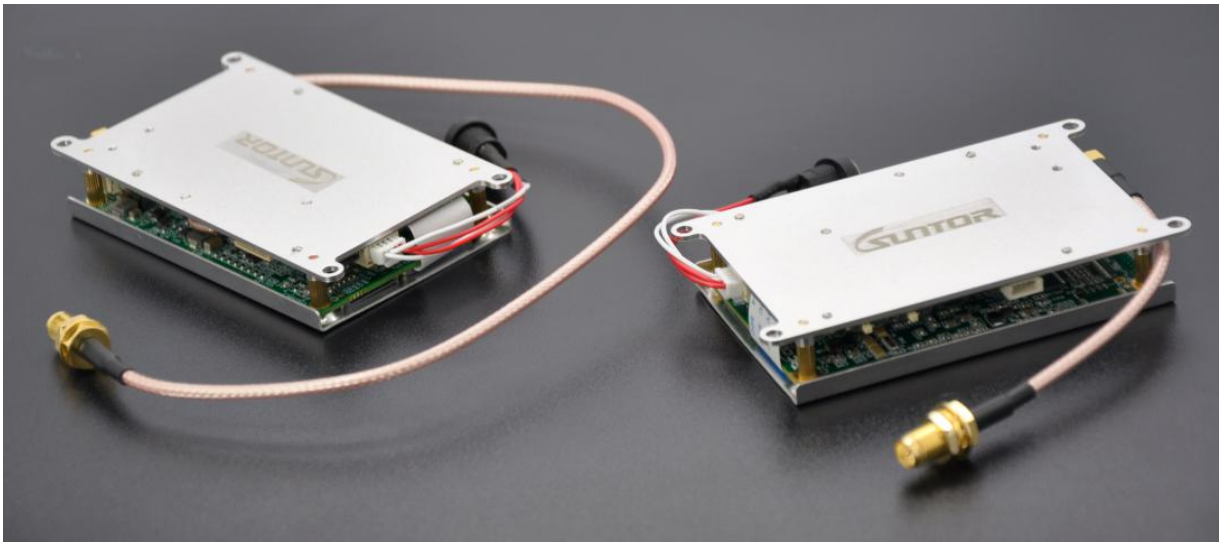




ST5XHPT User Manual

SUNTOR

ST5XHPT User Manual



TX on Board **RX on Ground**

Contents

SUNTOR ELECTRONICS CO., LIMITED

I. Disclaimer

V2.0

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II. Precautions for integration

1) Be sure to use the parts provided by SUNTOR.

2) Reverse connecting power line positive and negative will burn the device out.

3) Before powering on please make sure the antenna are in good connection and not install or remove the antennas with power on.

4) Given that the carbon fiber body and metal load may have shielding effects on antenna signals, they should not be installed between the antenna and ground terminal. Keep the antenna on board free from winding or blocking by obstacles. The antenna end should be vertically downward without bending to prevent shortening communication distance and failure communication.

5) Antennas on board should be kept away from other radio antennas to avoid electromagnetic noise and interference. We recommend to make full use of data and video transmitting function of ST5XHPT to minimize the radio devices quantity on board.
6) If using PTZ Camera, please do the PTZ self-testing firstly then connect HDMI cable.

7) HDMI cable and antenna on board may interfere with GPS. Please keep the HDMI cable and antenna away from the GPS module and its cables.
8) Do not disassemble or modify SUNTOR ST5XHPT. Any problem during installation, contact SUNTOR or SUNTOR local branch office.

9) Keep appropriate distances between different electronic devices during installation to minimize the electromagnetic interference.
10) The power input is DC7-18V. We recommend the DC12V. Make sure the battery is full of charged.
11) Before using, please make sure all cables are in good connection and all components can work properly.

12) After starting the product, the self-test indicators of ST5XHPT will continuously blink for 30s and then keep bright. Only after the video from the camera shown on the display, then you can confirm that the device work properly now.

13) Check the surrounding environment to ensure there is no other 2.4GHz devices to cause interference.
14) If you use the Futaba remote controller, the controller should be adjusted into the French mode. Otherwise, the video transmission performance will be serious affected

15) Adjust the Futaba controller into French mode as following steps:
16) [LINKAGE MENU]→FRQUENCY→ RTN b→ [AREA]→[FRANCE]

Or connect ST5XHPT S1 serial port with trainer interface on back side of Futaba by TTL cable. And set the Futaba RF as OFF. Through the S1 port uplink the PPM/SBUS signal.

17) Before using, please check the power of RX and TX. If the receiver power off, transmitter on board will lose connection.

18) Adjusting RX antenna inclination can improve the signal strength and image quality.

19) The camera should be fully charged to ensure normal video output.

20) ST5XHPT support video and duplex data communication. If the video stuck or stopped for more than 10s. It means the radio signal is weakened or the radio channel is narrowed. In this case, the aircraft need to fly back to short the distance between TX and RX. Otherwise, the TX will lose connection.

21) Please use good electromagnetic shielding accessories(HDMI Cable, HD display and so on)

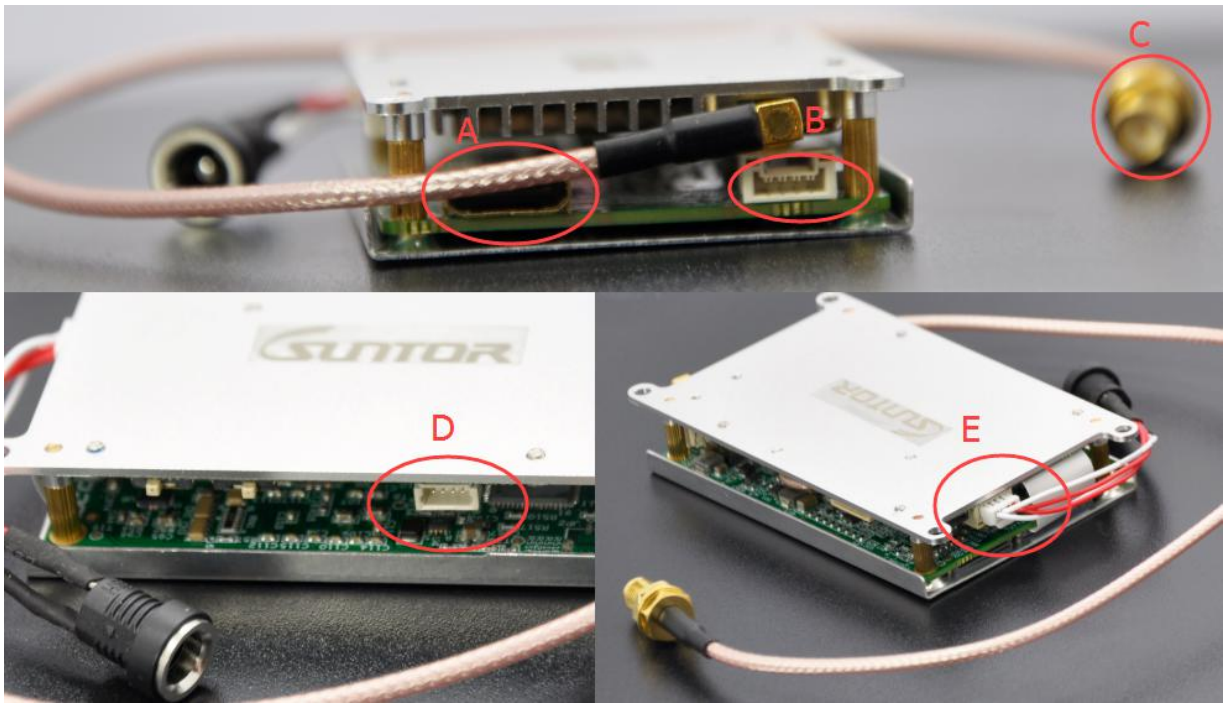
Notes: Improper operation of ST5XHPT may cause personal injury or damage to properties. Please pay high attention to operation safety.

III. List of in-box items

On board x1	Ground terminal x1

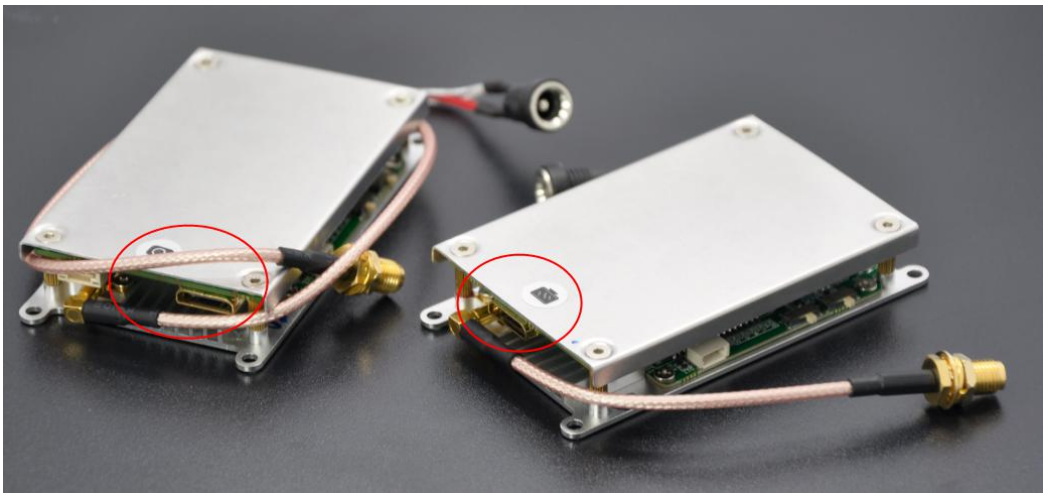
	
On board antenna x1	Ground antenna x1
	
DC power cable x4	
	
HDMI video cable x2	
	
TTL Cable x2	
	
USB TTL serial port x2	
	
TTL Cable for Fly control system x 1	
	

IV. Interface Definition



A: HDMI mini TX or RX*1
B: DC7~18V Input*1 (We recommend DC12V)
C: SMA Antenna Interface*1
D: TTL Serial Port*1
E: DC7~18V Input*1 (We recommend DC12V)

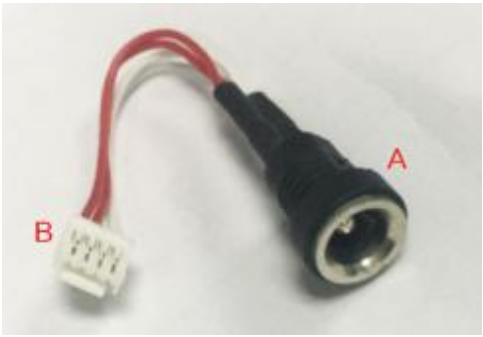
Note:
1. There are two power input interface. They have same function. Any one is ok for power input but we recommend the **interface E for power input**
2. HDMI Interface: Mini HDMI
(Port with camera marker is video input for transmitter, Port with display marker is video output for receiver)



1. Power Cable

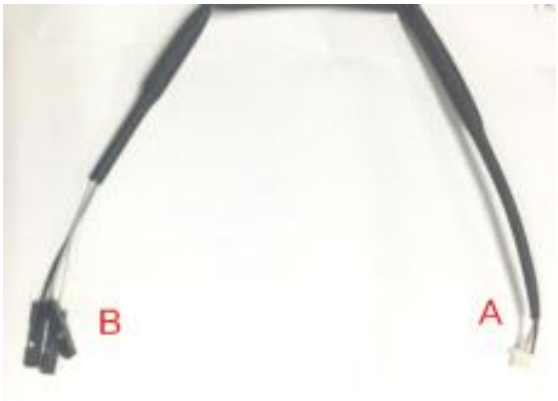
A. DC Socket 5.5-2.1mm
B. Plug： 4P GH1.25mm

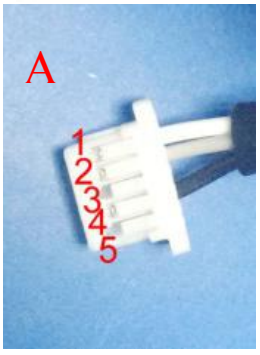
No	Definition	Cable Color
1	7-18V	Red
2	7-18V	Red
3	GND	White
4	GND	White



2. Bidirectional serial port

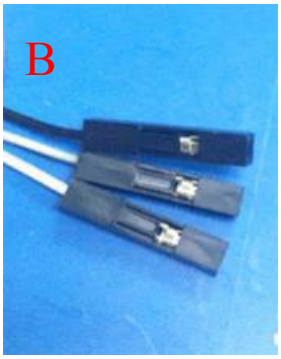
TTL Cable
A. JST SH1.0mm 5P
B. Dupont Connectors





SH NO	Definition	Cable Color
1	TXD	White
2	RXD	Grey
3	3.3V	Reserved interface
4	GND	Green
5	Audio	Reserved interface (on ground)

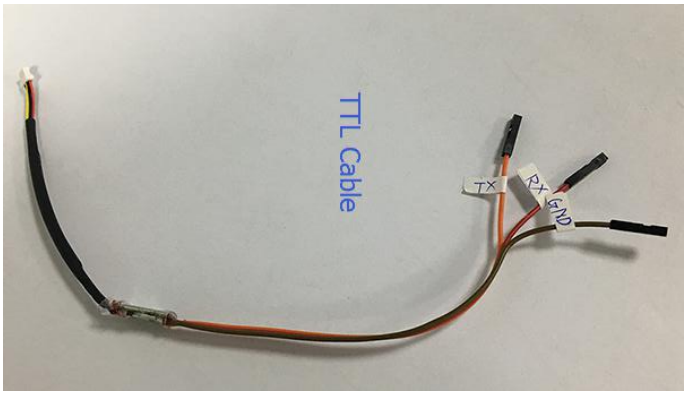
Dupont NO	Definition	Cable Color
1	TXD (TTL232)	White
2	RXD (TTL232)	Grey
3	GND	Black



3. How to connect with fly control System

On board

If your Auto pilot system is TTL interface for data. You can use the TTL cable to connect the transmitter's S1 port with auto pilot system.



If your auto pilot system is RS232 interface for data, with the cable's definition, you can make a RS232 cable to do the connection with your auto pilot system.

On Ground

For Receiver, to connect with GCS you can use the TTL to USB cable.

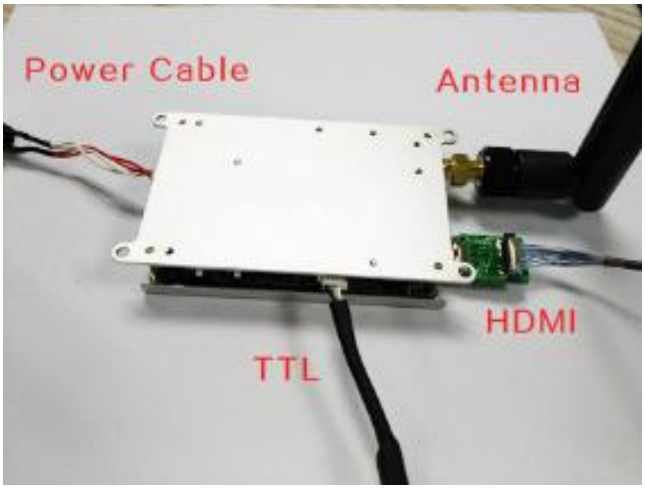
4. Antenna Interface

SAM internal thread female

V. Operating Instructions & Steps

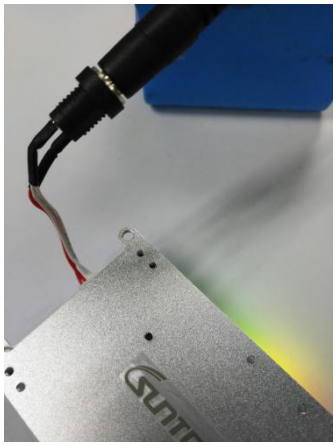
1. Make TX and RX and accessories ready.

Besides the whole equipment we supply, you also need to make sure the video source, display and power ready before operating.



2. Connection

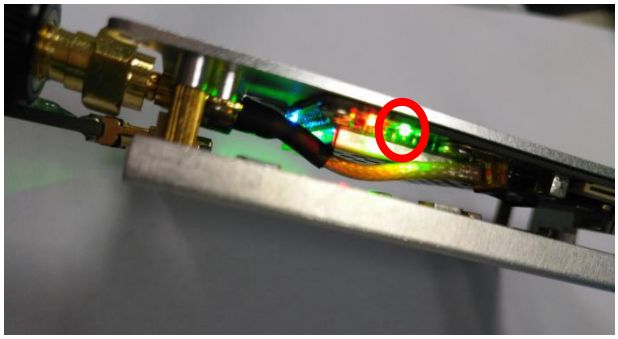
Make the power cable, HDMI Cable, serial port cable and antenna in good connection.
(the serial port cable is for data links)



3. Power on

After checking all the connections are in good condition, turn on the the video source, LCD display, transmitter and receiver. The PWR indicator will bright and the whole system starts work.

4. The status of all indicators during starting



After powering on, the red and green lights will bright. When the device normally begin work and the video signal normally transmitting, the red light will keep bright and green one will blink continuously. If the video signal not normally transmitting, the red light also keep bright but the green light will intermittently blink(About 1-second interval)

Note: If after 3minutes there is still no any video show on display and the green lights no longer intermittently blink, please check the following parts

1. Power(changing a new battery and make the power input is DC12V)

2. HDMI Cable Compatibility: If the video is not standard HDMI video stream, the video will not be recognized by the device. Then you need to change the camera. At present, Gopro, Sony and other popular Camera brand have very good compatibility with our device.

3. **After the receiver powered, the display right bottom corner will show "Power On" letters.**

5. Boot up successfully

After successfully connection, the display will smoothly show the video.

Remark: In UAV application, please make the connection successfully and the video show on ground station smoothly then fly the UAV. About how to install the antenna on UAV please refer the following description.

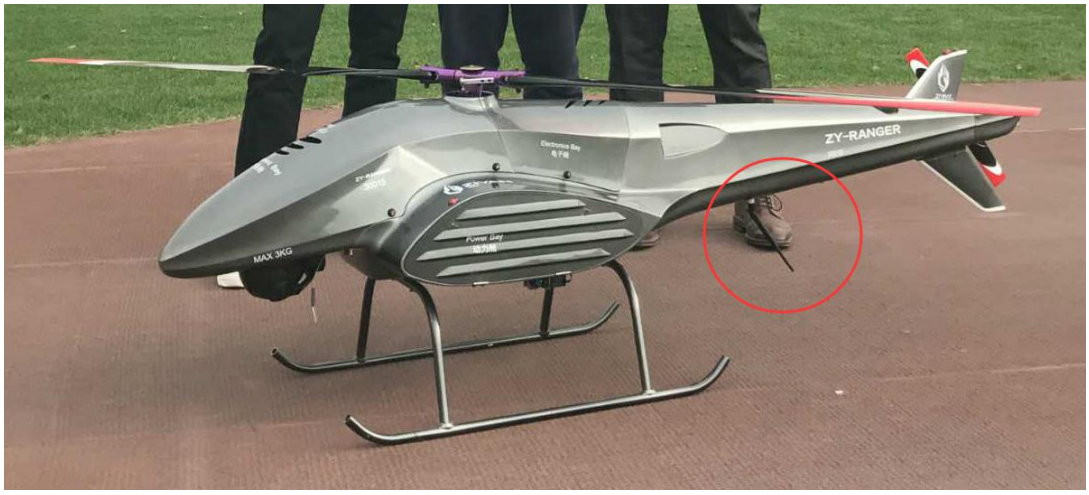
VI. Antenna Installation

1. Multi-rotor UAV

1) Using SMA metal shielded semi-flexible blue feeder cable provided by SUNTOR to connect the TX SMA port with antenna.
2) The antenna needs to be mounted vertically downwards.
3) The best installation location is UAV ground bracket. With antenna inside, the bracket can only use fiberglass material.
4) If the ground bracket is automatically retracted, the antenna can be installed in the lower part of the aircraft.
5) If the antenna is intercepted by the camera or pod or the loudspeaker, the video on RX will appear image stuck or mosaic.

2. Fixed Wing UAV

1) Using SMA metal shielded semi-flexible blue feeder cable provided by SUNTOR to connect the TX SMA port with antenna.
2) The antenna needs to be mounted vertically downwards.



3) The best installation position is center of UAV tail, prominent outside the body and vertical downward.

4) The second optional mounting position is located below the wing and body joints, vertical down, as far as possible away from the wing but near the machine abdomen, protruding below the abdomen level.

Focus on wireless make transmission easier

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