



The 1st chapter Product Introduction

ST10H is a portable microwave video transmission system, It transmit video signals with frequency band of 1.0-1.7 GHz, As a result of high frequency and FM working way,It has strong anti-jamming function and the image is clear ,stable.

ST10H is one small portable wireless video transmission equipment with high performance, its small size, low power consumption , and good penetrability, especially suitable for individual operation which request camouflage and battery not too big. The special audio and video interface can both for camera connection and for camera power supply, also reduce the unnecessary thread ends, saving very limited space and much easier to carry. Suitable for the public security criminal investigation department: concealed reconnaissance, field operation , and specific tasks。

Features:

Easy installation, frequency adjustable, convenient application , can effectively avoid interference frequency; Wide frequency, wide adjustable range; Small amplifier, few harm to human body etc.

The 2nd chapter ST10H appearance and application instructions

2.1 ST10H transmitter appearance



ST10H transmitter appearance

Technical specification:

Microwave video transmitter index	
Frequency	1GHz-1.7GHz
Transmission power	15dBm—30dBm
Output impedance	50Ω
Input video	1V apex—peak value
Input audio	0.1~1.0
Voltage	12VDC600mA
Modulation mode	FM
Modulation b bandwidth	25MHz
Video starnard	PAL
Temperature	-20~+55°C



Transmitting terminal

AV IN: Audio and video input interface (standard BNC input interface)

DC12V : Power connection terminal

RF OUT: Antenna connection terminal

CTRL: Frequency regulator interface

Reception terminal:



ST10H receiver appearance

Video output: direct analog video signal output

Audio output: direct analog audio signal output

RF input: F connector , connect the radio frequency signal from antenna amplifier

220 V AC input/output

Video and audio output can be directly connected to all of the analog input terminal:

Can connect to the monitor, video capture card, DVR, network video server, matrix, TV wall, TV set, etc...

a. You just need to connect the camera video signal to the video input through the BNC plug .it is ok.



Picture 3,BNC interface of vide line

b. To input audio signal,you just need to connect the audio signal of the audio equipment to the audio input interface through the RCA socket



Picture 4: Audio line RCA socket

c. Antenna interface can connect directly to antenna or through the cable (if user want to change ,it must be agreed by our technician), We can also custom suitable cable according to the customer's requirements.



Picture 5: Radio frequency L16 connector

d. At last Power connection , usually choose 110 ~ 220 v alternating current (AC). 12 V DC is also ok according to the requirements of customer.

2. 1 Adjustment of ST10H transmitter frequency

ST10H mini transmitter is a transmitter that user can choose frequency, It is more practical and smaller size . This device adopts DC voltage 12 V/ 2A power supply (pay attention to + - level). If user choose our power, you just need to plug in AC 220 V power supply . It can display the current frequency self-inspection through the screen. And then is the default frequency (assuming frequency is 1.360 G, the digital tube will display 1360), if the frequency is what you need, you don't need to adjust. If what you need is other frequency within the scope of our bandwidth. You will need to adjust yourself, see below:

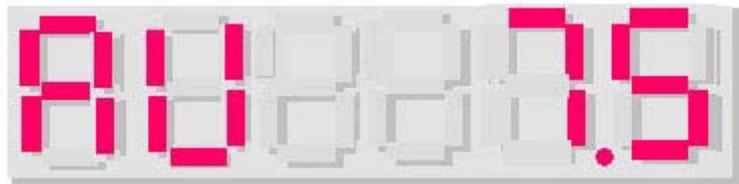
Flowchart as follow:

a. At first according to the diagram, learn the menu option key, up-regulation key, down-regulation key.





- b. Press the menu option key, will show F1360.
- c. Press up-regulation key ,the frequency modulator display frequency upward, press up-regulation key ,frequency minus.
- d. Press the menu button after chosing the frequency until frequency non-display F
- e. If screen constant flicker after chosing frequency, indicating that this frequency is not in the adjustable frequency range, then you should make a new choice, it may also can receive signal, but can not reach our requirements, we hope you'd better use the frequency within the scope of the bandwidth.
- f. Audio with carrier frequency selective debugging, we provide a 6.5 M, 7.0 M, 7.5 M, 8.0 M, 8.5 M frequency selection.



You can choose freely with reduce key and increasing key

- g. Press menu button two times (the first time it would appear messy code, It's for production test. You can forget it), and when the digital tube appear the frequency you set, congratulations! you have chosen the right frequency!! Remember back to the main menu, otherwise, the next time power on, your frequency point will back to the default frequency.
- h. Take out the frequency modulator after frequency is ok

The 3rd chapter Receive system

1. The antenna connection

Our equipment is the original 5.5 DB omni directional chuck antenna, The users needn't aim at the antenna direction, it can be used just need to connect it to the receiver, You also can choose antenna according to your needs, surely, we can also provide you customized antenna.

2. Receiver frequency mode

Receiver frequency setting are the same with the transmitter, The receiver can receive the front video only when it have the same frequency with the transmitter.

3. Audio and video line connection

Insert the audio and video line into the AV output of receiver ,Then connect to the monitor or other display equipment .





4. Troubleshooting

If the system can't receive image, or the monitor shows snowflakes point, it should be according to the following steps:

- a) Check the transmitter power, if voltage output 12V of 220 VAC AC power supply is normal or not.
- b) Check if the transmitting antenna and transmitter joint is reliable, if transmitter and receiver antenna have water inflow. All the connecting cables are absolutely no water.
- c) If receiving antenna and receiver joint is reliable, receiving antenna also shouldn't have water. If the monitor display blank screen, no snow point, then the microwave channel is normal. No video signal, pls check if the connection of camera and transmitter is good.

The 4th chapter The matters need attention during ST10H installation

1. **ST10H** microwave transmitter working frequency is high, diffraction ability is poor; So should avoid the obstacles of transmission antenna and receive antenna, that is to say should install the antenna in a high place to achieve point to point or point to multipoint transmission. Usually the antenna was mounted on the roof. If difficult to avoid obstacles, it should set reapter. If the distance is near, sometimes can also receive image not reapter but through the reflection.

The result of existence of the earth curvature, when in the remote transmission, we must consider the relation of earth curvature and the height (picture 9). Ideally, relation formula of transmission distance and assume height as follows:

$$L \text{ (km)} = 3.57 \times [\sqrt{H1 \text{ (m)}} + \sqrt{H2 \text{ (m)}}]$$

Among them, the L is transmission distance, its unit is km, H1 and H2 are two antenna height the unit is meter.

2. The transmit and receive antenna must aim correctly when installing antenna, generally have 30 degrees or so azimuth.

3. The cable between the transmitter and transmitting antenna general should adopt 50Ω coaxial cable of SYWV-50-5, the length is about 3 meters, the consumption will be much if it's too long



4. Plug the power after connection of transmitter frequency output and antenna feeder

5. The SYWV - 75-7 or 75-9 cable is ok for receiver and receive antenna ,It's according to cable length.

If the cable is too long (more than 150 meters), then you need to add a line compensated amplifier among feeder. Note that receiver input have + 18V output, So, the feeder cable connected to the receiver do not short circuit.

6. The preset frequency of Receiver and transmitter frequency should be same, audio subcarrier frequency also should be same with the subcarrier frequency of transmitter, Usually, equipment before shipment, the audio subcarrier frequency will be setted to 7.0 or 7.5 MHz.

7 .If the transmitter can be used in the mobile circumstance; the antenna of the receiver should chose unidirectional antenna and be installed in the high-point location. It's better for receiver in the open area so that receive can avoid obstacles and be up to the best performance.. It's possible for receiver to receive the signal when the distance is near if transmitter in the dense area of buildings.

8. Be care of radiating of device when transmitter be used in the closed circumstance or carried by worker. And worker should take care .



Notice: In order to avoid water, it's necessary for sealing all wire connector and the root of the cable and connectors with electrical tape and sealant (703gum or 904 silica gel) after the microwave system test well . In the humidior area, such as island and area along the sea , you should to seal the transmission cable to avoid icing .