



TM

WIRELESS PRIME

# FOUR IN ONE 2000M-H FULL-HD WIRELESS VIDEO TRANSMISSION

## MANUAL BOOK



## ■ Statement of Conditions

In the interest of improving internal design, operational function, and/or reliability, WIRELESSPRIME reserves the right to make changes to the products described in this document without notice.

WIRELESSPRIME does not assume any liability that may occur due to the use or application of the product(s) or circuit layout(s) described herein.

## ■ FCC Compliance Notice: Radio Frequency Notice

The device has met the FCC 15.247 requirement. In order to comply with the FCC RF exposure requirement, the user must keep 20cm away from the antenna.

This device has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This device generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this device does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

## ■ Information to the user

The user's manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. In cases where the manual is provided only in a form other than paper, such as on a computer disk or over the Internet, the information required by this section may be included in the manual in that alternative form, provided the user can reasonably be expected to have the capability to access information in that form.

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## ■ About the User Manual

This Manual details the product specifications, instructions for use, precautions, and troubleshooting. Read the Manual carefully before using the product. If you have any questions or difficulties in using this product, contact the company or the seller in time.

## ■ Brief Introduction

### ■ High-quality and ultra low latency

This product supports HD-SDI&3G-SDI input and output as well as HDMI full-HD input and output, with the highest resolution of 1080P/60Hz. With the use of H.264 coding-decoding technology with high compression ratio and high definition, the images have high definition, and the latency is as low as 70ms.

### ■ 4 transmitters and 1 receiver share one wireless channel

This product supports 4 channel videos simultaneous input, with resolution up to 1080P60 per channel. 4 channel videos shares one wireless channel, which greatly saves spectrum resources and provides great convenience for users to perform multi-camera shooting.

### ■ Beam-Forming

Combined with 4×4 MIMO and Beam-Forming technology, this product has advantages over other WiFi products in the market in terms of transmission distance and image bitrate. Beam-Forming technology makes wireless signals more concentrated and stronger in the direction from which they are transmitted to the receiver, allowing them to transmit farther and be less susceptible to interference from other signals, thus making them more stable.

### ■ Standard mode and streaming mode

This product supports switching between two operating modes, namely standard mode and RTSP streaming mode. In standard mode, this product supports 4TX-to-1RX and 4TX-to-2RX, and the video outputs interface are HDMI and 3G-SDI. In RTSP streaming mode, this product supports 4TX-to-1RX and 4TX-to-2RX, and the video streaming interface is LAN port(RJ45) ..

## ■ Support RS232/422

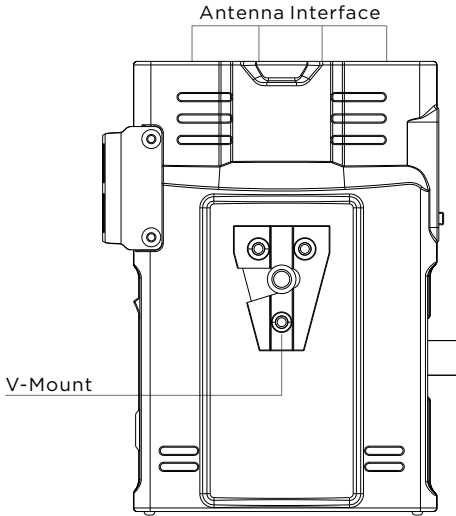
This product supports controlling signal transmission via RS232/422 interface, which is convenient for users to control the transmitting terminal through the device at the receiving terminal, such as the PTZ.

## ■ Support monitoring on mobile devices

This product supports monitoring on portable devices, like mobile phone, tablet and PC. User can install live streaming tool supporting RTSP like VLC on mobile device, and connect portable devices with receiver via WiFi to watch the live video with different transmitter IP address.

## ■ Structure & Interface

**TX:**



SONY NPF Battery dock

OLED Display

LNA ON/OFF

WPS/RTSP

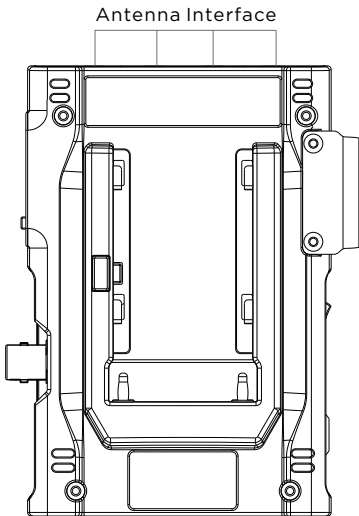
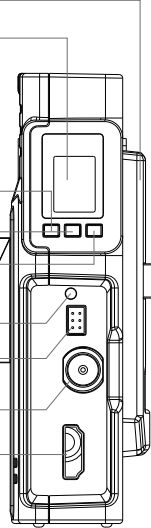
Reset

Network status warning light

RS232/422

SDI In

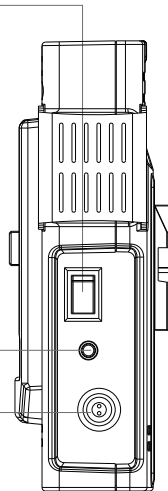
HDMI In



Power Switch

Tally out

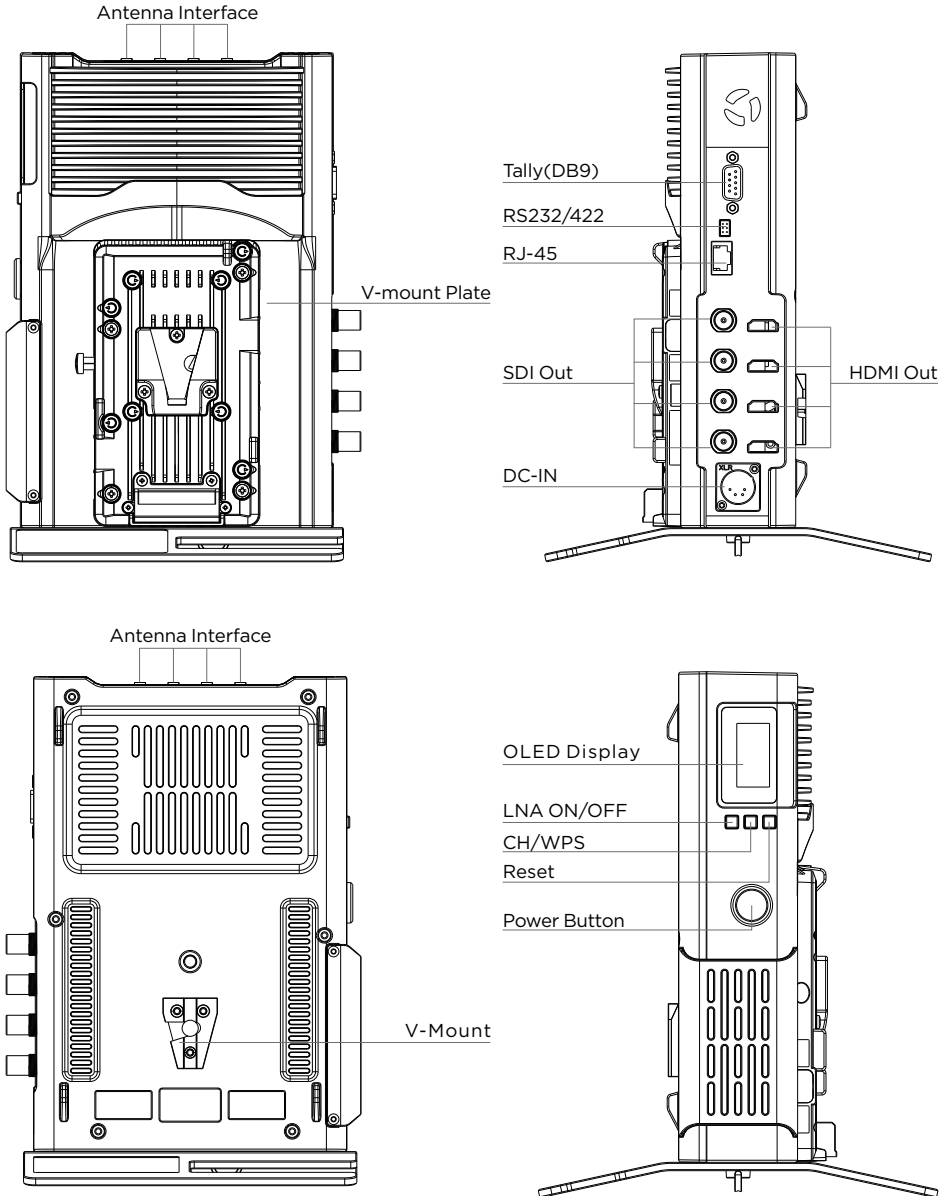
DC-IN



## Transmitter Key Operation

Function	Operation	Description
High-gain and low-gain mode switching	Press the "LNA ON/OFF" button for about 3s	<p>"L" (low-gain) mode: Applicable for close-range(&lt;200m/656ft &amp; LOS) and strong interference environments, with strong anti-interference ability. After switching to L mode, the "L" character will be displayed on the OLED display.</p> <p>"H" (high-gain) mode: Applicable for long distances, (NLOS or&gt;200m/656ft) and the anti-interference ability is weaker than that in "L" mode. After switching to H mode, the characters on the OLED display will disappear.</p>
Code matching	Press the "WPS/RTSP" button for about 3s	<p>In the code matching process of the transmitter and receiver, the word "WPS" will always be displayed on the OLED display, and the string will disappear after the code matching. The transmitter and receiver need to be in code matching status at the same time to achieve code matching.</p>
Standard and streaming mode switching	Press the "WPS/RTSP" button for about 6s	<p>When switching to streaming mode, the word "RTSP" will be displayed on the OLED display, and the product will enter streaming mode.</p> <p>Tips:in RTSP mode,the decoding function is disabled</p>
Restart the encoding board	Press the "RESET" button for about 3s	<p>During the restart of the encoding board, the "RESET" string will always be displayed on the OLED display of the transmitter, and the string will disappear after the restart.</p>

RX:





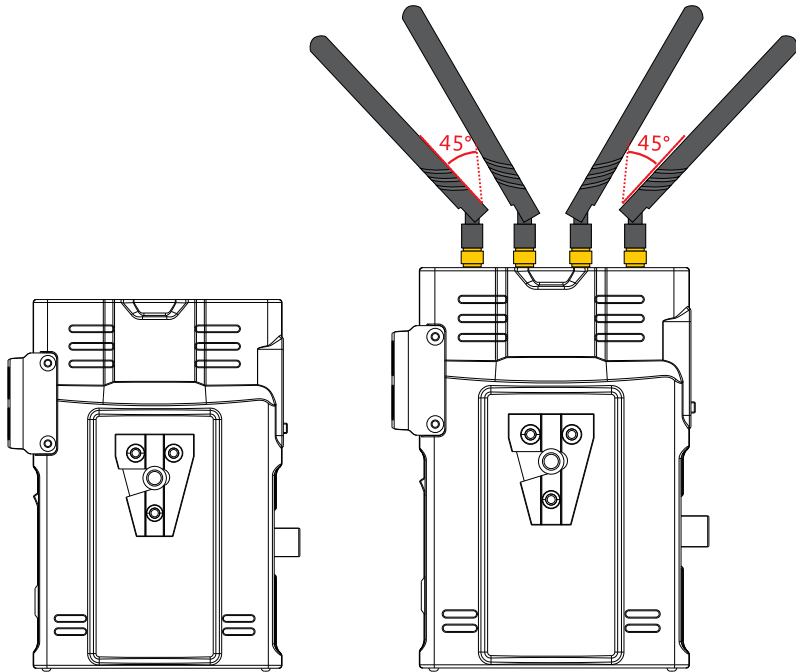
## Receiver Key Operation

Function	Operation	Description
Frequency channel switching	Short press the “CH/WPS” button about 1S	After the receiver switches the frequency channel about 1S, the OLED display of the receiver and transmitter will display the new frequency channel about 1S number after switching.
High-gain and low-gain mode switching	Press the “LNA ON/OFF” button for about 3s	<p>“L” (low-gain) mode: Applicable for close-range (LOS &amp;TX-to-RX &lt;200m/656ft ) and strong interference environments, with strong anti-interference ability. After switching to L mode, the “L” character will be displayed on the OLED display.</p> <p>“H” (high-gain) mode: Applicable for long distances,(NLOS or TX-to-RX&gt;200m/656ft) and the anti-interference ability is weaker than that in “L” mode. After switching to H mode, the characters on the OLED display will disappear.</p>
Code matching	Press the “CH/WPS” button for about 3s	In the code matching process of the transmitter and receiver, the word “WPS” will always be displayed on the OLED display, and the string will disappear after the code matched. The transmitter and receiver need to be in code matching status at the same time to achieve code matching.
OLED display switching between landscape mode and portrait mode	Short press the “LNA ON/OFF” button for about 1s	Short press the “LNA ON/OFF” button, and the display will switch between landscape mode and portrait mode.
Restart a certain channel video of the receiver	First, short press the [RESET] button for cyclical selection among 1, 2, 3 and 4 to restart the decoding board in the channel. Then press and hold the [RESET] button for 3s to confirm the restart.	After long pressing the button to confirm, the “RESET” string will be displayed on the OLED display for 3s, and the string will disappear after the decoding board begins to restart.

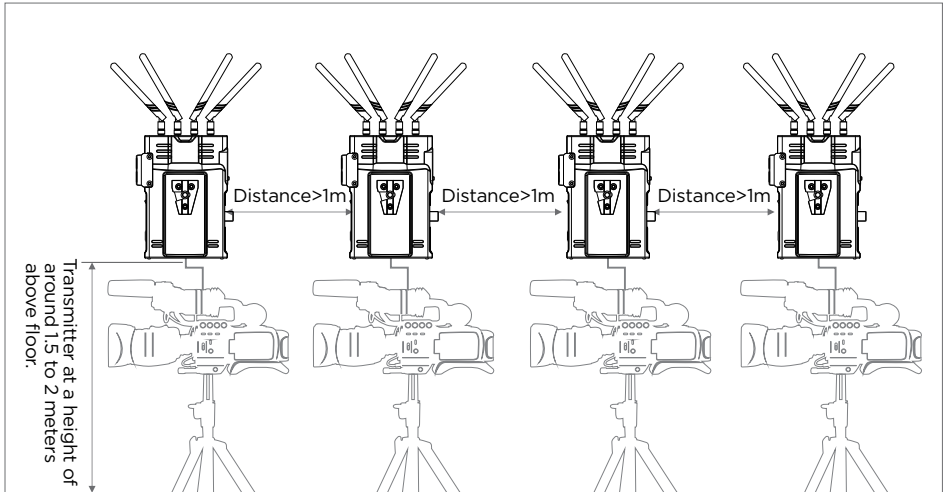
## Product Installation

### For transmitter

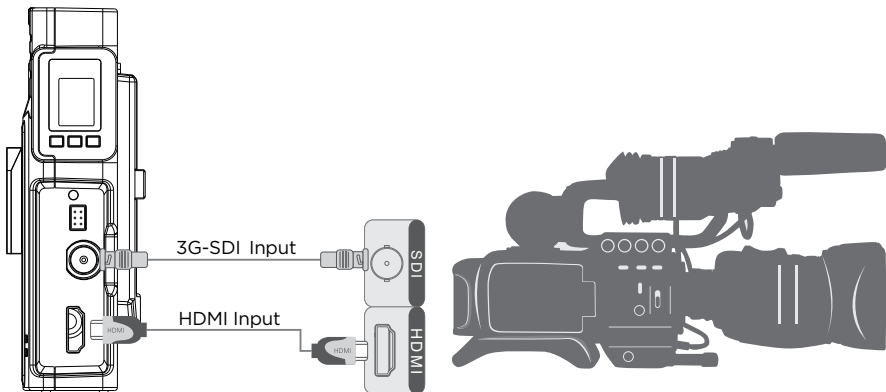
1. Please install all the antennas on the transmitter and make them in a fan shape as shown in the picture.



2. Please fix the transmitter via the screw at the bottom or the V-mount at the back, and place it at a height of around 1.5 to 2 meters above floor. Please make sure that the distance between each transmitter is more than 1 meter.

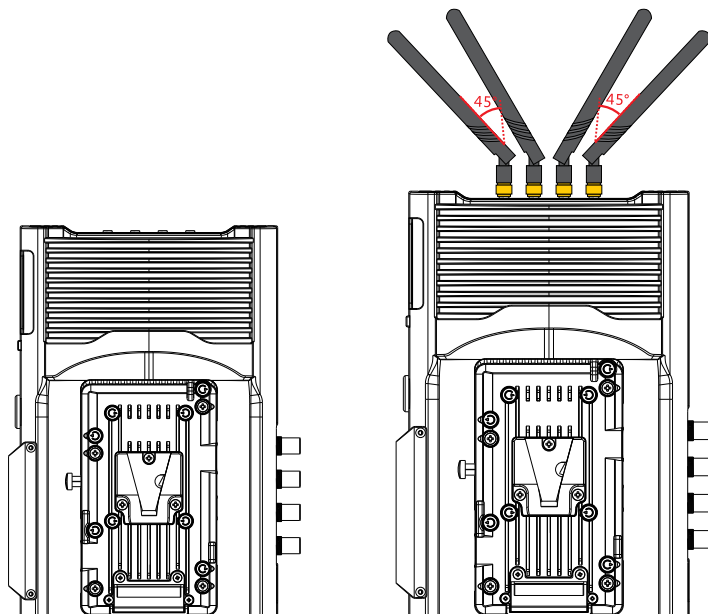


3. Please connect the transmitter and camera with SDI or HDMI cable.



### Receiver Installation

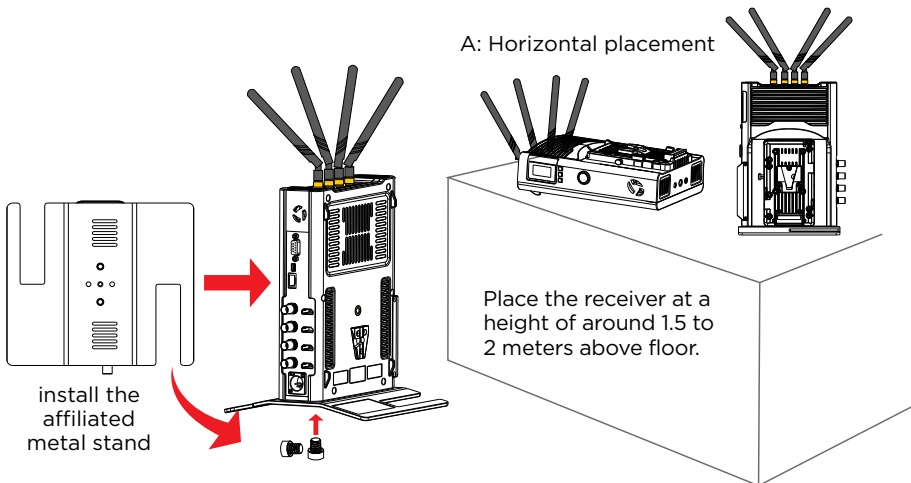
1. Please install all the antennas on the receiver, and make them in a fan shape as shown in the picture.



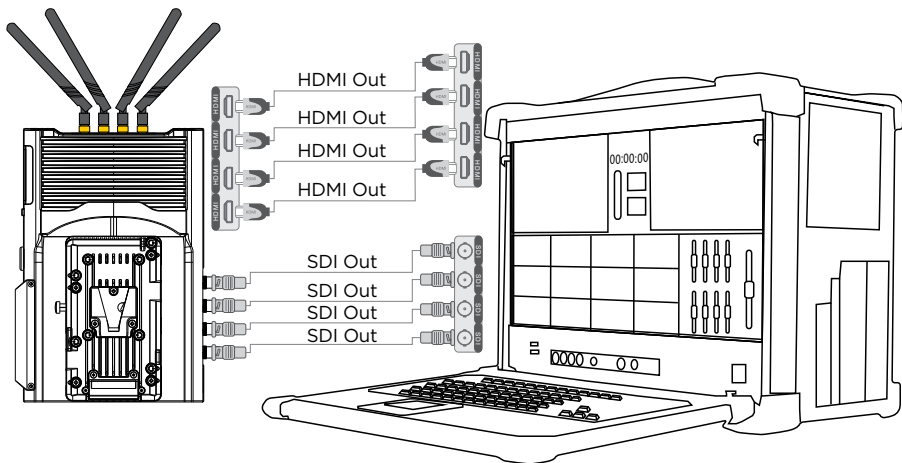
2. Please place the receiver at a height of around 1.5 to 2 meters above floor. Receiver can be placed in vertical or horizontal positions, and can be fixed via the screw at the bottom or V-mount at the back. Please install the affiliated metal stand before placing the receiver in vertical position.

B: Vertical placement

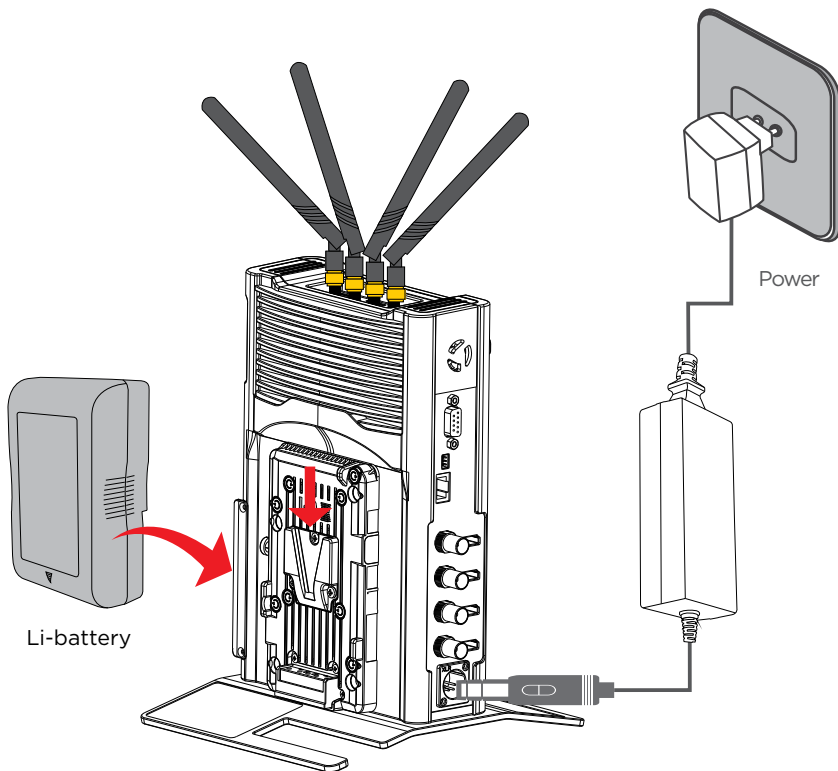
A: Horizontal placement



3. Please connect the receiver and video switch console or monitor with SDI or/and HDMI cable.



- The receiver can be powered by both the V-mount battery and DC-IN port via the affiliated power adapter. If the mentioned two types of power supply are connected at the same time, the lithium battery is prioritized in power supplying, and the battery will switch to the power adapter for power supplying automatically after the battery power is exhausted.

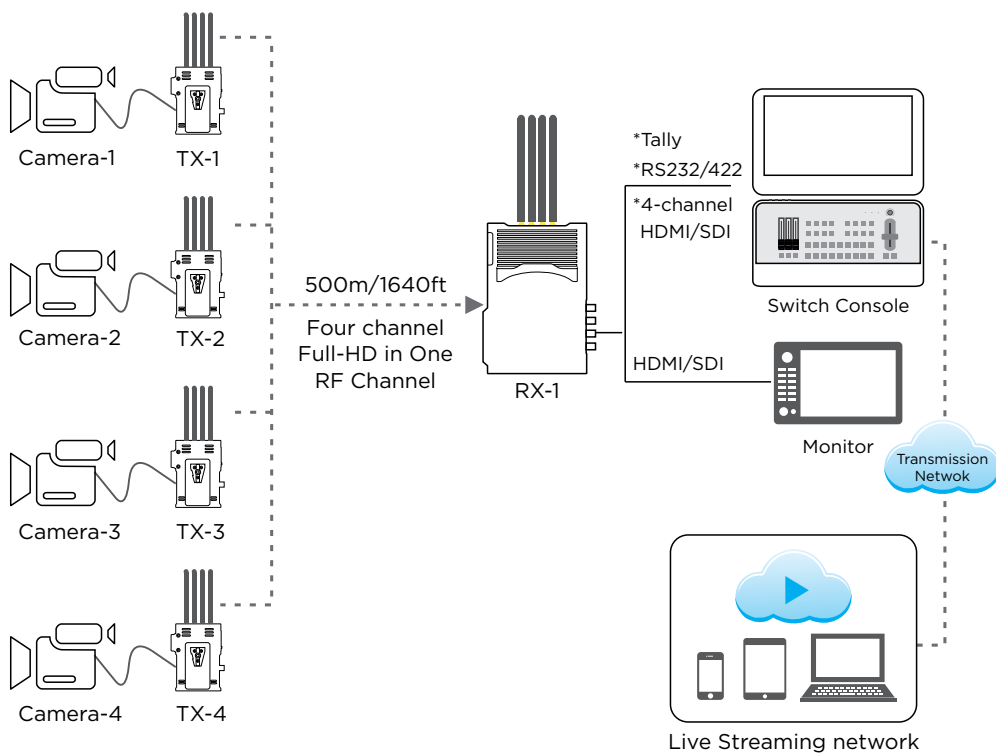


This system supports tally function. When the receiver is activated by low-level current, the transmitter will output high-level current signal.

## Product Application

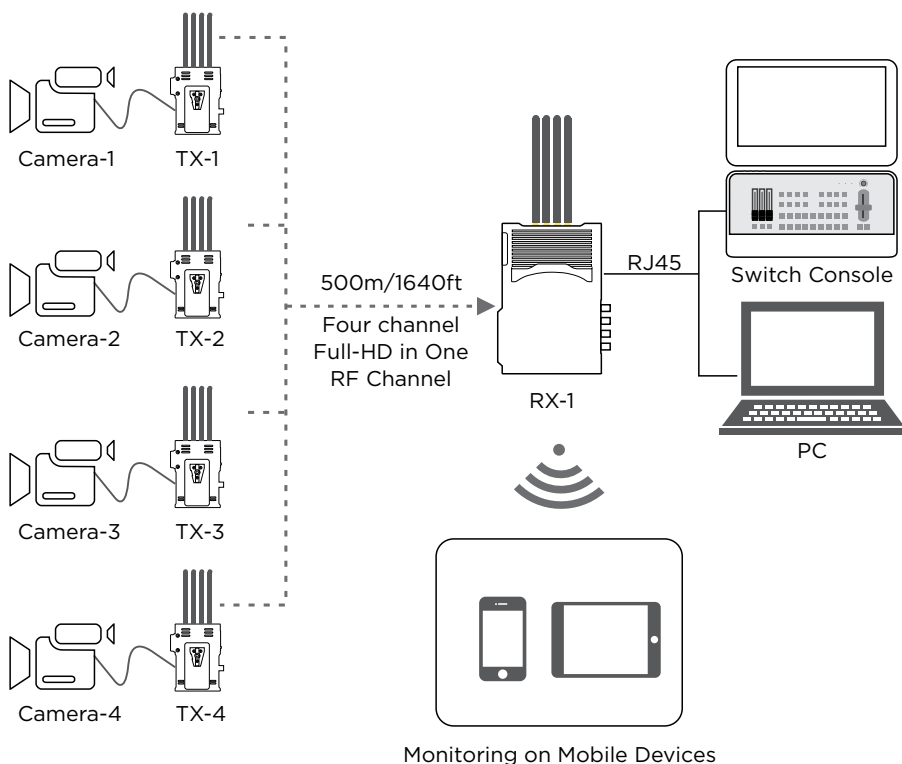
### Standard mode

In standard mode, the four channel video sources are transmitted to the four transmitters via HDMI or SDI respectively. The receiver will receive the four channel signals and transport them to switch console or/and monitor via HDMI or/and SDI.



## Streaming mode

In streaming mode, the four channel video sources are transmitted to the four transmitters via HDMI or SDI respectively. The receiver will receive the four RTSP streamings from the four transmitters and send them to the switch console through the LAN port. You can also connect the receiver with mobile devices such as your mobile phone, tablet and PC via WiFi, and watch the live video on the mobile phone, tablet and PC.





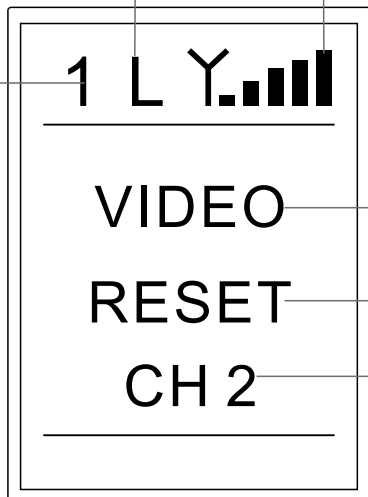
## ■ OLED Display Description

**TX:**

Gain mode

Signal icon

Transmitter ID



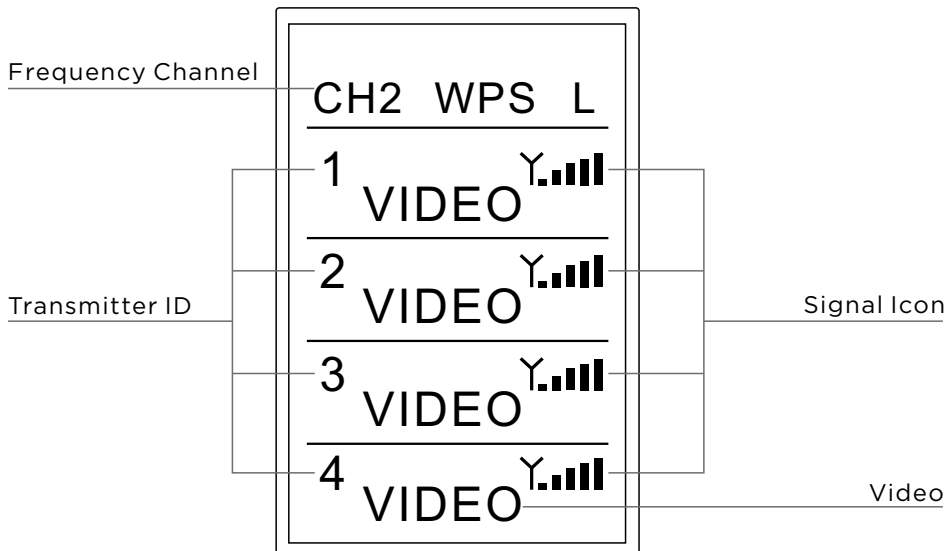
Video

Reset & Reboot

Frequency Channel

Icon	Content	Status
Transmitter ID	Numbers 1-4	Four transmitters are numbered 1, 2, 3 and 4, respectively
Gain Mode	L	Low-gain mode
	Blank	High-gain mode
Signal Icon	X	Connecting
	Signal bar	Successful network connection
Video	Blank	No video signal input
	VIDEO	Video signal input connected
	WPS	In code matching status
Reset & Reboot	Reset	The device is resetting and rebooting
Frequency Channel	CH*	Display current frequency channel (1-11)

**RX:**



Icon	Content	Status
Transmitter ID	Numbers 1-4	Four transmitters are numbered 1, 2, 3 and 4, respectively
Frequency Channel	CH*	Display current frequency channel (1-11)
Signal Icon	X	Connecting
	Signal bar	Successful network connection
Video	Blank	No video signal received from TX
	VIDEO	Video signal received from TX
Gain State	L	Low gain mode
	Blank	High gain mode
WPS	Blank	Standard work mode
	WPS	WPS Pairing

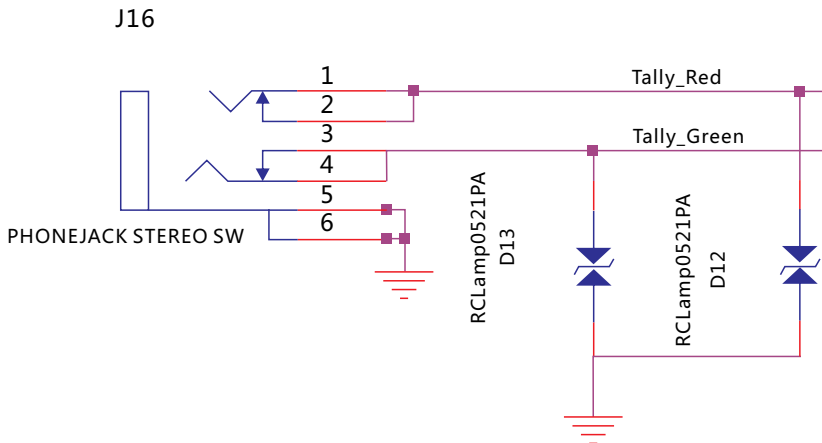
## ■ Functional Instructions

### Tally function

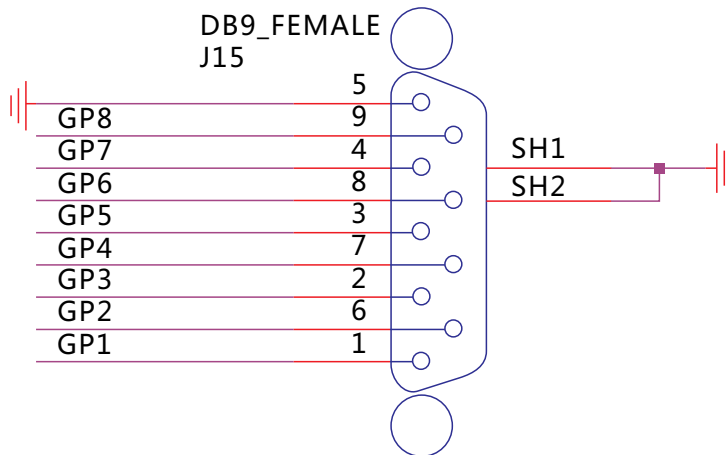
Insert the Tally light into the transmitter's Tally output interface first, then connect the switch console to the receiver's Tally input interface, and then control the Tally light of the four transmitters through the switch console. When the receiver is triggered by a low-level current, the transmitter's Tally light is on.

Tally interface of the transmitter and receiver: The transmitter's Tally interface is a standard  $\phi 3.5$  headphone interface. The receiver's Tally interface is a DB9 female.

### Tally light output interface:



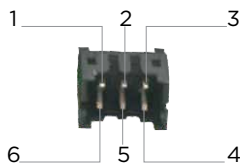
**The DB9 header of the Tally input interface is defined as follows:**



## RS232/RS422 transparent transmission

### Description:

This interface defaults to RS232 function. For RS422 function, contact the sales staff in advance for customized information!



Pin No	RS232		RS422	
	Name	Description	Name	Description
1	NC	NC	RXD-	Receive data RX-
2	P12V	No voltage output by default (Reserve 12V voltage output)	P12V	No voltage output by default (Reserve 12V voltage output)
3	NC	NC	TXD-	Transmit data TX-
4	TXD	Transmit data TX	TXD+	Transmit data TX+
5	GND	Ground	GND	Ground
6	RXD	Receive data RX	RXD+	Receive data RX+

Attached: Baud rate settings

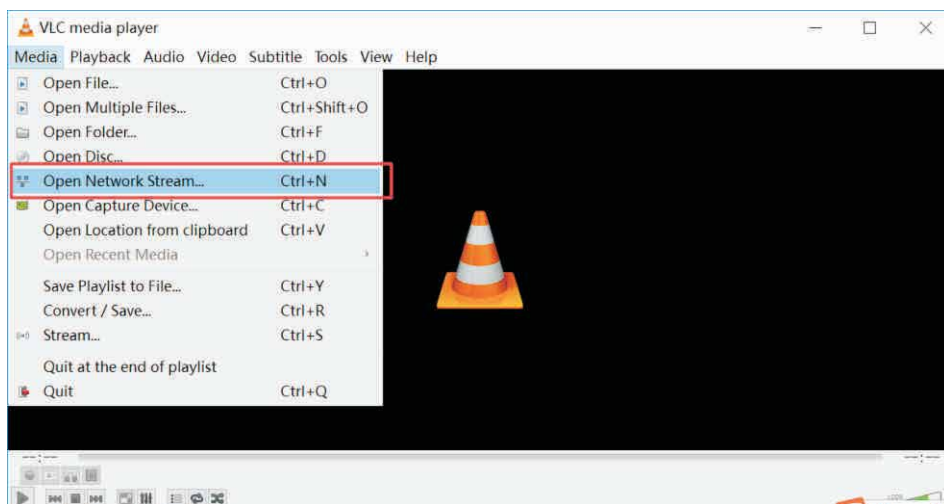
Log in to the backplane parameter settings page to change the baud rate settings: (For specific operating steps, refer to “Video Parameter Settings”)

### Streaming Function

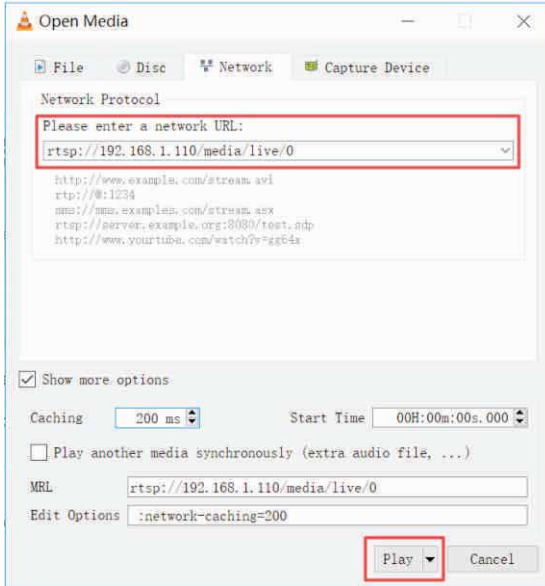
When using the functions in streaming mode, the transmitter needs to switch to streaming mode. At this time, the word “RTSP” is displayed on the transmitter’s OLED display, the SDI and HDMI at the receiver have no video output, and the image is transmitted to the streaming media software through the LAN port of the receiver for decoding display. The streaming mode depends on software decoding. Comply with lots of streaming media software. The following is an example of common VLC streaming media software: After the transmitter and receiver establish a network connection, the transmitter network indicator is always on, the receiver network connection is normal; the transmitter is connected to the HDMI or SDI video source, and the receiver’s network port is connected to the streaming device.

Take the VLC of the PC as an example. After running VLC, select to turn on the network stream. Fill in the address “rtsp://corresponding transmitter encoding board IP address/media/live/0”. Click “Play” to start streaming.

Note that the transmitter must be connected to the video source, and the IP address of the terminal streaming device (such as a computer) must be the same network segment as the IP address of the encoding board. Otherwise, the streaming will fail.



# Functional Instructions



# Product Specifications

## Product Specifications

ITEM	TX		RX
Frequency	5190MHZ, 5230MHZ, 5755MHZ, 5795MHZ Optional: 5270MHZ, 5310MHZ, 5510MHZ, 5550MHZ, 5590MHZ, 5630MHZ, 5670MHZ		
Antenna	4*4 MIMO 5dBi External antenna		
Modulation mode	OFDM		
Transmission Power	17dBm		
EVM	≤-28dB		
Receiving Sensitivity	≤-70dBm		
Bandwidth	40MHz		
Wireless	802.11n		
Network encryption	WPA2/WPS		
Network model	Point to point, RTSP		
Transmission Distance	2000m(video code rate: 8Mbps per channel)		
Transmission Delay	70ms(min)		
code function	Support code		
HDMI Protocol	Support HDMI 1.4		
Video Resolution	1080p,1080i,720p (up to 1080P/60Hz)		
Audio Format	PCM		
Video Compression Format	H.264		
Remote control	RS232/RS422		
IO port signal return	Support Tally signal return		
Interface	SDI in * 1; HDMI in * 1; Tally output * 1; Lemo power coordinates *1; Antenna sub *4; Key * 3; Ship type power switch *1; OLED display screen *1; Np-F970 battery holder *1	SDI output *4; HDMI output *4; DB9(Tally in) * 1; Antenna sub *4; Power supply coordinate *1; Metal power switch *1; Display screen *1; Key * 3; Battery button connection seat *1	
Power Consumption	10W	20W	
Operating Power Supply	DC 12V/2A	DC 12V/3A	
Temperature	-10°C - 50°C(Working); -40°C - 80°C(Storage)		
Operating voltage	7-17V		

## ■ Trouble Shooting

Trouble	Solutions
<p>If mosaics or jams appear during use</p>	<p>Lift the transmitter and receiver as high as possible, to 1.5-2m or more;</p> <p>The antennas are installed in fan-shape and facing forward to receiver, and the transmission effect is the best;</p> <p>The LNA mode is set in H (high-gain mode);</p> <p>When multiple transmitters function at the same time, ensure that the transmitters are at least 1m apart from each other;</p> <p>If there is still a mosaic or a jam, switch the product frequency to the intermediate frequency.</p>
<p>If smear or frame loss appears during use:</p>	<p>If the latency configuration has been changed, confirm the software version of the encoder and decoder and contact the technician in time.</p> <p>If the software version is confirmed to be too old, it is necessary to upgrade the software.</p>
<p>If there is no connection during use, It is divided into 2 cases:</p>	<p>In close range situation(TX-to-RX&lt;2m), if the transmitter and receiver are connected to 4 antennas, the distance needs to be extended to 5m, and the LNA mode should be set to L (low-gain mode); when multiple transmitters function at the same time, ensure that the transmitters are at least 1m apart from each other;</p> <p>In the long-distance situation(TX-to-RX&gt;2m), lift the transmitter and receiver as high as possible, to 1.5-2m or more; the antenna is fan-shaped and facing forward, and the transmission effect is the best; the LNA mode is set to H (high-gain mode); when multiple transmitters function at the same time, ensure that the transmitters are at least 1m apart from each other.</p>



### ■ Precautions

1. If transmitter or/and receiver use HDMI cable:(a~f)
  - a. Do not plug in or pull out the HDMI cable of the transmitter and receiver during normal use.
  - b. Connect the transmitter to the video source and connect receiver to a monitor via HDMI and then power on the transmitter and receiver.
  - c. When the OSD prompts that code matching fails after trying code matching, reboot the transmitter and receiver to see whether they can be connected normally. Perform code matching again when it is still unable to be connected after restarting.
  - d. When there is no video source output since a blank screen appears during the receiver output after switching the video source resolution, pull out and then plug in the HDMI cable of the transmitter or receiver. If the HDMI cable cannot be recovered after removal and insertion, power off and restart the transmitter and receiver.
  - e. When the network cannot be connected for a long time after switching frequency channel, reboot the transmitter and receiver.
  - f. When the transmitter and receiver devices are connected normally, there is no output on the monitor at the receiver, or the video output is abnormal, re-plug the HDMI cable of the receiver and check whether the monitor is on standby. If it is still unable to output normally after the above operation, try to replace the display device.
2. If there is a picture jam or mosaic during use, it is generally caused by interference in the network. Therefore, try switching the network frequency channel to avoid the interference band. The frequency channel switching operation refers to the frequency channel switching operation instructions.

## Precautions

3. When using the device, be sure to install the antenna before turning on the power. Failure to do so may result in damage to the device.
4. When used, the surrounding environment will affect the quality of wireless transmission. Poor operating environment may cause image sound disorder, such as picture pause, noise, etc. Therefore, pay attention to the following:
  - Walls, large metal plates, and appliances can affect wireless transmission. Try to avoid using in these environments.
  - In case of using in crowded conditions, the transmitter and receiver should be raised as high as 1.5-2m or more.
  - If a 5GHZ wireless device is used nearby, it may also cause interference to wireless transmission. Such issue can be solved by switching the frequency channel. It is recommended to switch the product frequency to the intermediate frequency in the case of interference.
  - Do not place the transmitter and receiver in a metal shelf, which will affect the wireless transmission. If it is unavoidable, consider leading the antenna out.
  - The transmitter and receiver are 1.5-2m above the ground. The antenna is fan-shaped and facing forward, and the transmission effect is the best.

## FCC Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. (Example use only shielded interface cables when connecting to computer or peripheral devices).

## FCC Radiation Exposure Statement

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

This equipment complies with part 15 of the FCC Rules.

Operation is subject to the following two conditions:

(1) This device may not cause harmful interference.

(2) This device must accept any interference received, including interference that may cause undesired operation.

## Cautions

The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user authority to operate the equipment.

## ■ Terms and Conditions

Congratulations on purchasing your new WIRELESSPRIME product. Please read this manual carefully before using the product. By using this product, you hereby agree to this disclaimer and signify that you have read it in full. You agree that you are responsible for your own conduct and any content created while using WIRELESSPRIME products, and for any consequence thereof. You agree to use this product only for purposes that are proper and in accordance with local regulations, terms and any applicable policies and guidelines.

By reading this disclaimer, you also agree:

1. Any part of this disclaimer is subject to change without prior notice. Refer to [WWW.WIRELESSPRIME.COM](http://WWW.WIRELESSPRIME.COM) for the latest version.
2. WIRELESSPRIME reserves the right of final interpretation of this disclaimer.

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# About Wireless Prime

As Cinegears was founded in 2010 with the soul purpose in mind to drive video transmission technology to new heights and provide high quality professional grade products; so it was a natural progression to create Wireless Prime to help bridge the gap between the professional market and the consumer market.

Enhancing your way of living while reducing the headache of everyday life is what Wireless Prime is here for. Just as our wireless prime video transmission system revolutionized how we interact with wireless technology at work, school and home so will our new car and home surveillance systems change how you feel safe. With plug and play technology these systems are as simple and easy as it gets while offering the highest resolution available. Stay connected to your car or home 24/7 with the mobil app, you will never be out of the loop.

Wireless Prime enhancing your future.

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## Customer Support



If you encounter any issues with any of our products please contact us directly via the details provided below. **DO NOT CONTACT THE RETAIL STORE.**

Wireless Prime Inc. (USA)  
47 East South Street, Suite 401  
Frederick, Maryland 21701, USA  
Tel: 1 360 746 8011  
Toll Free: 1 800 693 8883

Wireless Prime Inc. (Canada)  
2nd floor 2010- 9111 Beckwith Rd  
Richmond, BC V6X 1V7 Canada  
Tel: 1 604 499 9778  
Toll Free: 1 800 693 8883