

T30s

Hand-held GCS

User manual
2020.08

V 1.2.3

video&data module V20 V30



The logo for FOXTECH, featuring the word "FOXTECH" in a bold, sans-serif font. The "F" is orange and stylized with a flame-like shape. The rest of the letters are black.

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1. Disclaimer

Thank you for purchasing the T30S hand-held ground control station. Please use it in accordance with the local radio control regulations and read this statement carefully before using it. Once used, it shall be deemed to endorse and accept all contents of this statement. Please strictly follow this instruction to install and use the product. The supplier will not bear any legal liability for any result or loss caused by improper use, installation, final assembly or modification of the product.

2. Product Precautions

1) T30s, the ground terminal (hereinafter referred to as ground unit) is used with the airborne unit (hereinafter referred to as airborne unit).

2) T30s has different versions based on the different data link.

* If with only data link, the matched airborne end is R20.

* If with video&data link, the matched airborne ends are V20 and V30.

V20: 5km grade module, frequency band: 2.3GHz/2.4GHz/2.5GHz;

V30: 15km grade module, frequency band: 800MHz/1.4GHz

3) The ground unit has a built-in 12V battery (lithium battery 3s), the airborne unit needs external power supply input DC7.4-12V (lithium battery 2s-3s), please follow the specification to power the radio.

4) If you use it improperly, the aircraft may cause some degree of injury and damage to people and property, please pay attention to safety when using.

5) In order to serve our customers better, our R & D team has been upgrading and optimizing our products, the corresponding software and firmware will be updated from time to time, there may be incompatibility between different firmware versions of the ground unit and airborne unit, so please remember to check the software firmware version when using. For more information, pls refer to our website for the latest firmware and technical support.

6) Example of basic software firmware version: Parameters setting software: HZY_ToolBench V1.2.3.4; Ground unit firmware: TTx30-1.2.3-1.0; Airborne unit V20 firmware: V20RX-1.2.3-1.00; Airborne end V30 firmware: V30RX-1.2.3-1.0.

7) The software, firmware, drivers, port conversion tools, etc. will be updated from time to time on our website, please visit our website to download, or contact customer service staff to obtain them.

8) If you encounter any problem during the installation or use , please contact us

2.1. Installation Note

- 1) Be sure to use the spare parts provided by our company.
- 2) Be sure to install the antennas before power on to avoid damage to the circuit.
- 3) Try to make the receiver antenna without obstruction, and the end part of the antenna is vertically downward without bending, so as to avoid shortening the communication distance or even failing to communicate due to obstruction.
- 4) Do not disassemble or refit without permission. If you encounter any problem that cannot be solved during installation, please contact us directly.
- 5) During installation, keep proper distance between electronic devices to minimize electromagnetic interference.

2.2. Precautions for Use

- 1) Before use, please make sure that all connection wires are fastened reliably and all parts work normally.
- 2) Please open the configuration software of the remote control and check whether the channels are normal after power-on.
- 3) Please check the surrounding environment to ensure that there is no interference from other devices, otherwise T30s data transmission performance will be seriously affected.
- 4) Ensure that the antennas are free from obstacles and bends during use, and stay away from large metal structural parts as far as possible to avoid communication obstruction.
- 5) Check the power of the remote control before use. If the parameter adjustment software shows that power is low, please charge the remote control timely. If the remote control is turned off, the receiver has entered the state of out-of-control protection. Stop using it when the battery is too low. Don't rely on the device's low-power alarm, which is only a precaution and tells you when to charge. It takes about 5-6hs to be fully charged.

3. Product Introduction

T30s is a hand-held ground control station that integrates remote control, data transmission and ground station.

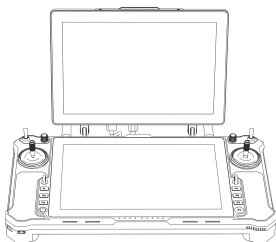
T30s is highly integrated, small size, easy operation, multichannel adjustable, dual S-BUS outputs and so on.

Compared with the last generation, the computer performance configuration has been greatly improved, and the remote-control circuit design is optimized.

The channel number has increased from 16 to 23, and the anti-interference of data transmission and power supplies have also been optimized. Dual S-BUS can be mapped randomly in 8 analog channels, 4 three-position switches, and 11 buttons. Multi frequency can be chosen between 840MHz, 915MHz, 1.4GHz, and 2.3-2.5GHz. Stable data transmission can be provided at distances of 3-30km based on different data link versions and application environment. It can be widely used in the field of control and data transmission for industrial drones.

3.1. Item List (V20: 5km grade)

T30s remote controller × 1	V20 receiver x 1
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TNC 2.3G ZYJB antenna × 2	SMA 2.3GZYJB antenna × 2
T30S transmitting terminal	V20 receiving terminal

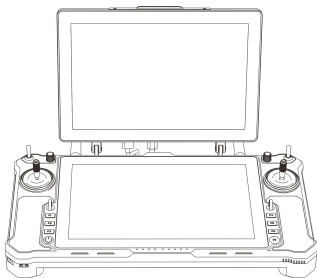


Power supply cable*1	Charger*1	Receiver upgrade configuration line*1	Lan-to-4 pins line*1
Power for receiver (DC:7.4-12V, Li battery 2s-3s)	Charge for remote control	Used for firmware upgrading and parameters Setting for receiver	For module Parameter configuration



3.2. Item list (V30: 10km grade)

T30s remote controller×1	V30 receiver x 1
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TNC 1430-1444MHz ZYJB antenna×2	SMA 1430-1444MHz ZYJB antenna×1
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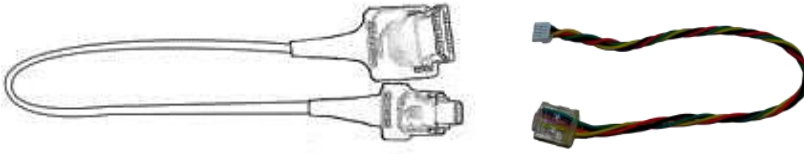


Accessories

Charger×1	Wire
Power for remote controller	1、 power plug XT30 power cable * 1 2、 SBUS, TTL signal wire GH 3pin * 3

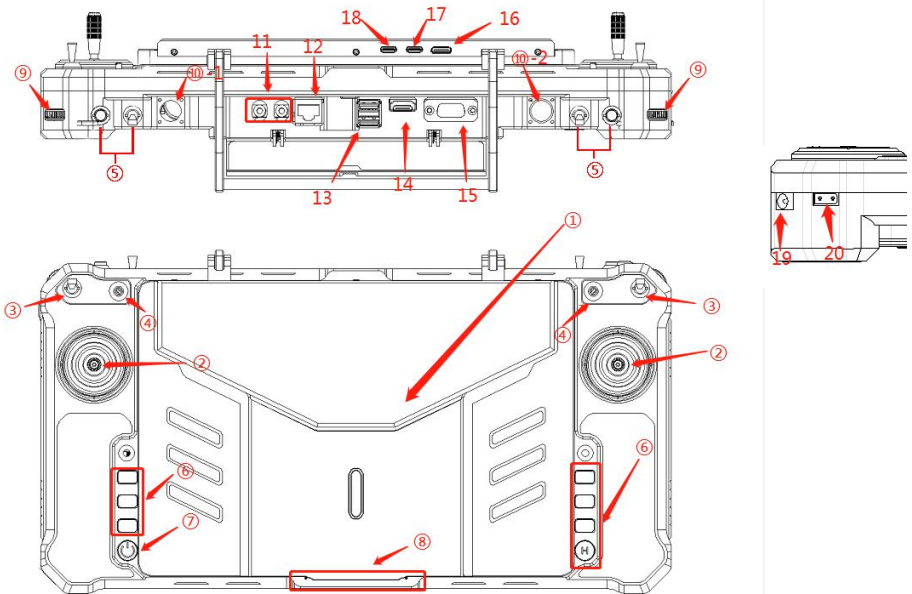


HDMI version	LAN Version
HDMI A to micro	LAN to GH 4pin *1



4. Product Instruction

4.1. T30S main components name

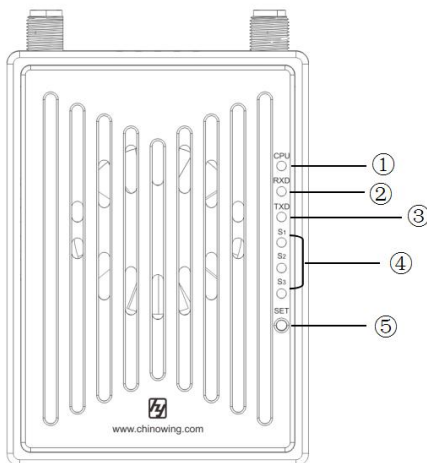


- ① T30S secondary display: Used for extended display of host video
- ② Left and right rockers: corresponding T1, T2, T3 and T4, used for flight control
- ③ Four three-position switches: corresponding SA, SB, SD, SE

- ④Left and right rotary knobs: corresponding LD and RD
- ⑤Two buttons(or three-position switches): corresponding S1, S2 (or SC, SF)
- ⑥9 key channels: corresponding F1~F9
- ⑦Power button and indicator: used for power on and power off the device
- ⑧Power, signal strength, transmitting and receiving indicator: used for indicating power, working status
- ⑨Left and right deflector rods: corresponding T5 and T6(return to center mode)
- ⑩RF antenna interfaces*2: used for connecting RF antennas
- ⑪Audio input and output interface: connecting headset audio output or microphone audio input
- ⑫LAN port
- ⑬USB interface: 2*USB 3.0
- ⑭Multimedia interface: HDMI HD video and audio transmitting interface
- ⑮Video transmission interface: VGA HD video transmission interface
- ⑯Secondary display HDMI video input: can be used for external extended video input
- ⑰TYPE-C interface 1: user for power and touch for the secondary screen
- ⑱TYPE-C interface 2: user for the secondary display backup power
- ⑲Charging interface: connecting 12.6V DC adapter
- ⑳External battery charging interface: used for external battery extension

4.2. V20 Airborne Unit Indicator&Interface Instruction

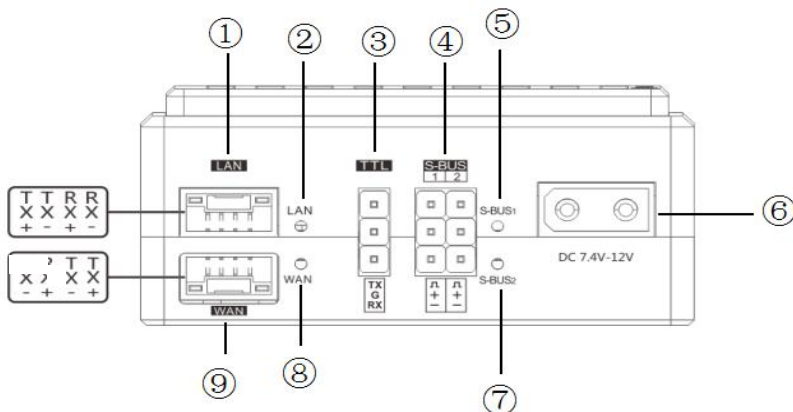
Front view



- ①Video transmission CPU indicator: light will be continuously ON in normal working condition.
- ②Data receiving indicator: light will flicker in the condition of data receiving.

- ③Date transmitting indicator: light will flicker in the condition of data transmitting.
- ④Signal strength indicator: S3 ON, signal is weak; S3 and S2 ON, signal is moderate; S3, S2 and S1 ON, signal is strong.
- ⑤Key switch: used for firmware upgrading, out-of-control protection settings, restore the default transmission settings.

Side view



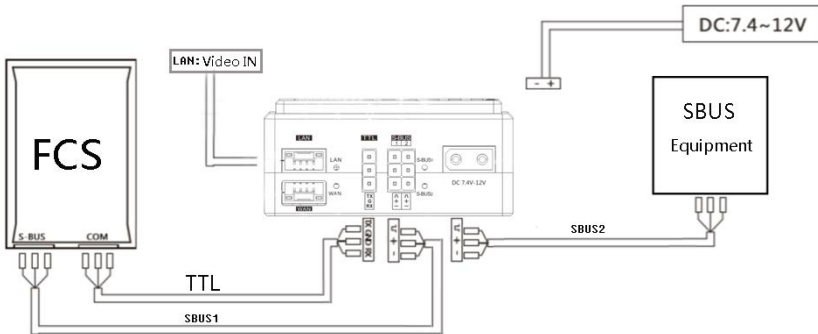
- ①LAN port: used for video transmission or getting video transmission parameters.
- ②LAN indicator: After connecting LAN port, indicator will flicker.
- ③TTL port: full duplex serial port
- ④S-Bus port: dual S-Bus output
- ⑤S-Bus1 data indicator: indicator will flicker when there is data transmitting and receiving of S-Bus1.
- ⑥Power supply port: 7.4-12v.
- ⑦ S-Bus2 data indicator: indicator will flicker when there is data transmitting and receiving of S-Bus2.
- ⑧WAN connection indicator: indicator will flicker when connecting WAN port.
- ⑨Video transmission WAN port: used to connect to an external network or the Internet.



By default, the S-BUS1 and S-BUS2 interfaces output the CH1 to CH16 of the remote control to 1-16 channels.

4.3. V20 Receiver Installation and Connection

1. Connecting antennas to SMA port of V20.
2. Fix the receiver to the appropriate position of the aircraft by using double-sided tape.



3. As shown in the above photo, connecting TTL port/ S-Bus port of the V20 receiver to your device by lead wire of servo.

TTL interface		SBUS interface	
RX	TX	S	S
Receiver GND	GND Flight controller or	Receiver +	+ Flight controller
TX	RX other device	-	- or other device

4. With 7.4-12v DC power input, S1-S3 indicators will flicker. That means the successful connection of the transmitter and the remote control.

5. For the video input interface is LAN port, the LAN LED light will flash after the successful connection.

6. If you are using a dual S-Bus receiver, both S-Bus1 and S-Bus2 output CH1 to CH16 from the remote control. And the output of S-Bus1 and S-Bus 2 can be mapped separately. Pls refer to the output mapping description.

-
- ⚠️ * The default power of the receiver: 1W. Please keep the antenna away from other electronic devices (GPS, compass, etc.) to avoid interference.
 - * Be sure to install the antenna before power on, otherwise it may burn out the radio module.
 - * When using, try to make the antenna face down and without any obstacle to block, so as to avoid the communication distance being shortened due to blocking, or even unable to communicate.
 - * Be sure to use the specified type of antenna and install it correctly. Do not use other types of antennas.

4.4. V30 Airborne Unit Indicator&Interface Instruction

Front View



①Video transmission CPU indicator: light will be continuously ON in normal working condition.

②Data transmitting indicator: light will be continuously ON after successful connection of airborne unit and ground unit.

③Signal strength indicator: S3 ON, signal is weak; S3 and S2 ON, signal is moderate; S3, S2 and S1 ON, signal is strong.

Side view



①Data transmission port: TTL, transparent transmission

②SBus 1 port: used for connecting flight controller or payload

③SBus 2 port: used for connecting flight controller or payload

④Power supply port: 7.4-12V

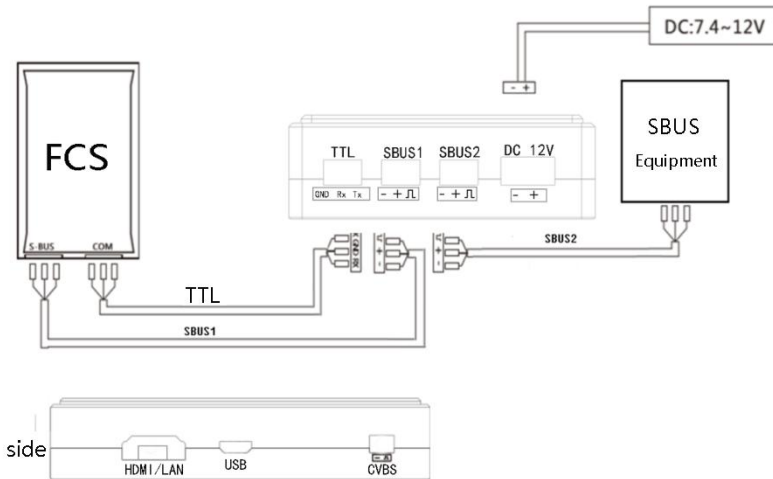
- ⑤HDMI video input interface: connecting camera
- ⑥USB port: used for firmware upgrading and parameters setting
- ⑦CVBS video input interface: used for analog video input.



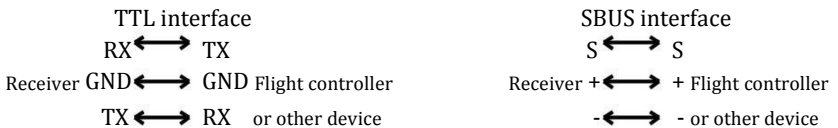
By default, the S-BUS1 and S-BUS2 interfaces output the CH1 to CH16 of the remote control to 1-16 channels.

4.5. V30 Receiver Installation and Connection

1. Connecting antennas to SMA port of V30.
2. Fix the receiver to the appropriate position of the aircraft by using double-sided tape.



3. As shown in the above photo, connecting TTL port/ S-Bus port of the V30 receiver to your device by lead wire of servo.



4. V30 has two kinds of video input versions: HDMI and Ethernet:

- ① HDMI version, connect the HDMI video interface to the camera, CPU light will be always on if the video input is normal.
- ② LAN version, connect the LAN video interface to the camera, CPU light will be always on if the video input is normal. Pls refer to the V30 operation diagram for more details.

5. With 7.4-12v DC power input, LINK indicator will flicker. That means the successful connection of transmitter and remote control.
6. If you are using a dual S-Bus receiver, both S-Bus1 and S-Bus2 output CH1 to CH16 from the remote control. And the output of S-Bus1 and S-Bus 2 can be mapped separately. Pls refer to the output mapping description.



By default, the S-BUS1 and S-BUS2 interfaces output the CH1 to CH16 of the remote control to 1-16 channels.

5. T30S Second Display Instruction



1. Before powering on the T30S, connect the HDMI and USB ports of the main display to the HDMI and Type-c ports of the secondary screen respectively.
2. After successful connection of the Type-c port to the secondary screen, the split-screen and touch function can be realized, but if you plug in the 5V port, the touch function of the secondary screen cannot be enabled.

5.1. Touch calibration on the secondary screen

If the touch is insensitive for the first use, it is needed to do calibration as the below procedures.

1. Open the Control Panel, find 'Tablet Settings' in the Control Panel.
2. Click 'Settings' in the 'Configuration' column in the tablet settings (an external keyboard is needed).
3. As shown below, follow the computer's instructions.



4. In the 'Display Options' of the tablet PC settings, select '1. move the tablet display' and '2. LONTIUM to do calibration. Once calibrated, it can be used normally.

5.2. Split-Screen Setting

The factory setting of the screen display is split up and down.

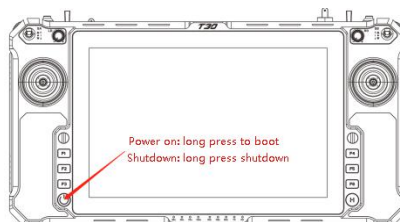
If the user is not used to it, right mouse click on the desktop and select "Display Settings" as shown below, No.1 is the main screen, No.2 is the secondary screen.



The secondary screen can be dragged in any direction according to usage habits, and can be set in any direction of the main screen.

6. Remote Controller Operation

6.1. Power-on and Power-off of the Remote Controller and Computer



When T30s is switched on and off, please pay attention to the power button, power indicator, and 4pcs power capacity indicators (25%,50%,75%,100%) and 5pcs data link indicators(RS1, RS2, RS3, TX, RX)

1. Press and hold the power button, the power indicator light will be on, then release the button according to the speed of action to decide whether the computer is on.
2. When the user hears the first short beep of the buzzer, release the power button, then the remote control will turn on and the computer will not turn on.
3. When the user hears the second short beep of the buzzer, release the power button, then the remote control will be turned on, then the computer will display the power-on interface and turn on.
4. After finishing the operation, the user can turn off the computer through the shutdown interface in the computer start menu or through the power button.
5. When the remote control is on, press and hold the power button to turn off the computer. If the system detects that the computer is on during the shutdown process, the system will shut down the computer first and then shut down the remote control.



- * When you do not use the computer for a long time, please turn off the computer immediately to avoid consuming power for a long time.
- * If you find that pressing and holding the power button won't turn on the computer, it's likely that the battery is low. Please use the standard adapter to charge the T30s, then press and hold the power button to turn on the computer.

6.2. Remote Controller & Receiver Indicator Instruction

6.2.1. Remote Controller Indicator Instruction

Indicator	Status	Define
Receiving and transmitting indicator TX	flicker	V20: the module with data transmitting V30: working indicator
	Off	V20: the module without data transmitting V30: no communication
Receiving and transmitting indicator RX	flicker	V20: the module with data receiving V30: Off
	Off	V20: the module without data receiving V30: Off
Signal strength indicator RS1, RS2, RS3	RS1,RS2,RS3 ON	Strong signal
	RS1, RS2 ON , RS3 OFF	Moderate signal
	RS1 ON , RS2, RS3 OFF	Weak signal
	RS1,RS2,RS3 OFF or Show the running horse lights	No connection
PWR power indicator	flicker	Firmware upgrading status in configuration mode
	Flicker, with a continuous short sound of the buzzer	Low power alarm
	On	The radio is on, in normal working condition.
	Off	The radio is off, in the condition of power off.
Power indicator light	25% flicker , other 3 Off	Less than 25% power capacity
	25% ON , other 3 Off	Power capacity between 25% ~ 50%
	25%, 50% ON , other 2 Off	Power capacity between 50% ~ 75%
	25%、 50%, 75% ON , 100% OFF	Power capacity between 75% ~ 100%

	25%、50%、75%、100% ON	Full capacity 100%
	4 lights flicker and the buzzer with continuous short sound	High temperature protection condition
Indicator light shows normal, buzzer with continuous short sound		Remote controller idle alarm

6.2.2. V20 Receiver Indicator Instruction

Indicator	Status	Define
CPU	flicker	No video signal input
	ON	There is video signal input
Sbus1	OFF	SBUS1 without signal transmission
	flicker	SBUS 1 with signal transmission
Sbus2	OFF	SBUS2 without signal transmission
	flicker	SBUS2 with signal transmission
L1 and L2 both ON		Receiver is in firmware upgrading mode
LAN	flicker	the LAN port is connected
WAN	flicker	the WAN port is connected
Receiving and transmitting indicator TX	flicker	data transmitting
	OFF	No data transmitting
Receiving and transmitting indicator RX	flicker	Data receiving
	OFF	No data receiving
Signal strength indicator RS1, RS2, RS3	RS1, RS2, RS3 ON	Strong signal
	RS1&RS2 ON, RS3 OFF	Moderate signal
	RS1 ON , RS2&RS3 OFF	Weak signal
	RS1&RS2&RS3 OFF or Show the running horse lights	No connection

6.2.3. V30 Receiver Indicator Instruction

Indicator	Status	Define
-----------	--------	--------

CPU	flicker	No video signal input
	ON	There is video signal input
LINK	OFF	No data link connection
	ON	Successful connection of airborne unit and ground unit
Signal strength indicator RS1, RS2, RS3	RS1, RS2, RS3 ON	Strong signal
	RS1&RS2 ON, RS3 OFF	Moderate signal
	RS1 ON , RS2&RS3 OFF	Weak signal
	RS1&RS2&RS3 OFF or Show the running horse lights	No connection

6.3. Remote Controller Antenna

The T30s is available in several versions such as the R20 version, V20 video&data link version, and no communications version. Different version, the type and frequency of the two antennas A1 (right) and A2 (left) mounted on the remote control are different.

Version	Antenna type&frequency of A1(on the right side)	Antenna type&frequency of A2(on the right side)
R20	WIFI(2.4GHz)	P900(902 ~ 928MHz)
V20	PMDDL(2.3GHz)	PMDDL(2.3GHz)
V30	1.4GHZ(secondary)	1.4GHZ(main)
No communications	WIFI(2.4GHz)	Bluetooth(2.4GHz)
P900+4G version	4G	P900(902 ~ 928MHz)

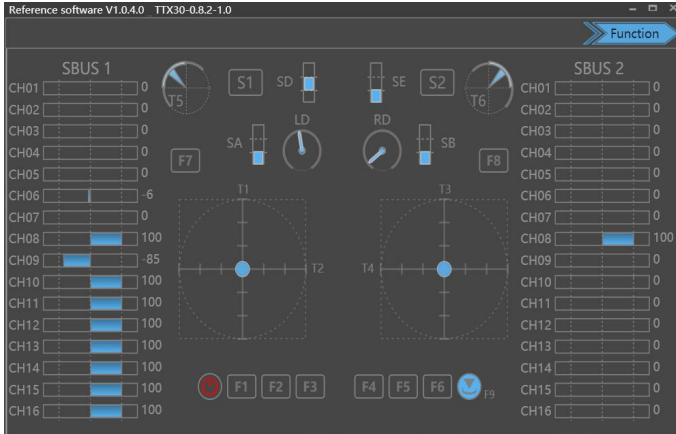
7. The Use of Parameters Setting Software of Remote Controller

7.1. Parameters Setting Software Instruction

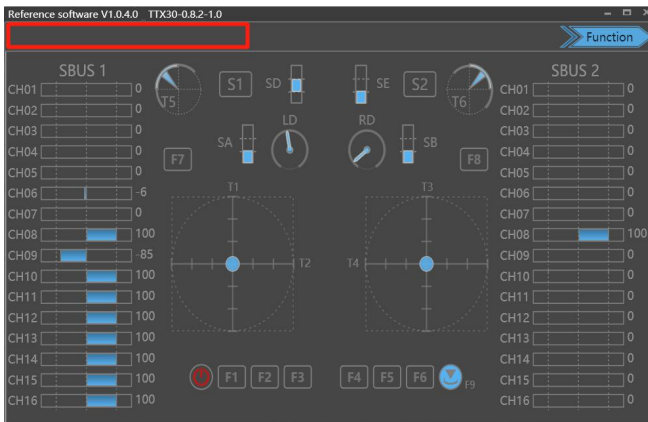
Parameters Setting Software of Remote Controller



'HZYT30' version: 'V1.0.4.1'. Turn on the remote control and open the T30 special software HZYT30, you can enter the main interface as shown in the figure above.




7.2. Channel monitoring and calibration

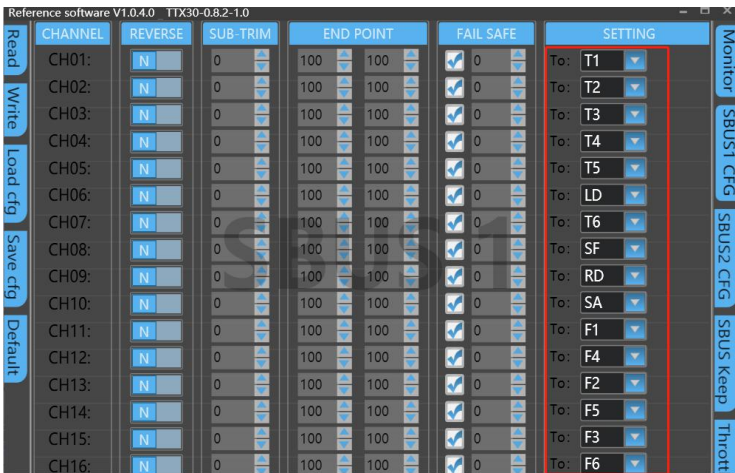


The above diagram shows the channel monitoring interface, showing the status of each channel of the remote control. When your remote control is not centered properly or there is rudder shake. Triple click on the upper left corner of the red box to bring up the remote control calibration function options, to calibrate each analog channel. Click on 'Rocker Calibration' to start calibration; toggle all rockers and knobs on the remote controller, including T1, T2, T3, T4, T5, LD, RD, T6, making sure all analog channels are touching the maximum and minimum values of the stroke and finally set to

neutral, then click to finish calibration. The RD, LD knob will make a dripping sound once when the switch is in the neutral position.

 The channel display of the remote control is divided into three parts. The left part shows the output value of SBUS-1, the middle part shows the corresponding status of each channel, and the right part shows the output value of SBUS-2. SBUS1 and SBUS2 can be configured separately.

7.3. Channel Configuration



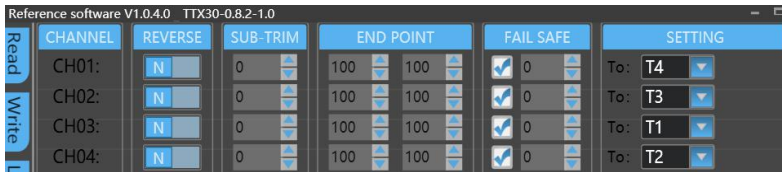
1. Click the channel configuration button. The above picture shows the configuration interface. SBUS1 and SBUS2 can be configured respectively. CH01-CH16 channels of each S-BUS are freely compatible with T1, T2, T3, T4, T5, LD, RD, T6, SA, SB, SC, SD, SE, SF, F1, F2, F3, F4, F5, F6, F7, F8, F9. Among them, T1, T2, T3 and T4 are the main joysticks; T5 and T6 are the returnable middle levers; LD and RD are the left and right knobs; SA, SB, SD and SE are the three-way gear lever; SC, SF are buttons or three-way gear lever; F1~F9 are buttons.
2. The servo phase can reverse the each channel of the remote control. The midpoint trimming adjusts the pwm output value for each channel rocker in the

middle position, the adjustment range is from -125 to 125, and the linear servo stroke amount -31 to 31. The steering stroke can be adjusted from -150 to 150. The default is -100 to 100. Do not adjust if there is no special need.

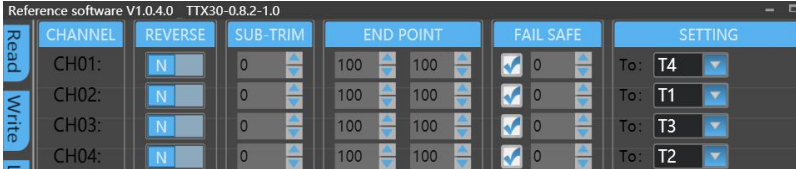
3. Out of control protection settings: click on the small white box, when there is a $\sqrt{>}$ in the white small box, the out of control protection function of the current channel works; set the value of the corresponding dialog box, the current value is the pwm value of the out of control (after setting, please verify by flight control, ground station or servo).

4. There are three modes: American mode, Japanese mode and Chinese mode

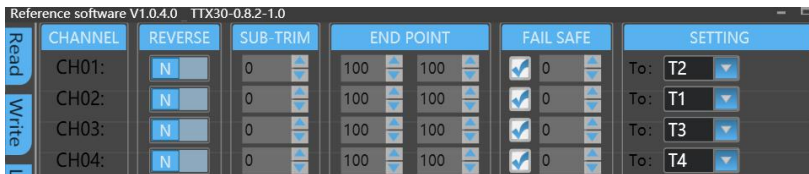
American mode



Japanese mode



Chinese mode



5. <CH1-CH16> in the red mark in the above figure is the configuration output of the physical joystick, which can correspond to the physical channel or multiple CHxx to one physical channel.

Read data: Click once to re-read configuration data

Write data: Click once to write a new configuration data

Load configuration: call different storage profiles

Save configuration: save the current configuration as a configuration file for easy finding

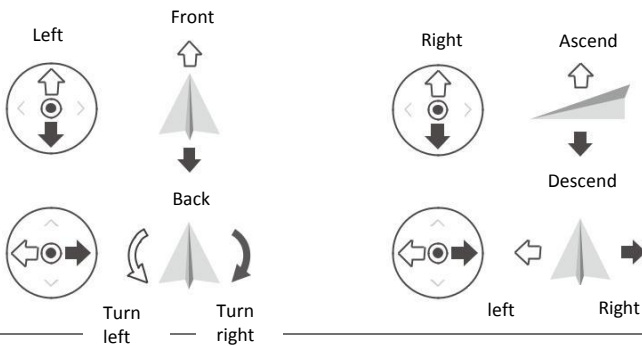
Restore default: restore all parameters of the current page to default values



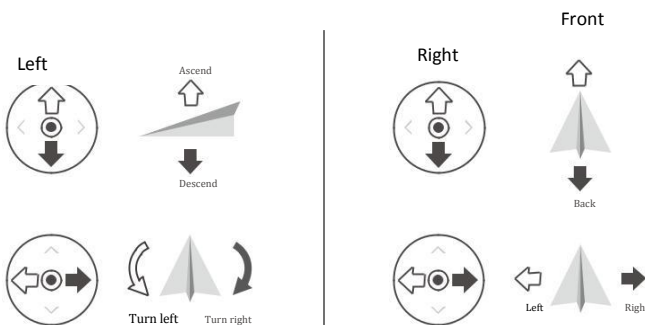
* After each configuration change, click <write data button> and the changed configuration can take effect.

When the remote control mode is configured as American mode, Japanese mode and Chinese mode, the control mode is shown below.

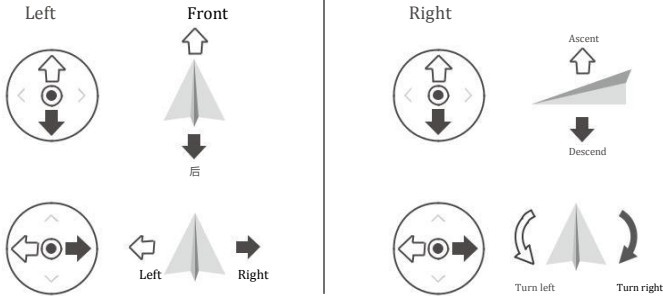
Japanese mode



American mode



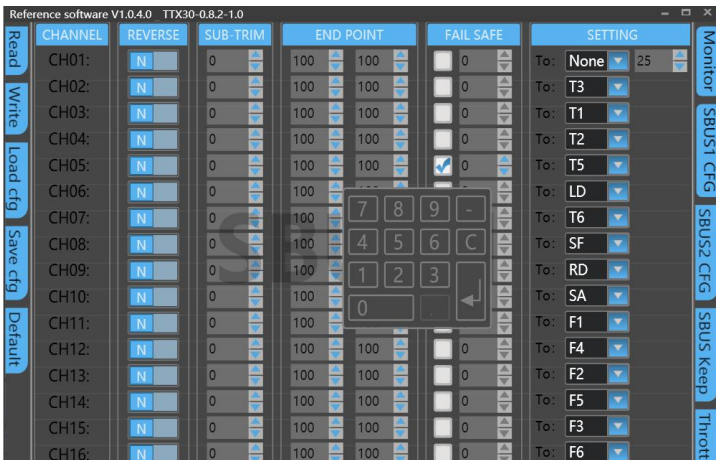
Chinese mode



The default control mode of T30s is the American mode. This manual uses the American mode as an example to illustrate how the remote control is operated.

7.4. Fail-safe Setting

1. Fail-safe setting, click the small white box of the channel you need to open fail-safe, when there is \checkmark in the small white box, it means the current channel fail-safe is open.
2. After you open fail-safe, you can set the value in the corresponding dialog box of fail-safe. When setting the values, click the value box, a virtual keyboard will pop up, input the desired values.
3. After setting the value, you need to click "write data"; after writing, click "read data" to check if it is the data you just wrote; if not, it means the setting has failed and you need to reset. After successful setting, the output value of fail-safe is PWM value. (After setting, please verify through the ground station or servo).



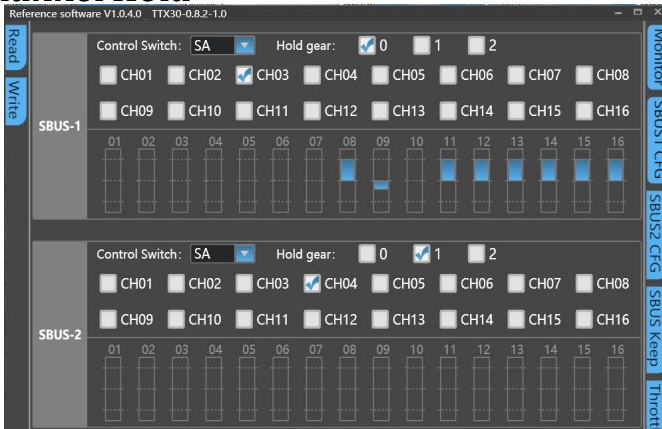


▲ Fail-safe data is output by the R20 receiver only when there is no signal connection.

▲ After each successful configuration, it can be verified by the flight control, ground station or servo.

▲ If the R20 is powered down or the SBUS signal cable is disconnected during verification, the fail-safe data will not be received by the third-party device.

7.5. Channel Hold



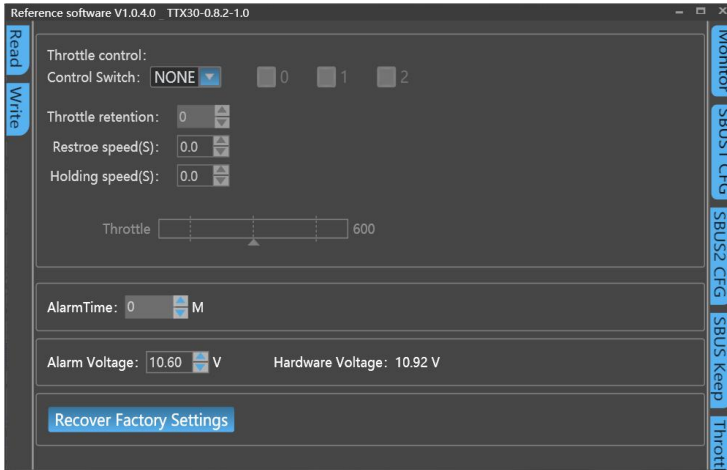
1. Select the channel hold control switch
2. Select the gear in which the control switch triggers the hold. '0' stands for low gear, '1' stands for medium gear and '2' stands for high gear. The three gears can be used separately.
3. Select the channel to be held.
4. Write the data and verify the result. As shown in the figure above, if the SA is set to low gear for SBUS-1, it can trigger the output hold of CH3, but CH3 cannot control the output value of 03. That is, the 03 channel will always hold the current value.



* The SBUS-1 and SBUS-2 channel holds operate independently of each other.

* The channel hold takes precedence over the throttle control.

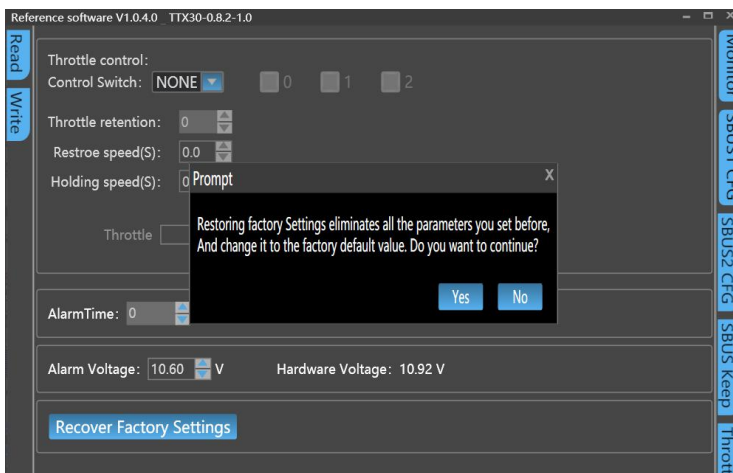
7.6. Throttle Hold



1. Select throttle control switch
2. Select the gear position where the control switch trigger remains. '0' represents low gear, '1' represents middle gear and '2' represents high gear. Three gears can be used separately.
3. Enter throttle retention value.
4. Enter throttle holding and restore speed, 30 Max. The bigger value means the slower speed.
5. Write data and verify. As shown above, if SB is set low gear, the throttle will maintain the speed of "30" to reach the set output value of 150. After dial SB to the other gears, the throttle will restore the value of the throttle control channel at the throttle restore rate of "30".
6. **Alarm time** is the alarm time when the joystick does not operate for a long time. The default is 10 minutes, adjustable from 0 to 120 minutes.
7. **Alarm voltage** is the alarm voltage of low power of the remote control. Default 10.6v, adjustable.
8. **Hardware voltage** is the real-time voltage of remote control battery.


9. **Restore Factory Setting.** T30s is with powerful function, so there are many parameters that can be set. We can restore the factory settings of T30s with one key. Step as below:

①Enter the restoring factory setting interface and click it, and the system will pop up a warning prompt to confirm the option again. Warning: restoring factory settings will clear all parameters you set before, and change to factory default value, whether to continue the operation?



②If the operation is wrong, click **NO** button. If you do want to restore all parameters to factory Settings, click **OK**.

③ After restoring factory settings, all parameters (including analog channel calibration, SBUS setting, channel holding, throttle holding, idle alarm time, low voltage alarm voltage, etc.) will be restored to factory default values.

 Throttle hold only works on sbus-1.

7.7. Alarm Instructions for remote control

Joystick long time not working alarm: The remote control will emit a continuous alarm sound of 'didi' when all joysticks or dial levers fail to work for long time beyond the set alarm time (the default time is 10 minutes, which can be adjusted in the adjusting software). At this time, stir any joystick or dial lever and the alarm sound will

automatically turn off. When the ‘alarm time’ is set to 0 minutes, the alarm function will be canceled.

Low power alarm The battery voltage is lower than the set alarm voltage (default:10.6 V), the remote control will issue ‘didi’ alarm, power indicator will flashing in red. When the battery voltage rises to alarm recovery voltage, the alarm will stop. When the battery voltage drops to low voltage shutdown voltage, the remote control will automatically shut down to enter protection mode. When alarm voltage is set to 0V, no low power alarm function.



1. Alarm recovery voltage is 0.3v higher than the set alarm voltage.
2. Low-voltage shutdown voltage is 0.3v lower than the set alarm voltage.

7.8. Charge the Remote Controller

T30s with built-in 10200mAH lithium battery, the data link module will work normally with 1W power; T30s can work about 3.5h with the full battery capacity. If the battery indicator shows low power, please stop the flight and charge the T30s in time.

1. Plug the standard adapter for the ground unit into 220V socket, and connect the output port of the adapter to the battery charging port of T30s to charge (adapter output: 12.6V).
2. The battery is fully charged when the adapter light changes from red to green. You can also check the charging status according to the T30s battery indicator.

Caution!

- ❖ Please use the factory standard adapter for charging, never use any other type of charger that does not meet the specifications.
- ❖ If you want to extend the working time, you can attach external battery to increase the battery life.

8. V20 Video&Data Transmission Module Operation

8.1. V20 Connection Instruction

The remote control is turned on, the V20 receiver is powered on. After successful connection of 2 units(the CPU light is always ON and the signal light is constantly ON, the process takes about 1 minute), the device can be used normally.

All the parameters of data link module have been configured well and they can communicate normally, and can be used directly. If you want to modify the serial port baud rate and LAN port IP address of data link module, please refer to the corresponding chapter.

Default Parameters of the video&data link module

User name: admin

Password: ADMIN

LAN port IP: 192.168.168.11 (receiver); 192.168.168.12 (remote control)

Serial port baud rate: 115200, 8N1

8.2. V20 Video&Data link Serial Port Operation

Default baud rate of the serial port is 115200, pls refer to the following steps to connect the flight control, ground station software.

1. Connect the flight controller to the airborne unit. Pls pay attention to the line sequence and the baud rate of the flight control port must be consistent with that of the serial port.

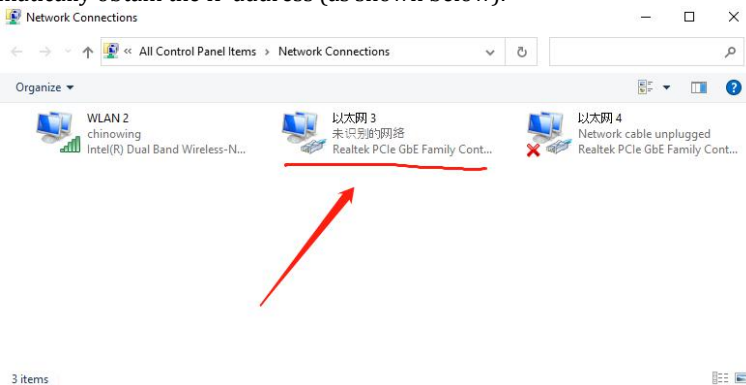
2. Connect the ground station software to the ground unit. Note that the connection line sequence and the baud rate of the connection port of the ground station software must be consistent with the baud rate of the serial port.

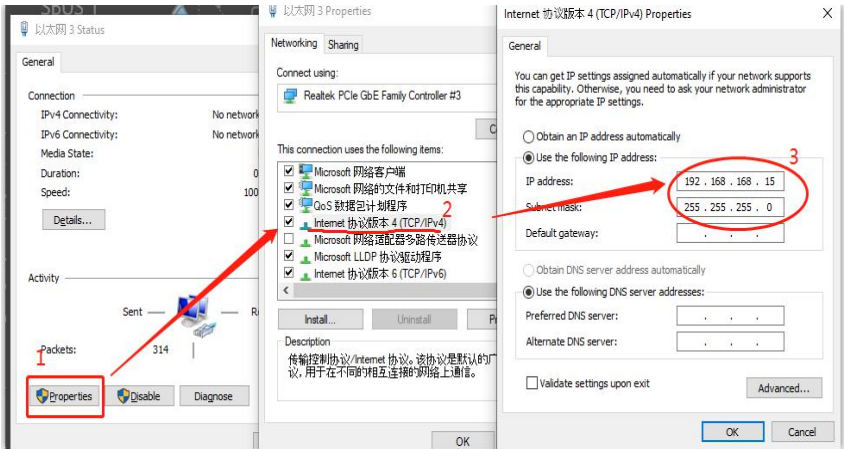
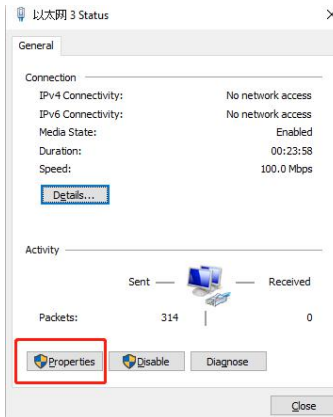
3. Change serial port baud rate. (Please modify baud rates of both airborne unit and ground unit simultaneously)

① Power on the module and CPU light will be ON.

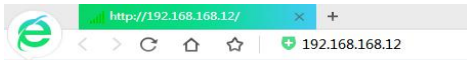
② Connect the computer and the LAN port of V20 receiver with LAN-to-4pin line. (The LAN port of the internal module of the remote control has been connected to the LAN port)

③ The computer must set its network settings (TCP/IPV4 properties) to automatically obtain the IP address (as shown below).



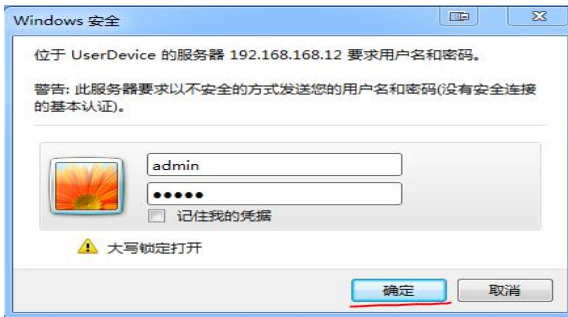


④ Open the browser and put the IP address (airborne end: 192.168.168.11; Ground end: 192.168.12) to the address bar.

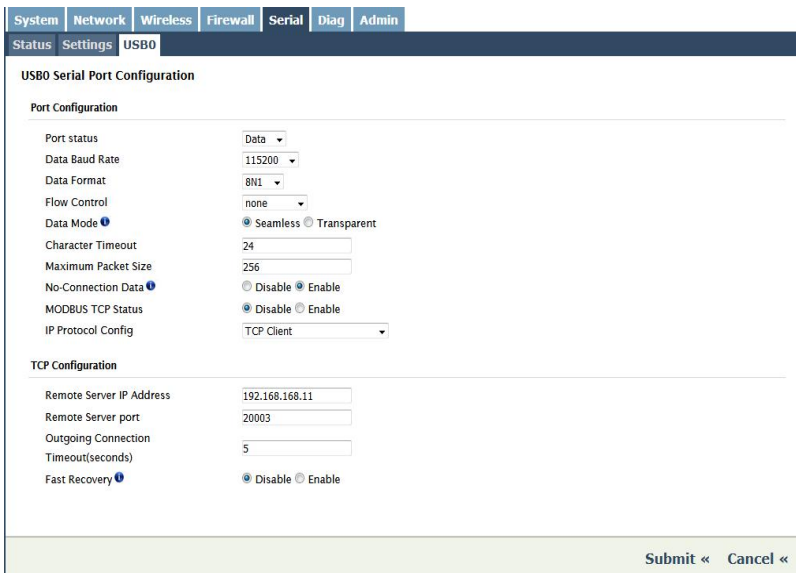


⑤ Then enter user name and password.

User name: admin; Password: ADMIN;



⑥ Please change the baud rate according to your needs. Click **Submit** when the change is complete. Please mark the changes as shown in the figure below. Do not modify other values. Otherwise, the module may not work properly.



8.3. V20 LAN Port

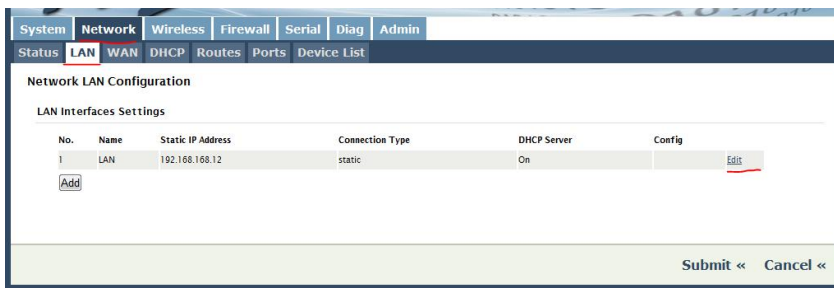
LAN port of the remote controller can be used directly. After the successful connection of the receiver V20 and LAN camera by Lan-to-4pin cable, set the IP address, video can be transmitted.

1. The default IP address of T30S and V20 is set to the same network segment before leaving the factory. Airborne end: 192.168.168.11 Ground end: 192.168.168.12.

2. Before connecting the LAN port of the airborne unit to the camera or other network devices, please make sure the IP address of the device is in the same network segment as the airborne terminal.
3. First time you use the camera, please make sure the IP address is in 192.168.168.XXX network segment. Open the camera's corresponding setup software, set the same network segment with the V20 device. You can also set the IP address of the V20 in the same network segment of the camera.

If you want to modify the IP address of the LAN port, please refer to the following steps:

- 1) Please refer to the serial port baud rate modification part, login into the page.
- 2) After log-in, pls select Network->LAN->Edit.



- 3) Modify the IP address based on your requirement. Click **submit** after the modification is completed. Do not modify the data of other columns randomly.

Note! For the video transmission module at the ground terminal, in Default Gateway column, fill in LAN port IP of airborne end; for the airborne end of the video transmission module, no data filled in Default Gateway column. Therefore, after modifying IP address of airborne end, the changed parameters are required to fill in the Default Gateway column of the ground end and the remote server IP address of two serial ports.

System	Network	Wireless	Firewall	Serial	Diag	Admin
Status	LAN	WAN	DHCP	Routes	Ports	Device List
Network LAN Configuration						
LAN Configuration						
Spanning Tree (STP)						Off
ICMP Snooping						On
Connection Type						Static IP
IP Address	192.168.168.12					
Netmask	255.255.255.0					
Default Gateway	192.168.168.11					
Default Route						Yes
DNS Mode						Manual
Primary DNS						
Secondary DNS						
LAN DHCP						
DHCP Server						Enable
Start IP Address	192.168.168.100					
Number of Address	150					
Lease Time (in minutes)	720					
Alternate Gateway						
Preferred DNS server						
Alternate DNS server						
WINS/NBNS Servers						
WINS/NBT Node Type						none
						Submit << Cancel <<

8.4. Fast Reset and Configuration of Video Transmission Module

If your video transmission device becomes unresponsive during use, you need to restore to factory settings. The airborne end needs to be configured to master mode and the ground end needs to be configured in slave mode.

8.4.1. Fast Reset of Video Transmission Module

Pls refer to the below steps:

- 1) Power on the module and the CPU light will be ON.
- 2) Airborne end resetting: long press the set key ($\geq 5S$) until the S-Bus1 indicator light is ON (about 1s), release the button, wait for about 3s, until the CPU light is continuously ON, the module will be reset.
- 3) Ground end resetting: currently not supported. The subsequent version will be added.

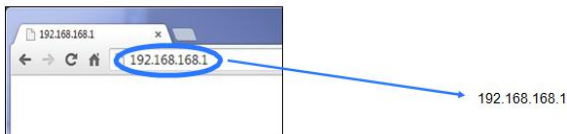
Note: After resetting, LAN Port parameters as below:
 Airborne end IP: 192.168.168.1; ground end IP: 192.168.168.2
 User name: admin; Password: admin

8.4.2. Fast Configuration of Video Transmission Receiver

- 1) Power on the module and CPU light will be ON. Connect PC and LAN port of airborne end by LAN cable.

2)The computer must set its network Settings (TCP/IP properties) to automatically obtain the IP address (refer to baud rate modification of serial port).

3)Open the browser, in the address bar input IP: 192.168.168.1

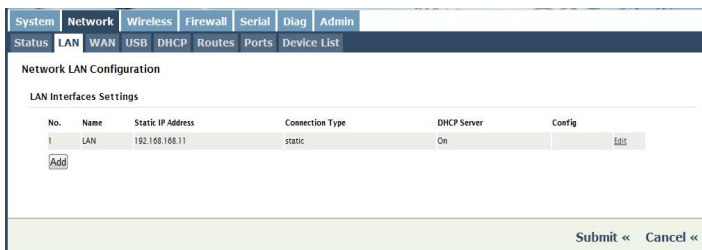


4)Pls log in. User name: admin; Password: admin;

The first log after the reset, you will be asked to change the password.



5)After log, pls select Network->LAN->Edit.



6)Pls fill in IP ADDRESS: 192.168.168.11; IP Subnet Mask: 255.255.255.0; and click submit, the parameters can be written. Then you need to log in again by the newly written IP address to continue the following configuration. Or you can also fill in the appropriate IP address according to your own needs.

System	Network	Wireless	Firewall	Serial	Diag	Admin	
Status	LAN	WAN	USB	DHCP	Routes	Ports	Device List

Network LAN Configuration

LAN Configuration

Spanning Tree (STP)	Off
IGMP Snooping	On
Connection Type	Static IP
IP Address	192.168.168.11
Netmask	255.255.255.0
Default Gateway	
Default Route	Yes
DNS Mode	Manual
Primary DNS	
Secondary DNS	

LAN DHCP

DHCP Server	Enable
Start IP Address	192.168.168.100
Number of Address	150
Lease Time (in minutes)	720
Alternate Gateway	
Preferred DNS server	
Alternate DNS server	
WINS/NBNS Servers	
WINS/NBT Node Type	none

Submit << Cancel <<

7) After log in, pls select wireless->RF, pls refer to the below parameters to do configuration and then click submit. (choose the frequency and transmission power based on your requirement)

Note ! Channel Bandwidth, Channel Frequency, Network ID of the airborne end and ground terminal need to be configured the same. In this way, the communication can be established.

System	Network	Wireless	Firewall	Serial	Diag	Admin
Status	RF					

Wireless Configuration

RF Configuration

Radio	<input checked="" type="radio"/> On <input type="radio"/> Off
Channel Bandwidth	8MHz
Channel-Frequency	78 - 2387 MHz
Tx Power	30 dbm
Wireless Distance	3000 (m)
MIMO	<input checked="" type="radio"/> On <input type="radio"/> Off
Operation Mode	Master
TX Rate	Auto (recommended)
Extended Addressing	ON
Network ID	pMIDDLE
Encryption Type	AES-128
Encryption Key	*****
Show password	<input type="checkbox"/>

RF Serial Port Configuration

Serial Port TX Rate	Normal Rate
---------------------	-------------

Submit << Cancel <<

8) Click Serial->Settings, choose Date , after parameters configuration, click submit. The baud rate of this port must be 115200. It cannot be modified, otherwise the communication will be affected.

System Network Wireless Firewall Serial Diag Admin

Status Settings **USB0**

Serial Port Configuration

Port Configuration

Port status
Console ▾
Data
Console

Submit << Cancel <<

System Network Wireless Firewall Serial Diag Admin

Status Settings **USB0**

Serial Port Configuration

Port Configuration

Port status
Data ▾

Escape Sequence
Disabled ▾

Data Baud Rate
115200 ▾

Data Format
8N1 ▾

Data Mode Seamless Transparent

Character Timeout

Maximum Packet Size

No-Connection Data Disable Enable

MODBUS TCP Status Disable Enable

IP Protocol Config
TCP Server ▾

TCP Configuration

Server Mode Monitor Polling

Polling Timeout (seconds)

Local Listening port

Incoming Connection Timeout (seconds)

Fast Recovery Disable Enable

Submit << Cancel <<

9) Choose Serial->USB0, this port is used to configure serial port parameters. Baud rate can be adjusted according to the own requirement. Click **submit** when the write is complete.

System Network Wireless Firewall Serial Diag Admin

Status Settings **USB0**

USB0 Serial Port Configuration

Port Configuration

Port status
Data ▾

Data Baud Rate
115200 ▾

Data Format
8N1 ▾

Flow Control
none ▾

Data Mode Seamless Transparent

Character Timeout

Maximum Packet Size

No-Connection Data Disable Enable

MODBUS TCP Status Disable Enable

IP Protocol Config
TCP Server ▾

TCP Configuration

Server Mode Monitor Polling

Polling Timeout (seconds)

Local Listening port

Incoming Connection Timeout (seconds)

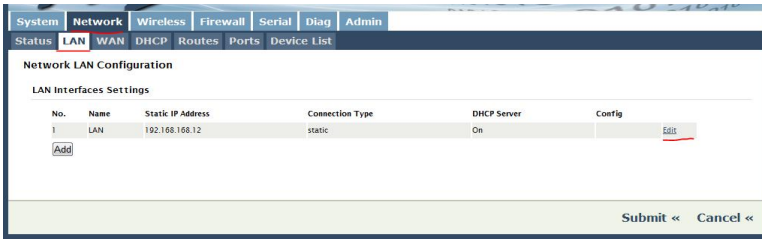
Fast Recovery Disable Enable

Submit << Cancel <<

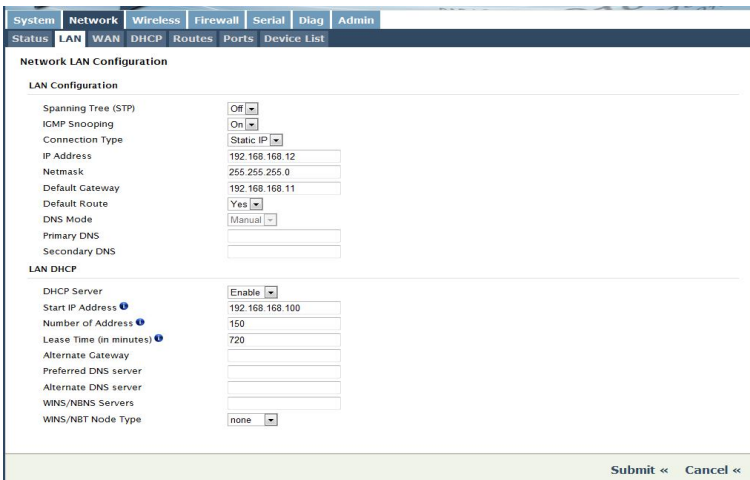
10) Choose Admin->Logout, click Logout Now.

8.4.3. Fast Configuration of Video Transmission Module of RC

- 1) Enter the parameter configuration interface (refer to airborne end, the only difference is that the input IP address is 192.168.168.2).
- 2) After log in, pls choose Network->LAN->Edit.



- 3) Configure the parameters as shown in the figure below, and click **submit** after the configuration is completed. Then you need to log in again by the newly written IP address to continue the following configuration. You can also fill in the corresponding IP according to the own needs.



- 4) After log in, choose wireless->RF, Pls do the configuration as below: After finishing the written, click submit. (Frequency and transmission power can be selected based on your requirement)

Note ! Channel Bandwidth, Channel Frequency, Network ID of the airborne end and ground terminal need to be configured the same. In this way, wireless

communication can be established.

System Network Wireless Firewall Serial Diag Admin

Status RF

Wireless Configuration

RF Configuration

Radio On Off

Channel Bandwidth 8MHz

Channel-Frequency 78 - 2387 MHz

Tx Power 30 dbm

Wireless Distance 3000 (m)

MIMO On Off

Operation Mode Slave

TX Rate Auto (recommended)

Extended Addressing ON

Network ID pMDL

Encryption Type AES-128

Encryption Key *****

Show password

RF Serial Port Configuration

Serial Port TX Rate Normal Rate

Submit << Cancel <<

5) Click Serial->Settings, choose Data. After parameters configuration, click **submit**. The baud rate of port must be set 115200. It cannot be modified, otherwise the communication will be affected.

System Network Wireless Firewall Serial Diag Admin

Status Settings USB0

Serial Port Configuration

Port Configuration

Port status Data

Escape Sequence Disabled

Data Baud Rate 115200

Data Format 8N1

Data Mode Seamless Transparent

Character Timeout 24

Maximum Packet Size 256

No-Connection Data Disable Enable

MODBUS TCP Status Disable Enable

IP Protocol Config TCP Client

TCP Configuration

Remote Server IP Address 192.168.168.11

Remote Server port 20002

Outgoing Connection Timeout (seconds) 5

Fast Recovery Disable Enable

Submit << Cancel <<

6) Choose **Serial->USB0**, this port is used for parameters configuration of serial port. The baud rate can be adjusted based on the own requirement. Click **submit** when the write is completed. Note that the serial port parameters of Remote Server port should be consistent with the data of the airborne end (USB0) Local

Listening port.

System Network Wireless Firewall Serial Diag Admin

Status Settings USB0

USB0 Serial Port Configuration

Port Configuration

Port status	Data
Data Baud Rate	115200
Data Format	8N1
Flow Control	none
Data Mode	<input checked="" type="radio"/> Seamless <input type="radio"/> Transparent
Character Timeout	24
Maximum Packet Size	256
No-Connection Data	<input type="radio"/> Disable <input checked="" type="radio"/> Enable
MODBUS TCP Status	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
IP Protocol Config	TCP Client

TCP Configuration

Remote Server IP Address	192.168.168.11
Remote Server port	20003
Outgoing Connection Timeout(seconds)	5
Fast Recovery	<input checked="" type="radio"/> Disable <input type="radio"/> Enable

Submit << Cancel <<

7) Choose Admin->Logout, click Logout Now.

Note:

1. The remote control and the receiver are already in the pairing state before delivery. It is not recommended to modify the pairing parameters unless special requirement is needed.
2. The computer of the remote control and the LAN port of the digital video transmission module need to communicate through LAN. Therefore, in order to ensure the connectivity between them, it is generally not recommended to change the IP of the computer of the remote control.

9. V30 Video&Data Transmission Module Operation

The V30 receiver has HDMI and LAN versions.

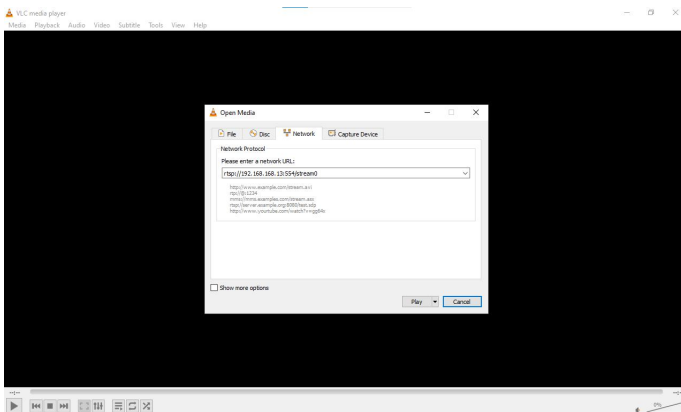
For HDMI version, pls enter the IP address 192.168.168.13 in the browser to set the corresponding parameters.

For LAN version, cannot enter to set the IP address, after connecting with the camera, in the T30S computer network settings (TCP/IP properties) set to the same IP network segment with the camera and then video can be obtained.

9.1. Video Connection Instruction for HDMI Version

1. After powering on the airborne unit, connect it to the camera, CPU indicator is always on when video is input normally.
2. The LAN port of the internal module of the T30S remote control has been connected to the network port. After the signal connection is normal, check the computer, and set its network setting (TCP/IPV4 attribute) to '192.168.168.xxx' (xxx is the address value between 0 and 255, where 192.168.168.11 and 12,13 addresses are reserved addresses). The default gateway address is set to '192.168.168.1' which is in the same network segment as the airborne unit.

We take the VLC playback software for example, the first step is to open the VLC software, the second step is to open the 'Network Streaming' in the 'Media' as shown in below operation

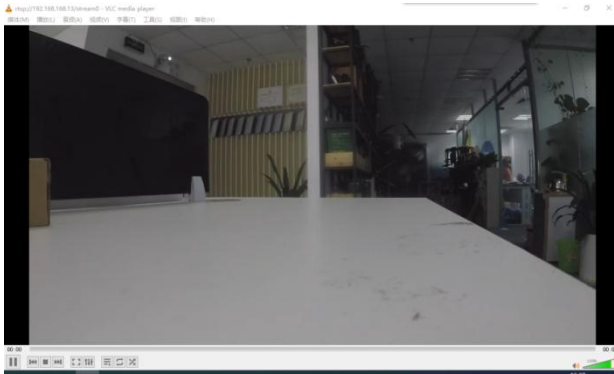


3. Enter the destination address of the stream, **Note:** V30 receiver in the factory settings default IP address is "192.168.168.13."

You can enter the following address.

rtsp://192.168.168.13:554/stream0

After entering the correct video stream address URL, the video image can be obtained.

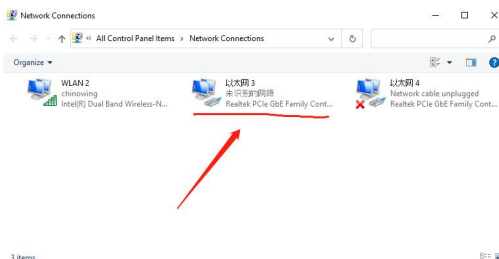


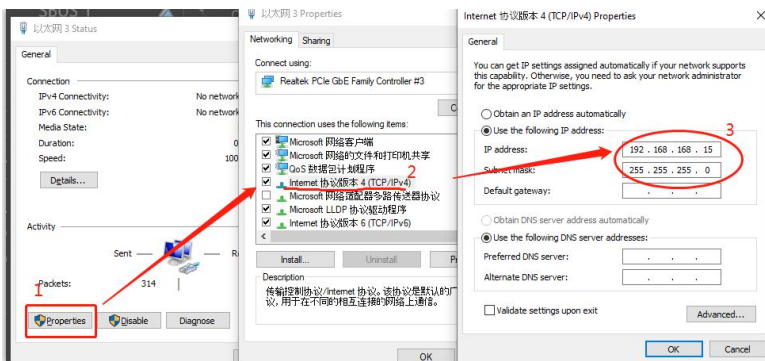
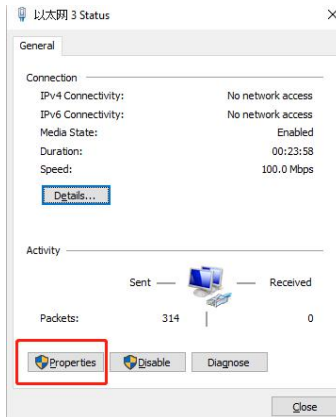
* Pay attention to the line sequence when connecting flight controller by transparent transmission. V30 airborne unit is connected to flight controller or other equipment, Rx corresponds to Tx, and GND corresponds to GND.

* When connecting, pay attention to the baud rate of the flight controller, V30 and ground station should be kept consistent, otherwise the link cannot be established.

9.2. Video Connection Instruction for LAN Version

1. Connect the V30 and network camera by the standard 4-pin to Ethernet cable, then connect the 7-12V power supply, the LAN port of the internal module of T30S remote control has been connected to the Ethernet port.
2. For LAN version, there is no need to set the IP address of the airborne unit. Open the network settings (TCP/IPV4 properties) of your computer and set the network camera to be on the same network segment (as shown in the picture below).





The above figure takes the network camera IP address of 192.168.168.20 as an example.

3. As shown above, computer network settings (TCP / IPV4 properties) address set to 192.168.168.15 (must be in the same network segment with the network camera). After finishing the setting, click on the confirmation.

4. Open the network stream player, here take VLC for example, the first step to open the VLC software, the second step in the 'Media' to open the 'Network Streaming' as shown below:



5. Enter the address of your network camera

rtsp://192.168.168.20:554/user=admin&password=&channel=1&stream=0.sdp?

6. The other characters are filled in according to the camera's settings parameters, the corresponding camera is usually equipped with software or set, such as the following examples

rtsp://192.168.168.20:554/user=admin&password=&channel=1&stream=0.sdp?

192.168.168.20 This is the IP address of the connected device

:554 This is the port number of the RTSP service, which can be changed in the device's network service.

user=admin This is the login username for the device.

password= password empty

channel=1 The first channel

stream=0.sdp Main stream

7. After input, wait for a few seconds to get the video normally.

9.3. Display the Video in Mission Planner

First, verify that the video stream is available in video software such as VLC and then open MISSIONPLANNER;

1.Press the right mouse button (or long press) in the HUD window

2.Click VIDEO

3. Click GetGstreamer source

4. Enter the following address (Note size set and half symbols)

rtspsrc location=rtsp://192.168.168.13/stream0 latency=0 ! decodebin !

videoconvert ! video/x-raw,format=BGRA ! appsink name=outsink

5. Download the relevant software package for the first time and wait for the download to complete. And restart the software.

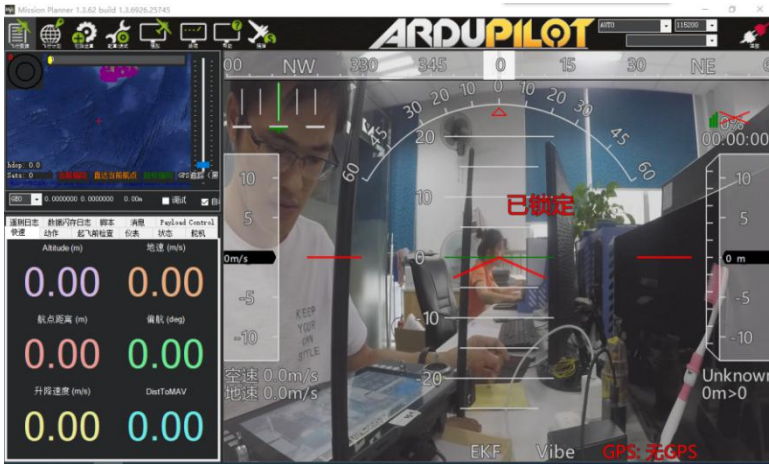


6. After finishing steps 1-4, you will get the camera video source.





7.Right - click to zoom in on the ground

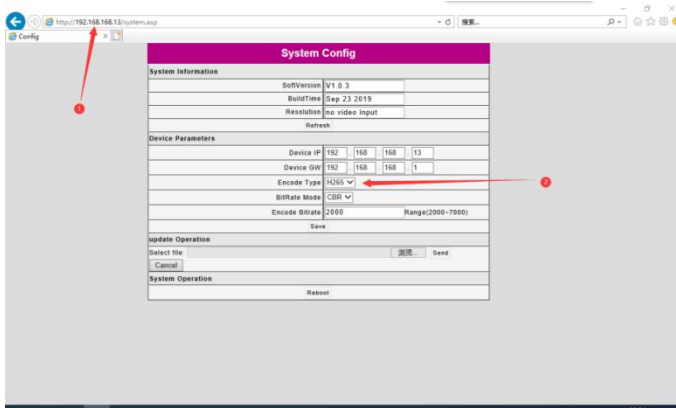


9.4. Display image in QGC

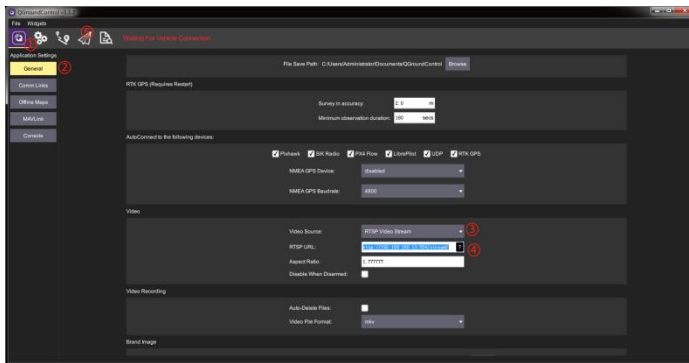
First, verify the video stream is available in video software such as VLC and then open MISSIONPLANNER;

1. Currently, QGC does not support H.265 encoding, it is needed to input in the browser IP:192.168.168.13 to log in V30 Transmitter.

2. Change the video encoding mode to H.264



3. Open QGC software, Click general and find video. VIDEO source chooses RTSP VIDEO STREAM in RTSP URL: input RTSP: // 192.168.168.13 / stream0



10. V30 Parameters Setting

10.1. Connecting the device

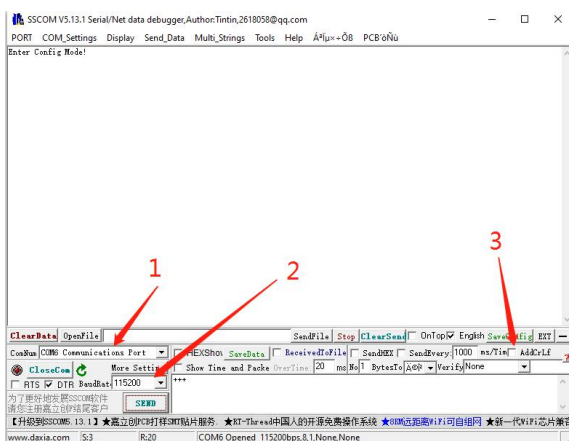
1. The V30 or ground end device can be configured via serial port. V30 is connected to the power supply and serial port of the equipment. Start T30 directly and opens the serial port assistant.
2. Power on the device and wait for device initialization

About 3s after the device is powered on, the CPU light flashes, indicating the successful device initialization.

3. Enter serial port configuration mode

The T30 is matched with COM6 and the V30 is matched with the port number of the tool. In the computer, by using serial port tool, set the baud rate as 115200bps, data bit as 8, stop bit as 1, no check bit, no flow control.

After opening the serial port column, enter ‘+++’ in the serial port tool, the terminal will display <Enter Config Model>, indicating that the serial port configuration mode is entered, as shown in the figure below.



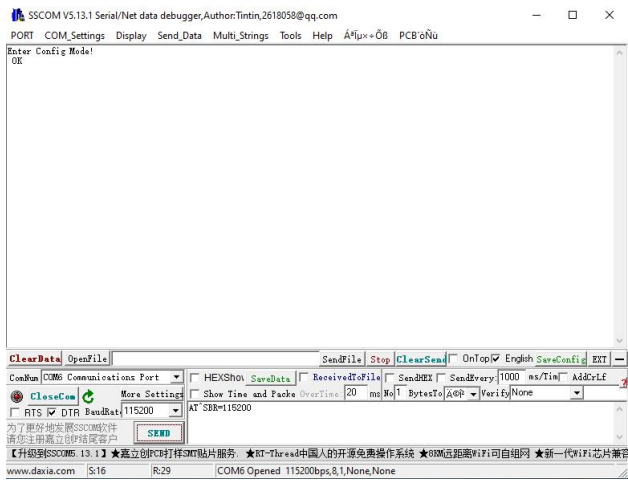
Note: Line feeds and carriage returns cannot be sent in the configuration.

4. Enter configuration command

Enter the corresponding configuration command and wait for the device to return OK, indicating that the command was sent successfully.

As shown in below, configure the baud rate of serial port to 115200, pls input the command ‘AT^SBR=115200’

The device returns <OK> to indicate successful modification. If showing <ERROR>, it indicates the command input is wrong or the parameter is invalid.



10.2. Command Configuration List

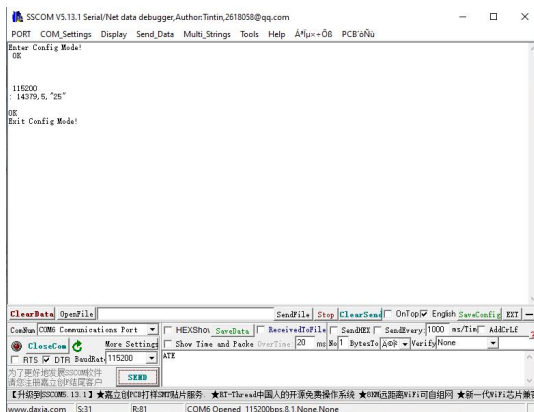
Type	Command	Value	Instruction
Setting RF power	AT^SPWR=	1	Low power 15DBM
		2	Moderate power 20DBM
		3	High power 25dbm
Setting serial port baud rate	AT^SBR=	9600	Baud rate 9600
		14400	Baud rate 14400
		19200	Baud rate 19200
		38400	Baud rate 38400
		56000	Baud rate 56000
		57600	Baud rate 57600
		115200	Baud rate 115200
Wireless frequency	AT^SCHN=	1	800MHZ
		2	1.4GHZ
		3	2.4GHZ
Set communication code	AT^SKEY=	6001	Bound for the same data of airborne and ground ends
Bandwidth	AT^SBW=	1	3M

		2	5M
		3	10M
		5	20M
Setting main and secondary mode	AT^SMOD=	1	Center node(main mode)
		2	Slave node(secondary mode)
Setting fixed frequency mode	AT^SFIX=type,Freq	0	Type=0 cancel fixed frequency mode
		1	Type=1 set fixed frequency mode
		Freq	8060-8259,14279-14478,24015-24814,17850-18050

If you want to query the current configuration value of the device, input the following command to query.

Type	Command	Value	Instruction
Query RF power	AT^GPWR	1	Low power value
		2	Moderate power value
		3	High power value
Query frequency	AT^GBW	800MHz	800MHz
		1.4GHz	1.4GHz
		2.4GHz	2.4GHz
Query serial port baud rate	AT^GBR	xxxxxx	Current baud rate value
Query KEY	AT^GKEY	XXXXX	As KEY
Query fixed frequency status	AT^GFIX	xxxxx	Return fixed frequency status
Query bandwidth	AT^GBW	xxxxx	Return the current value
Query main and secondary mode	AT^GMOD	^DDTC:1,1	Main mode
		^DDTC:2,2	Second mode
Query software version	AT^GVER		Returns the MCU firmware version of the current device

5.Exit the serial port configuration mode Enter three characters "ATE" in the serial tool. Wait for the device to return "Exit Config Mode!", indicating successful exit from serial port configuration mode.



10.3. V20 Video&Data Transmission Module Parameters

Frequency	2.304 - 2.390GHz 2.402 - 2.482GHz 2.500 - 2.570GHz	Can be modified in the software
Transmission range	5Km@LOS condition	Depend on the environment
Bandwidth	4/8MHz	
Data rates	2-8Mbps	
Power voltage	7.4v-12v	
Operation current	240mA@12v power supply	
Operation temperature	-10~+50℃	
RF power	0.1w-1w	
Antenna	2-4dB rod antenna	
Weight	87g(exclude antennas)	
Dimension	66mm*48mm*24mm	
Interface	SBUS output *2 UART port*1 LAN port*1 Power supply interface	Video input interface XT30

10.4. V30 Video&Data Transmission Module Parameters

V30(10Km grade video and data link)		
Frequency	800MHz/1.4GHz/2.4GHz	Can be modified in the software
Transmission range	10km@LOS condition	Depend on the environment
Bandwidth	10/20MHz	
Data rates	2-12Mbps	
Power voltage	7.4v-12v	
RF power	0.1w-1w	
Operation current	260mA@12v power input	
Operation temperature	-10~+50℃	
Video defination supported	1080P60 Max	
Weight	120g(exclude antennas)	
Dimension	91mm*57mm*20mm	
Interface	Video input interface	LAN or HDMI&CVBS
	UART port*1	
	SBUS port*2	
	Power supply interface	XT30

10.5. T30s Remote Controller Port Instruction

The T30s computer is with 6 COM ports. Among these COM ports, COM5 and COM6 are only for internal use. COM5 is the special port for the debugging software, and COM6 is the serial port for the remote controller data transmission. Other COM ports are converted into different signals by hardware and lead out data through the 4-wire interface at the back of the remote control.

The 4-wire interface as below photo:



The corresponding relationship between interface and port is as follows:

4-wire interface	Corresponding port	4-wire sequence 5-(From top to bottom)
TTL	COM1	pin1-3.3V, pin 2-GND, pin 3-TXD, pin 4-RXD
RS232	COM2	pin1-3.3V, pin 2-GND, pin 3-TXD, pin 4-RXD
RS485	COM3	pin1-3.3V, pin 2-GND, pin 3-A, pin 4-B
RS422	COM3	pin1-3.3V, pin 2-GND, pin 3-Z, pin 4-Y
DC5V	DC5V	pin1-TX1+, pin 2-TX1-, pin 3-TX2-, pin 4-TX2+
Debug	Debug port	pin1-3.3V, pin 2-GND, pin 3-SWDIO, pin 4-SWCLK

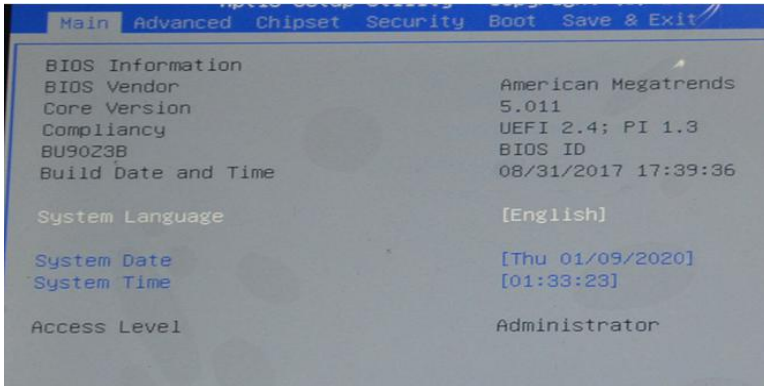
Note: For RS422, please use it with RS485 interface A and B, and configure the motherboard BOIS as 422.

If you need to use Debug debug port, please use it under the guidance of customer service personnel.

Set COM3 as RS422 interface

The remote control COM3 default is RS485 interface, if you need to use RS422 interface, you need to set it in the BIOS interface.

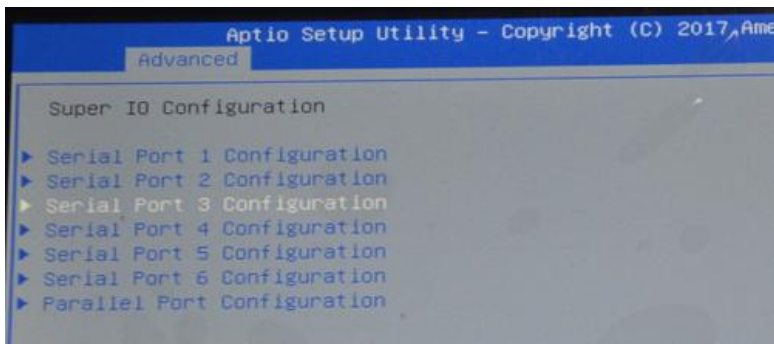
1. Prepare a keyboard to connect the USB interface, restart the system.
2. Press the Delete key to enter the BIOS interface.



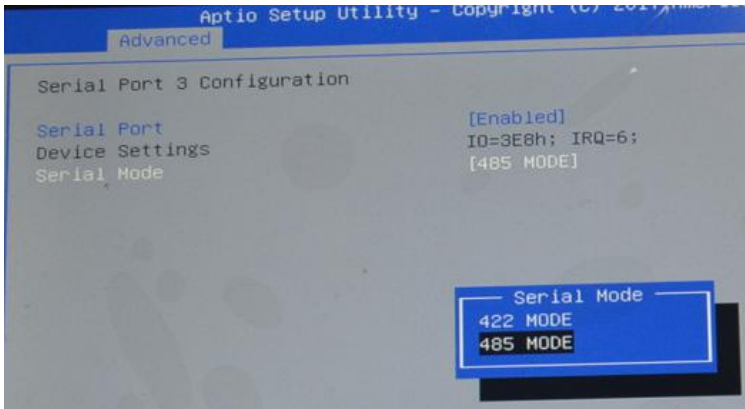
3. Select to enter the Advanced interface and select Super IO Configuration.



4. Select Serial Port 3 Configuration.



5. Select 422 MODE, press F4 to save, press ENTER to confirm and restart.

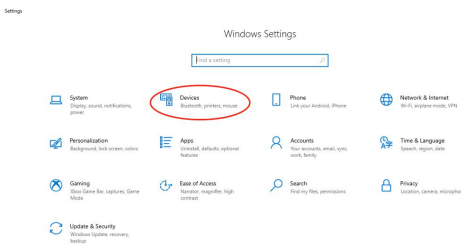


11. Firmware Upgrading Procedure

Please use firmware upgrade tool to upgrade the firmware of remote control and receiver respectively.

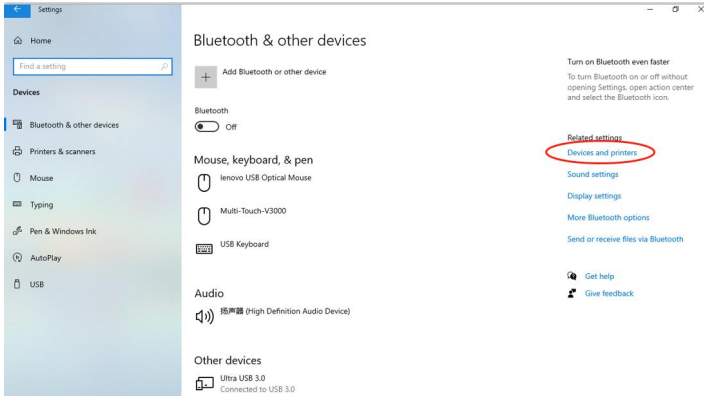
11.1. HID Controller

In order to meet more customer needs, we have integrated all the channels into the HID device gamepad in T30s. If you don't find HID device gamepad in your remote control, don't be confused, you may be using an older hardware version of T20 or T21, which doesn't support HID function. The gamepad can be viewed and used as follows.

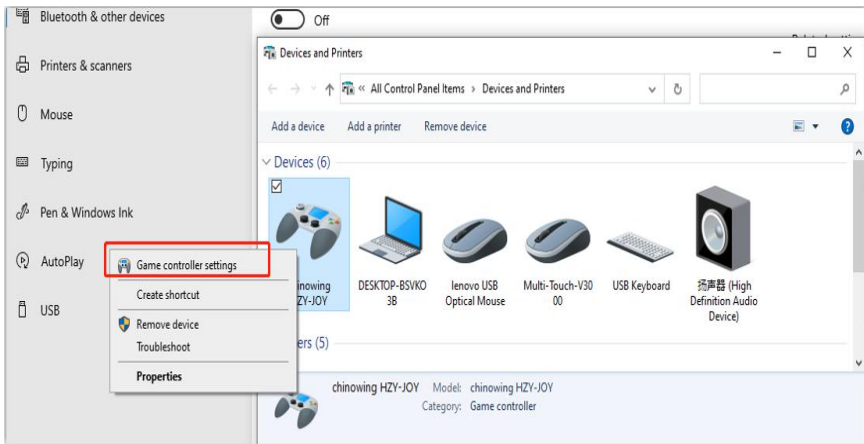


1. Open the Control Panel, locate the device bar and click on Access

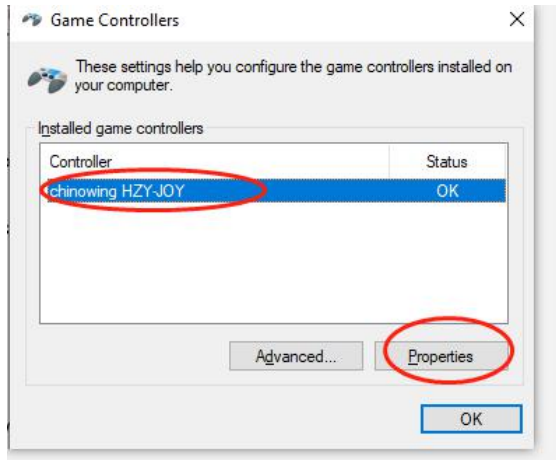
2. Enter devices and printers.



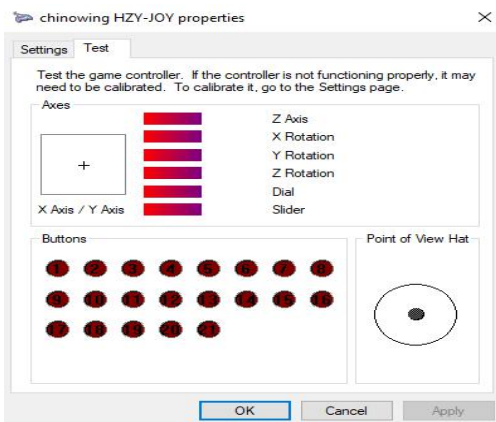
3.If the device named "chinowing HZY-JOY" is in the device list, it means your remote control has HID gamepad function. If it doesn't, it doesn't support.



4. Right mouse button, select Game Controller Settings.



5. Select "chinowing hzy-joy" and click on the Properties. You can see each channel in the test bar. Operate the rocker and the corresponding channel state will change accordingly. The X-axis/Y-axis, z-axis, x-rotation, y-rotation, z-rotation, dial-up and slider are analog channels. The visual helmet is mapping one of the rockers, the button is mapping the three-gear switch, button and other digital channels. The exact mapping relation can be determined by testing.




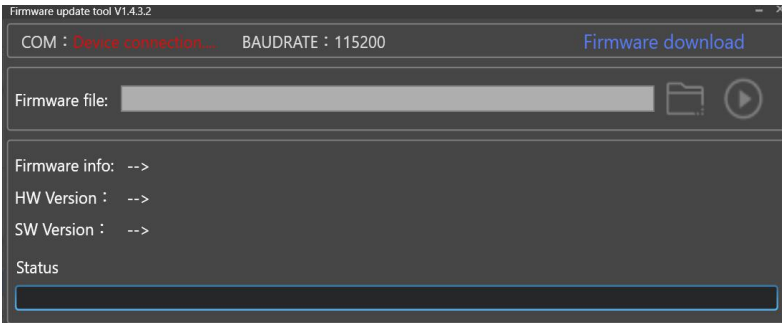
Note: the game controller is only supported to be used when the parameters setting software is closed. Please contact the customer service staff for other requirements.

11.2. T30S Remote Controller Firmware Upgrading

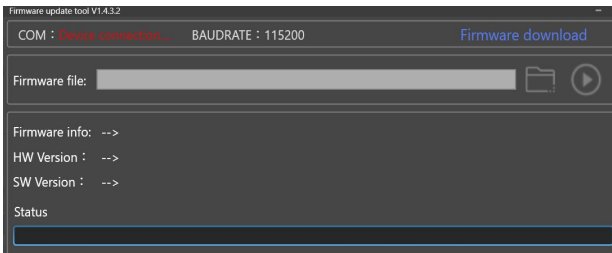
1. Click on the official website to download the firmware, select the appropriate version of the firmware and save it locally.
2. Set all three switches (SA, SB, SD and SE) of the remote control to the mid-range position to ensure that all buttons are in the release state. With the rocker's position as shown in below photo, press the power button of the remote control to start up.



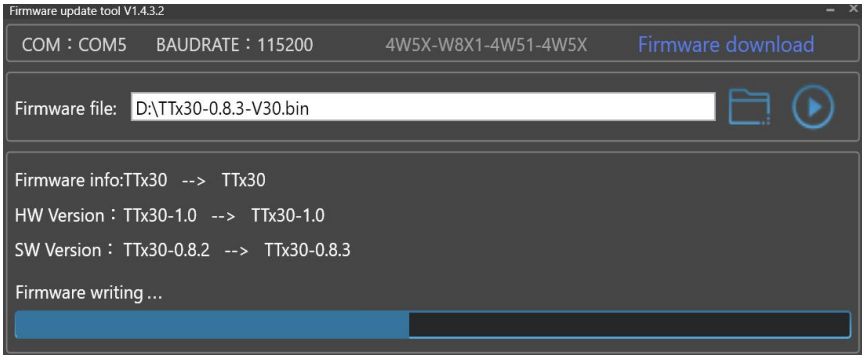
3. After the PC boot is completed, open the firmware upgrade in the tool platform 



4. At this time, you can see that the serial port of firmware upgrade tool has been connected, and the current hardware, firmware and other information of the remote control are displayed, as shown in the figure below:



5. Open the saved firmware file path and click the start button.



6.Wait for firmware upgrade until a dialog box pops up indicating the completion of firmware upgrade. Close the firmware upgrade tool.



11.3. V20 Receiver Firmware Upgrading

1. Visit the official website to download the firmware, select the appropriate firmware version and save the firmware locally.
2. Power off the receiver and connect the COM port of the receiver to the computer via the receiver's RF cable.
3. Make sure the receiver's software is off, and open the firmware upgrade tool.
4. Press and hold the receiver's RF button while you power up the receiver.
5. Release the button, you will see the indicator SBUS2 light on.
6. Press and hold the button again until the indicator SBUS1 also lights up, then release the button, you can see that the serial port of the firmware upgrade tool has been connected, and the current version and firmware information of the receiver is displayed.

7. Open the path of the firmware file you just saved, confirm it is correct and click the Start button.
8. Wait for the firmware upgrade until the firmware upgrade completion dialog box pops up, then close the firmware upgrade tool and the firmware has been successfully

Remote Control	
Channel	23 Channel

upgraded.



- ❖ Please strictly follow the operation steps to ensure that other software using the port, such as the serial port debugging assistant, all closed , otherwise the upgrade may fail.
- ❖ Please select the corresponding firmware, if the firmware does not match, the upgrade will fail.

12. Common Questions

1.Long press the power switch of the remote control, do not hear ‘didi’ sound, and the power red light only flashing once.

Please confirm if the T30 is powered.

2.The receiver is powered on, but there is no signal output.

Please confirm whether the ID, channel and channel bandwidth of the receiver and the remote control are set in consistency.

3.Receiver SBUS has signal output, but the serial port is not connected, or the transmission signal is scrambled.

Please check whether the serial port baud rate of remote control and receiver is consistent. Set the baud rate of the ground station software.

4.There is interference when two or more devices are started up at the same time

Please check that the ID of each set must be different and the channel must be set differently to avoid interference of the same frequency.

5.The parameters setting software shows <Remote control port not found>

Verify that the remote-control port number is correct.

13. T30S Remote Controller Parameters

Control range	V20: 5km grade V30: 15km grade
RF transmitting power	V20: 0.1w-1w adjustable V30: 0.1w-0.5w adjustable
Remote control latency	30ms
Battery capacity	12V/12000mAh or external battery can be connected
Operating hours	4.5hs with full capacity
Overall weight	3200g
Display screen	10.1 inch+ industrial touch screen +800cd/sunlight readable
Definition	1920×1200
Processor	Intel i7 5500U
Storage	4GB/8GB
Storage capacity	64GB/128GB(optional)
Tablet operation system	Windows 10/Linux
Overall dimension	364mm(L)*190mm(W)*95mm(H)
IP rating	IP53
Network type	WIFI/Bluetooth
Interfaces	USB3.0, LAN port, HDMI, VGA, TTL, RS232, RS485, RS422
Operating temperature	-10~+50℃
Receiver	
Dimension	V20: 66*48*24mm V30: 91*57*20MM
Frequency	V20: 2.3GHz/2.4GHz/2.5GHz V30: 800MHz/1.4GHz
Power supply input	7.4~12V
Operation current	300MA(12V power supply)
Antenna	2-4dB ZYJB antenna
Weight	V20: 87g V30: 120g
Operation temperature	-10~+50℃