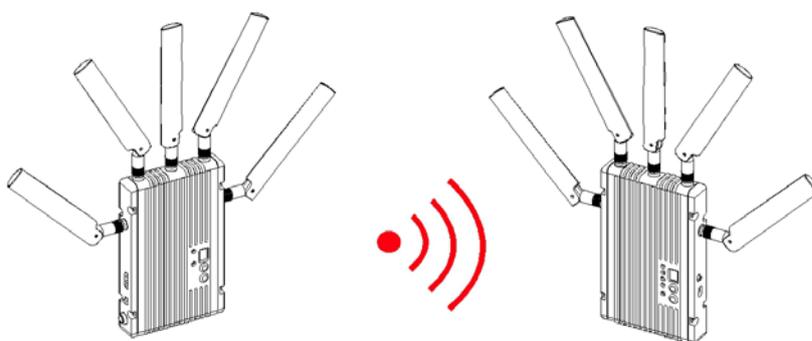


Wireless HD Video Transmission System



TX

RX

HLWH009 User manual

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Preface

Thanks for purchasing our Long Range Wireless HDMI HD Video Transmission Suite. Before using this product, read this user manual carefully please. Follow the instruction to keep your safety and avoid products damage. This user manual might be modified irregularly because of updated products. And the manual is for instruction only; we do not guarantee the information and the suggestions.

1. Cautions

Logo and meaning



Careful, warning, dangerous, Pay attend to following items.

Cautions

- Do not use this product in the extreme hot, cold, dusty or humid environments.
- Prevent friction with hard objects.
- Avoid the product falling down from a high place, or it may damage the hardware.
- The product is not water proofed. So do not get any liquid into the unit please.
- Do not dismantle, assemble or alter the product arbitrarily.

2. About

Main features

- HDMI 1.3 spec supports
- Highest resolution 1080p 60, no delay and no compression
- Maximum transmission distance is 150m, back distance 120m
- 5GHz ISM frequency band, maximum 10 frequency channels selected by user knob, coexist with WIFI, can also be the automatic frequency selection
- Support audio formats include Dolby True HD, DTS-master, etc.
- Support point to point network topology
- Support DFS function
- Signal indicators for wireless power status, Video status and receiver RSSI
- AES-128 encryption with air interface HD video data stream
- Each RX paired to the unique TX in factory
- 7-36V DC Wide range power voltage input, 12V/1A standard adaptor
- Support mini USD upgrade
- Any input and output ports with ± 8 kV ESD protection level (HBM, contact discharge)
- Industrial metal case, fine & attractive structure, integration of design and easy installation.

Product model and standard

HLWH009 the Long Range Wireless HDMI Transmission Suite utilize today's most advanced wireless video transmission technology, which can realize the broadcast-class and uncompressed HDMI HD video signal transmitted with no compression and zero delay. The suite includes one transmitter and one receiver, both provide HDMI interface. The wireless HD suite has 5 stick antennas respectively in both transmitter side and receiver side. On the suite shell, equipped with communication frequency selection buttons, which provide 10 different frequency channels and can be set to automatic frequency selection mode transmission, also can supports maximum 4 sets working simultaneously. (point to point transmission, different image). The wireless suite can accept wide range DC power input 7-36V, 12V/1A standard adaptor. The suite also can sustain ± 8 kV ESD (HBM, contact discharge), the industry class metal case and professional heat design would guarantee most robust reliability.

Performance and indicators:

	Transmitter	Receiver
Interface	HDMI Input (Type A Female) ; 5 Antenna port(RP-SMA male) ; DC input; mini USB interface	HDMI Output (Type A female); 5 Antenna port(RP-SMA male) ; DC input; mini USB interface
Supply voltage range	7--36V DC	7-36V DC
Power consumption	<8.6W	< 7.5 W
Size	(L x W x H): 148x 90 x 20.5mm, exclude antennas and battery buckle	(L x W x H): 148x 90 x 20.5mm, exclude antennas and battery buckle
Mass	379g	349g
Input Video Format	HDMI:1080p(60/59/50/30/25/24Hz); 1080i(60/59/50Hz); 720p(60/59/50Hz); 576p(50Hz);480p(60/59Hz); Panel:1920*1080;1768*992;1366*768; 1280*768;1280*720;1280*600;1176*664;1024*768;800*600;720*576;720*480	/
Output Video Format	/	HDMI:1080p(60/59/50/30/25/24Hz); 1080i(60/59/50Hz); 720p(60/59/50Hz); 576p(50Hz);480p(60/59Hz); Panel:1920*1080;1768*992;1366*768; 1280*768;1280*720;1280*600;1176*664;1024*768;800*600;720*576;720*480
Input Audio Format	I2S;PCM;SPDIF;AC-3;DTS;Dolby 5.1/7	/
Output Audio	/	I2S;PCM;SPDIF;AC-3;DTS;Dolby 5.1/7
Signal Indicator	Link-Green; VIDEO-Yellow	Wireless RSSI-Blue(4 LEDs) ; VIDEO-Yellow
Frequency Band	5.1-5.9GHz, configurable with China, North American, Europe, etc	5.1-5.9GHz, configurable with China, North American, Europe, etc
Modulation Mode	OFDM 16QAM	OFDM 16QAM
Transmission	Maximum 13dBm	Maximum 17dBm

Power		
Receiver Sensitivity	/	-75dBm
Broadcast mode	Point to point	Point to point
Transmission standard	HDMI 1.3 Standard; WDMI 1.0 Standard; HDCP 1.2 protocols(HDMI 1.4 3D option)	
Occupied Bandwidth	20/40MHz	20/40MHz
Temperature Range	0 ~ 40°C (operating condition); -20~60°C(Storage)	0 ~ 40°C (operating condition); -20~60°C(Storage)
Compliance	FCC; CE.	FCC; CE.

Product introduction

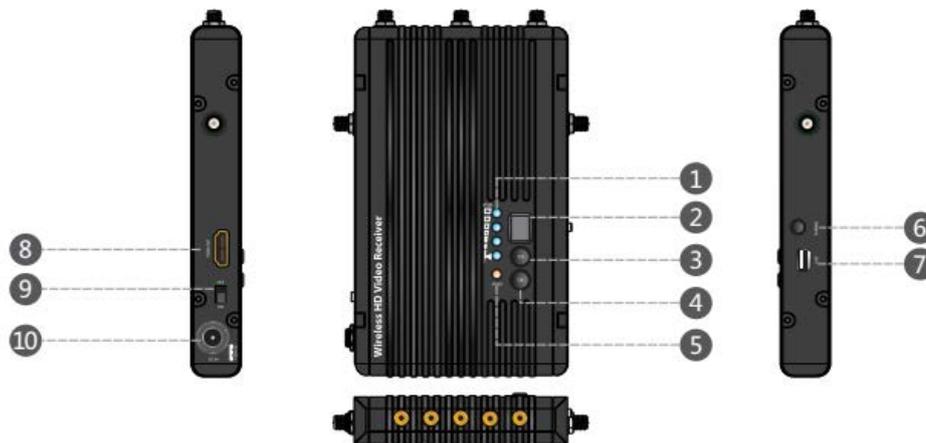
Transmitter:



1. Connection indicator light, 1 green LED
2. Digital Tube, display frequency point
3. Video input indicator, 1 yellow LED
4. Frequency change button

5. Confirm button
6. Matching button
7. Mini USB interface
8. HDMI input interface
9. DC power switch
10. DC 7-36V power input interface

Receiver:



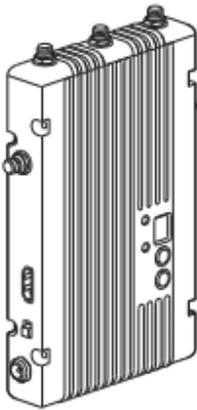
1. RSSI(Wireless received signal strength indicator), 4 Blue LEDs
2. Digital Tube, display frequency point
3. Frequency change button [L] [SEP]
4. Confirm button
5. Video output indicator, 1 yellow LED
6. Matching button
7. Mini USB interface

8. HDMI Output interface

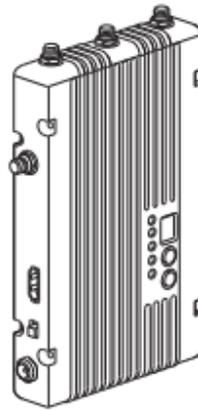
9. DC power switch: 

10. DC 7-36V power input interface

Packing list



TX



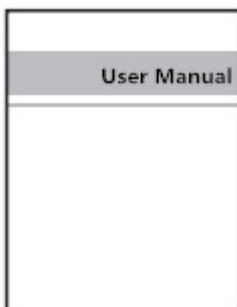
RX



5G high gain antennas *10pcs



DC 12V/1A Adaptor *2pcs

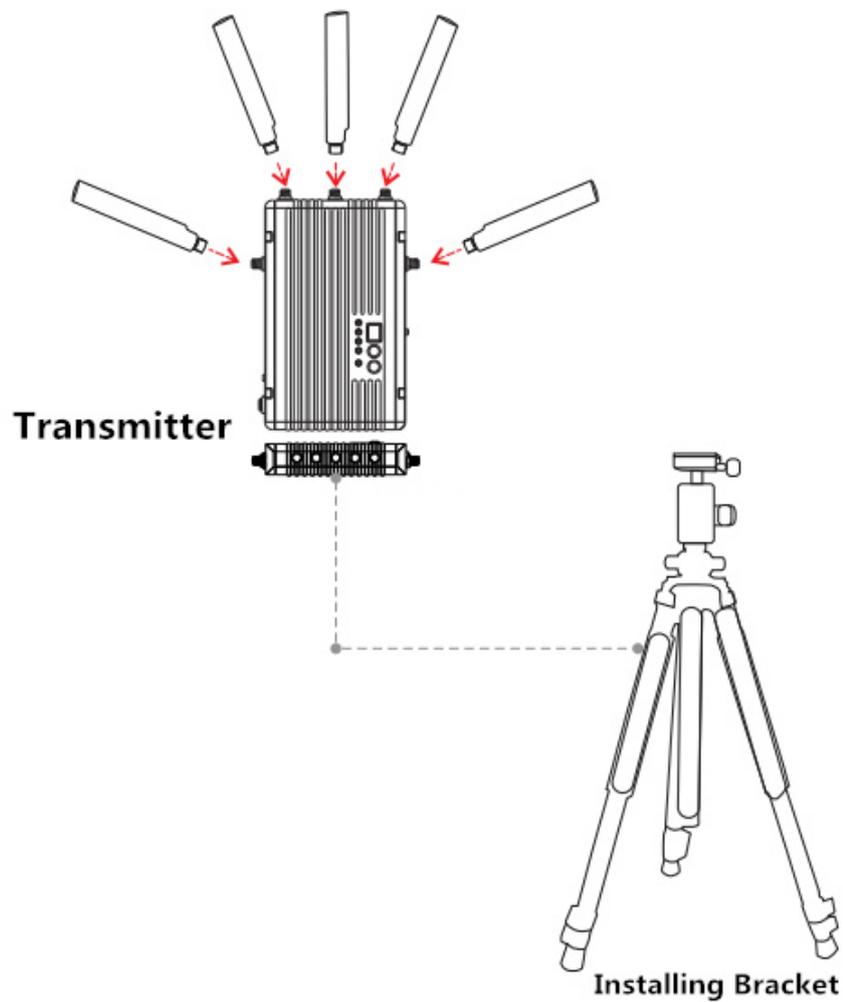


User Manual *1 piece

3. Installation

Installation details and cautions

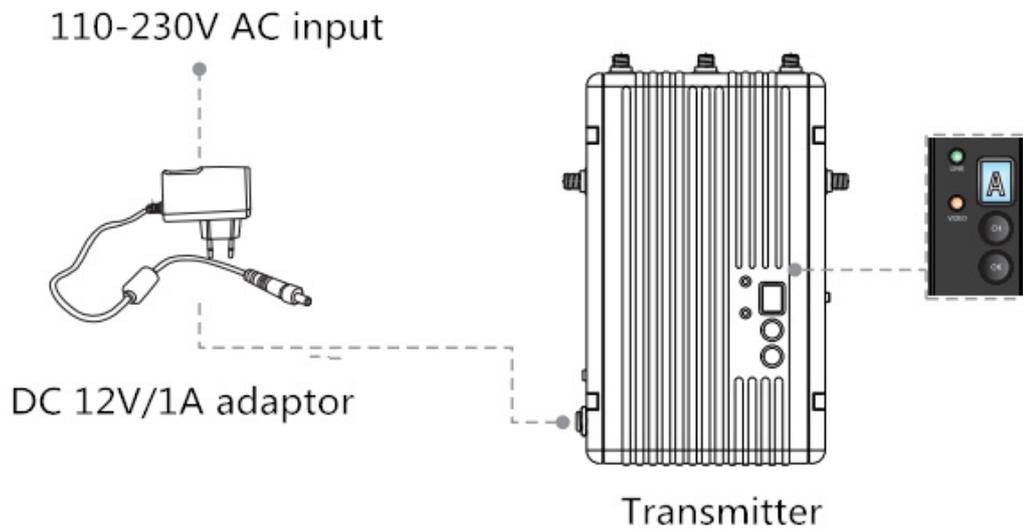
- Transmitter side
 - a) Install 5 Omni-directional and high efficiency antennas to Transmitter's antenna connectors.



- b) There are 5 1/4-20 screw nuts in transmitter metal case, so the user

can choose appropriate location threaded holes to fix transmitter on the installation bracket in the computer

Transmitter side:



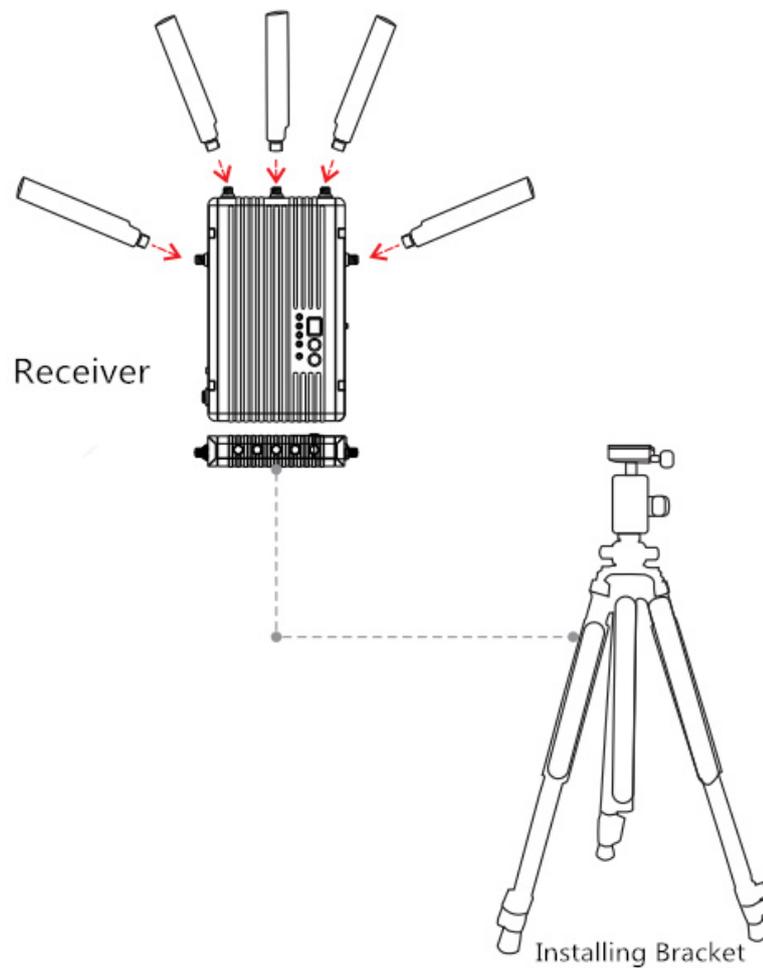
- c) Use 12V/1A adaptor insert into receiver DC power interface, unplug power switch, make it “on” location, then transmitter shell panel digital tube will show the corresponding frequency point which shows power working normally.
- d) Insert the video source to the transmitter’s HDMI in port by HDMI cable (male connector)

Note: Please ensure that the receiver and transmitter’s digital tube display frequency point is the same.

Installation details and cautions

- Receiver side:

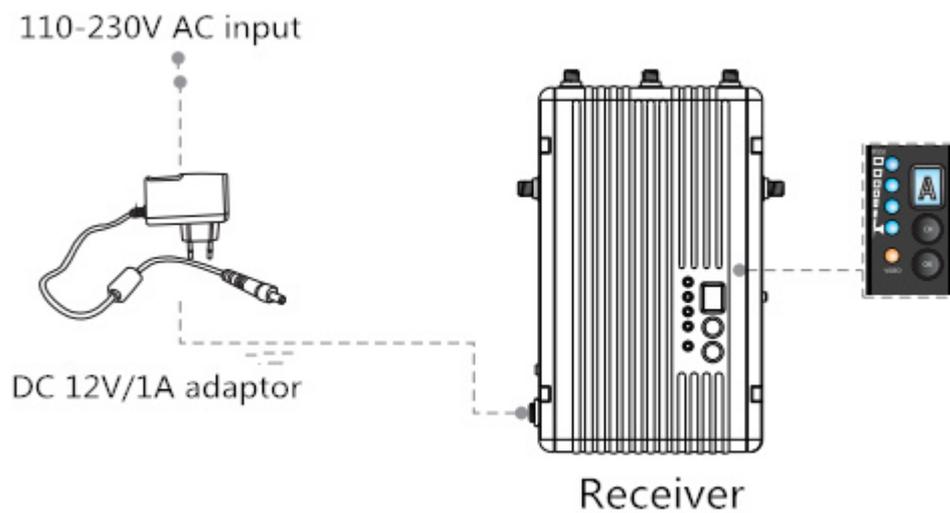
a) Install 5 Omni-directional and high efficiency antennas to Receiver's antenna connectors.



b) There are 5 1/4-20 screw nuts in receiver metal case, so the user can choose appropriate location threaded holes to fix receiver on the installation bracket in the computer or fix it on the tripod

Receiver side:

c) Use 12V/1A adaptor insert into receiver DC power interface, unplug power switch, make it “on” location, then receiver shell panel digital tube will show the corresponding frequency point which shows power working normally.

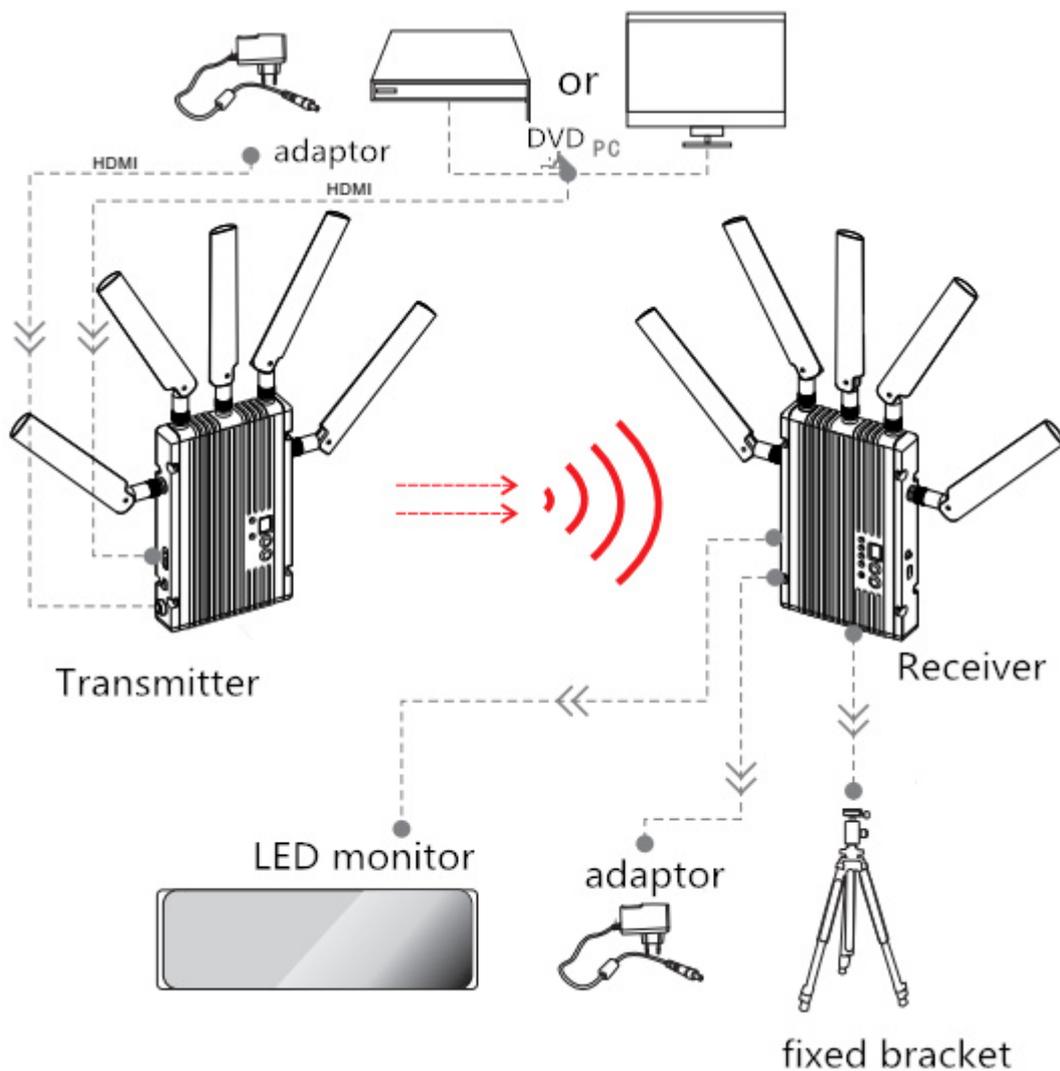


d) Use the HDMI cable connect with LED monitor or HD monitor

Note: Please ensure that the receiver and transmitter's digital tube display frequency point is the same.

- Typical connection instruction

Connect PC,DVD and camera HDMI output to transmitter HDMI input port, and connect HDMI output port of the receiver to HDMI port of the HD monitor. Make sure all antennas,batteries and video cable are equipped normally. See below figure.

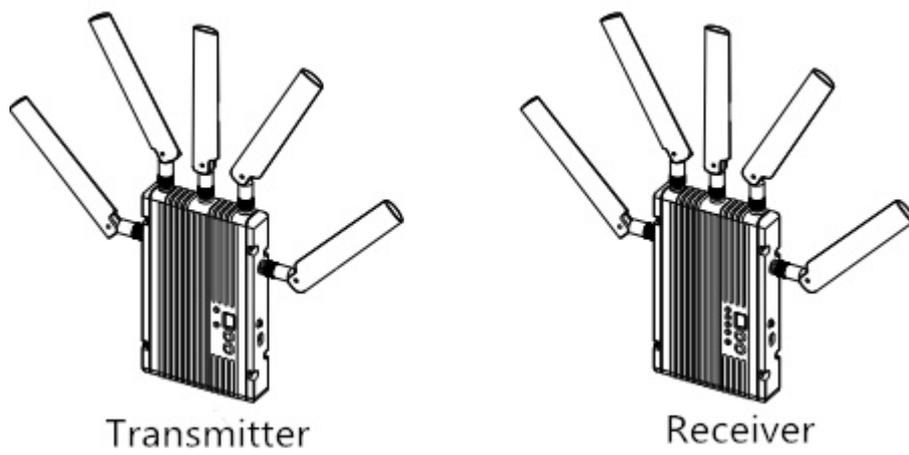


4. Operation instruction

Getting started

After finishing all steps above, system is workable, follow below steps.

- a) Ensure the video source output of the camera is OK, and the HD monitor is power on and switched to connected video input port.
- b) Ensure all input, output HDMI cables are connected.
- c) Ensure all antennas are installed, and the straight line distance is 3-5m between transmitter and receiver, it is better to keep TX 5 antennas and RX 5 antennas with orthogonal angle each other for best RF performance. Looks like below figure.



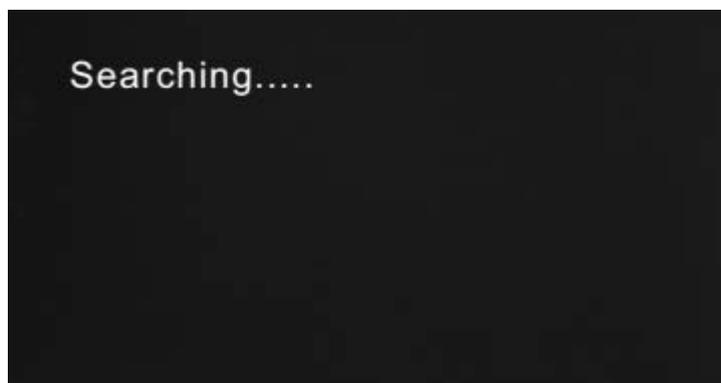
- d) Ensure both the transmitter and receiver installed batteries or DC input ports connected well, if connect to outside 12V DC power sources, please make sure the DC power correctly connect to transmitter and receiver. Then

toggle power switch of transmitter and receiver to 'ON' respectively, and 'Power' indicator will light. then receiver shell panel digital tube will show the corresponding frequency point which shows power working normally.

e) Ensure the frequency knobs of transmitter and receiver are set with the same number, and this will make sure the transmitter and receiver work with same RF frequency.

Note: this product support two different work mode, fixed frequency mode and DFS mode, fixed frequency mode is 0-9; DFS mode is "A". If need use DFS model, then choose "A".

f) Before RX finished wireless connection with TX, 5 "RSSI" indicators and "Video" indicators will be off; during RX is connecting with TX, "RSSI" indicators will have several lights up which shows the wireless signal has been detected to transmitter and receiver. the transmitter and receiver's "video" indicator light will not be on until receiver detects normal wireless video internally from air interface. Before the receiver output the normal video signal, HD monitor will display an OSD of "searching....." like below picture.



g) The system will spend 20-30 seconds on constructing communication link, and real link period will depend on the current wireless channel condition. When wireless link is set up, "LINK" and "VIDEO" will light and "RSSI" indicate current received wireless signal strength. When "Video" light which show receiving the normal video signal, and then connected HD monitor will display the video and audio accordingly.

h) After TX and RX both connect normally, if video output correct of transmitter to PC, DVD and camera, then TX and RX's "video"(yellow), "LINK"(green) and "RSSI"(Blue) light will be on; if disconnection, then then TX and RX's "video"(yellow), "LINK"(green) and "RSSI"(Blue) light will be off.

Note: RSSI is the strength of signal reception

i) For the best wireless transmission performance, it need install the transmitter and receiver more than 1.5m about the ground and keep the same height, and make sure no obstacles between them; Moreover, it is the best to keep the transmitter antennas face to face, and don't turn round any sides with too big angle. The real transmission distance is also relevant to current air electromagnetic environment, because the system works in ISM band, it is exposure to all kind of 5GHz band air interference, we suggest the users should do a manual frequency sweep.

RSSI indicators

The receiver will calculate received RF signal strength internally and 4 “RSSI” LEDs will be used to indicate wireless signal power and quality. The user can observe the RSSI LED status to know if the current wireless link is reliable or not.

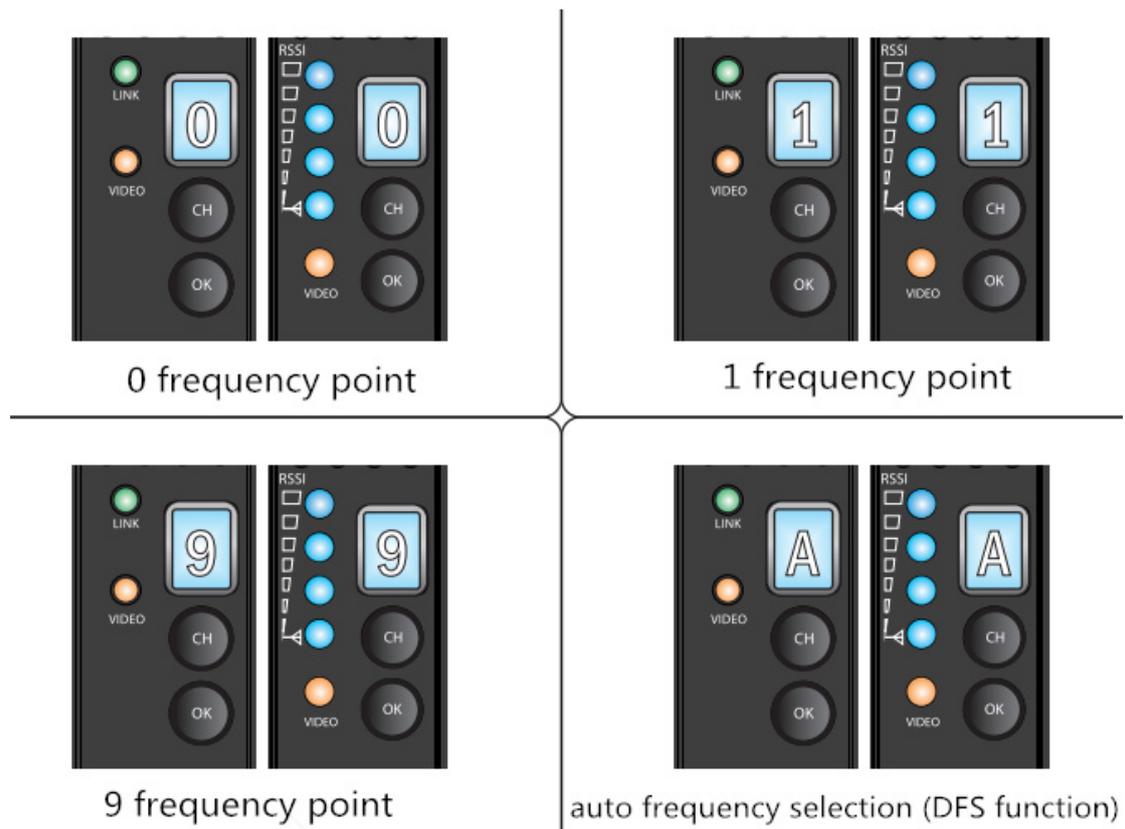
signal strength indicator light number	wireless signal strength	video quality
4	strength	best
2-3	middle	good
1 or 0	weak	noise is visible by the naked eye



Frequency selection and configuration

The wireless suite can work in 5.1-5.9GHz frequency band and be flexibly software configured to licensed or ISM band of global different regions, as well as the side panel of both transmitter and receiver has been installed a frequency select knob. The user can touch lightly and single click "CH" button to choose frequency point, then touch lightly and single press "OK" confirmation button.

Note: Please ensure TX and RX's communication frequency point is the same (similar to the intercom), and support maximum 4 sets working simultaneously. See below frequency knob figure.



5. Maintenance

Storage conditions

Products storage temperature should be $-20^{\circ}\text{C}\sim 60^{\circ}\text{C}$. For long time storage requirement, please use original carbon boxes, and avoid from high humid, acid base or dusty place.

Maintenance

Warning

To ensure your safety, please choose well-known brand DC batteries, and guarantee suitable work conditions that battery manual mentioned.

6. Trouble shooting

Normal problems

1) No output on display

- a) Check TX and RX power first, and see if TX or RX is powered from external power, then check normal output;
- b) Check the TX and RX's digital tube frequency point is the same, and check if the antennas fixed tight;
- c) Check the straight line distance at least 3-5m between TX and RX
- d) Check the cable of HDMI, LED monitor or HD monitor to connect transmitter are plugged well, can try to replace the antenna;

- e) Check video output format to LED monitor or HD monitor is compatible with TX and RX;
- 2) Poor output video quality
- a) Check if HDMI input or output cable is plugged well or not;
 - b) Then checks how many receiver side 'RSSI' LEDs are lit, there should be 2-3 RSSI LEDs lit if the user want to get better video quality; if there is only 1 RSSI LED lit, that means the received wireless signal is weak, and should replace the TX or RX's antennas;
 - c) If the video quality no improvement, and there is only 1 RSSI LED lit, then change both TX and RX's wireless communication frequency point or should shorten the connection distance, and adjust the antenna's director as per the user manual mentioned;
- 3) Display terminal has been on "searching":
- e) Check TX is powered on, and check HDMI cable is plugged well or not;
 - f) Ensure TX and RX's frequency point is the same ;
 - g) Ensure TX and RX's location should not be less than 1.5m from the ground;
 - h) If the image no improvement, change the TX and RX's wireless communication frequency point or should shorten the wireless connection distance, and adjust the antenna's direction;
- 4) Display terminal has been on "XX is connected, please check the video source...."

- i) Check TX's HDMI cable is plugged well or not;
- j) Check PC,DVR or camera is powered on, and output video normally,here can check it with HDMI cable to connect to LED monitor or HD monitor;
- k) Ensure TX and RX's location should not be less than 1.5m from the ground;
- l) If the image no improvement, change the TX and RX's wireless communication frequency point or should shorten the wireless connection distance, and adjust the antenna's direction;

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