GM-INNOVATIONS

VAXIS STORM 3000
INSTRUCTIONS

VAXIS STORM
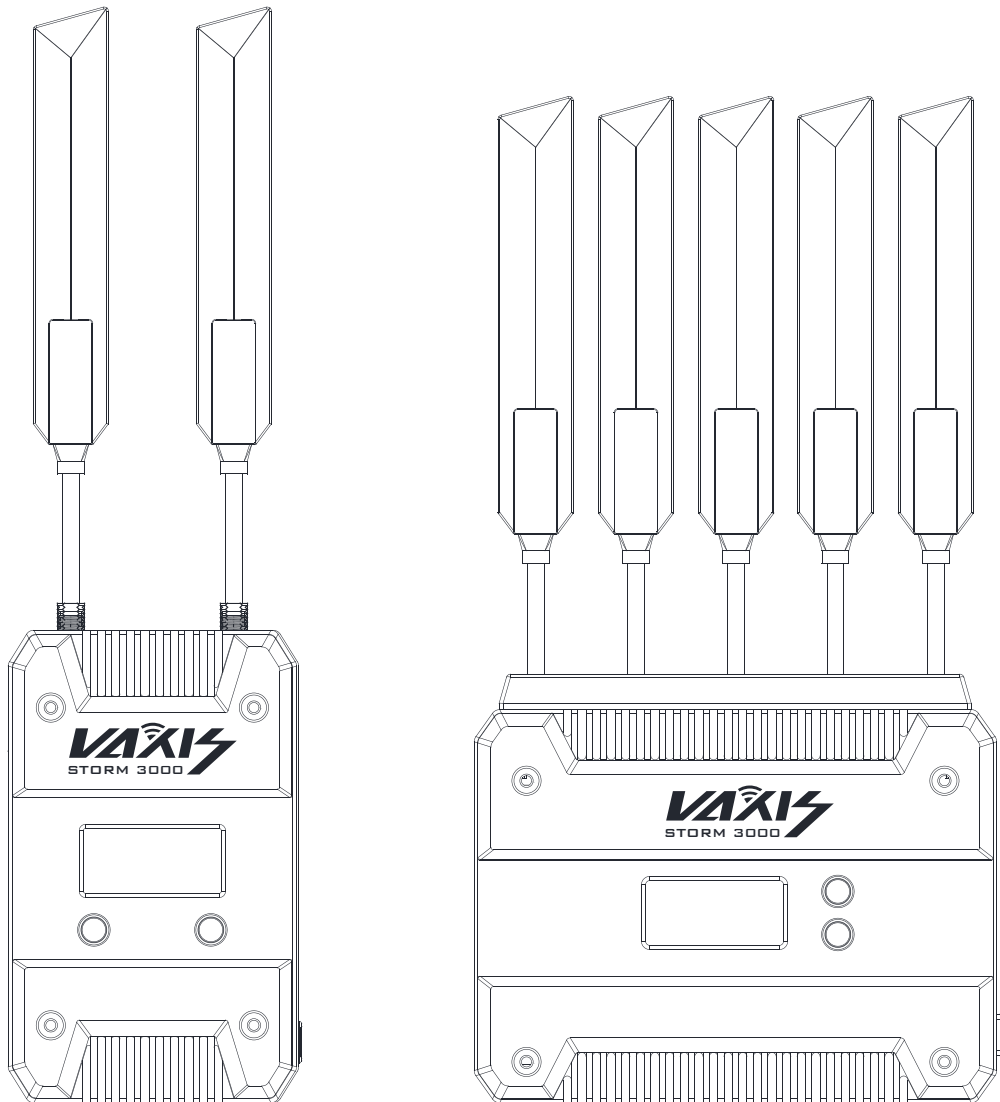
3000 wireless video transmission system supporting HDMI & SDI (VAXIS STORM 3000)

■Product model and standard

The VAXIS STORM 3000Wireless HDMI/SDI Transmission Suite utilize today's most advanced wireless video transmission technology, which can realize the broadcast-class and uncompressed 3G SDI/HDMI HD video signal transmitted with no compression and zero delay. The suite includes one transmitter and one receiver, where the transmitter provides a 3G/HD SDI input and a HDMI input, and the receiver also provides a 3G/HD SDI output and a HDMI output. The wireless HD suite has 2 stick antennas in transmitter side, and 5 stick antennas in receiver side, and it 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 have been installed a control panel with OLED, which provides maximum 10 workable frequency channels, and supports maximum 10 sets working simultaneously. The wireless suite can accept wide range DC power input, which is suitable for many kinds of camera battery model. 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.

User manual

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

■Product model and standard

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■Main features:

- HDMI 1.3 spec supports
- HDMI and 3G SDI input and output
- 24fps frame rates
- Highest resolution 1080p 60，no delay and no compression
- Support audio formats include Dolby True HD, DTS-master, etc.
- AES-128 encryption with air interface HD video data stream
- Support point to point, and point to multi points network topology
- 5GHz ISM frequency band，maximum 10 frequency channels selected by user knob, coexist with WIFI.
- Maximum transmission distance 3000ft
- Mounting: Sony U-30 / Canon LP-E6 / Sony NP-970 battery plate
- Embedded time code transported over link Up to 63mW
- RF Power output: Up to 63mW,no harm to human health
- Signal indicators for wireless power status, Temperature, Video status and receiver RSSI, useful OLED display and channel setting by tact switch
- Wide range power voltage input , adapt most kinds of camera battery
- Any input and output ports with ±8 kV ESD protection level (HBM, contact discharge)
- All-metal housing, durable
- Pure hardware connection; Plug and Play
- USB firmware upgrade

## ■Parameters:

	Transmitter	Receiver
Interface	SDI Input（BNC Female）; SDI loopout（BNC Female）; HDMI Input(Type A	SDI Output X 2（BNC Female）; HDMI Output(Type A female); 5 Antenna port(SMA

|		
	female); 2 Antenna port(2 SMA male）；DC input (2 pin LEMO female)	male）；DC input (2 pin LEMO female)
Supply voltage range	7-36V DC	7-36V DC
Power consumption	<6.5W	< 6 W
Size	(L x W x H): 131x 69 x 27mm， do not include antennas	(L x W x H): 135x 92 x 27mm， do not include antennas
Mass	290g	410g
Input Video Format	HDMI：525i, 625i, 720p 50/59.94/60,1080i 50/59.94/60,1080p23.98/24/25/29.9/30/50/59.94/60；HDMI Type A SDI：3G, HD, and SD-SDI (auto-selected), SMPTE-259/274/292/296/372/424/425；1x BNC	/
Output Video Format	SDI Loop out;	HDMI：525i, 625i, 720p 50/59.94/60,1080i 50/59.94/60,1080p23.98/24/25/29.9/30/50/59.94/60；HDMI Type A SDI：3G, HD, and SD-SDI (auto-selected), SMPTE-259/274/292/296/372/424/425；2x BNC
Input Audio Format	SDI embedded 4 channel 24 bit/48KHz	/
Output Audio	/	SDI embedded 4 channel 24 bit/48KHz
Signal Indicator	OLED display	OLED display
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 Power	Maximum 21dBm	/
Receiver Sensitivity	/	-75dBm
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:
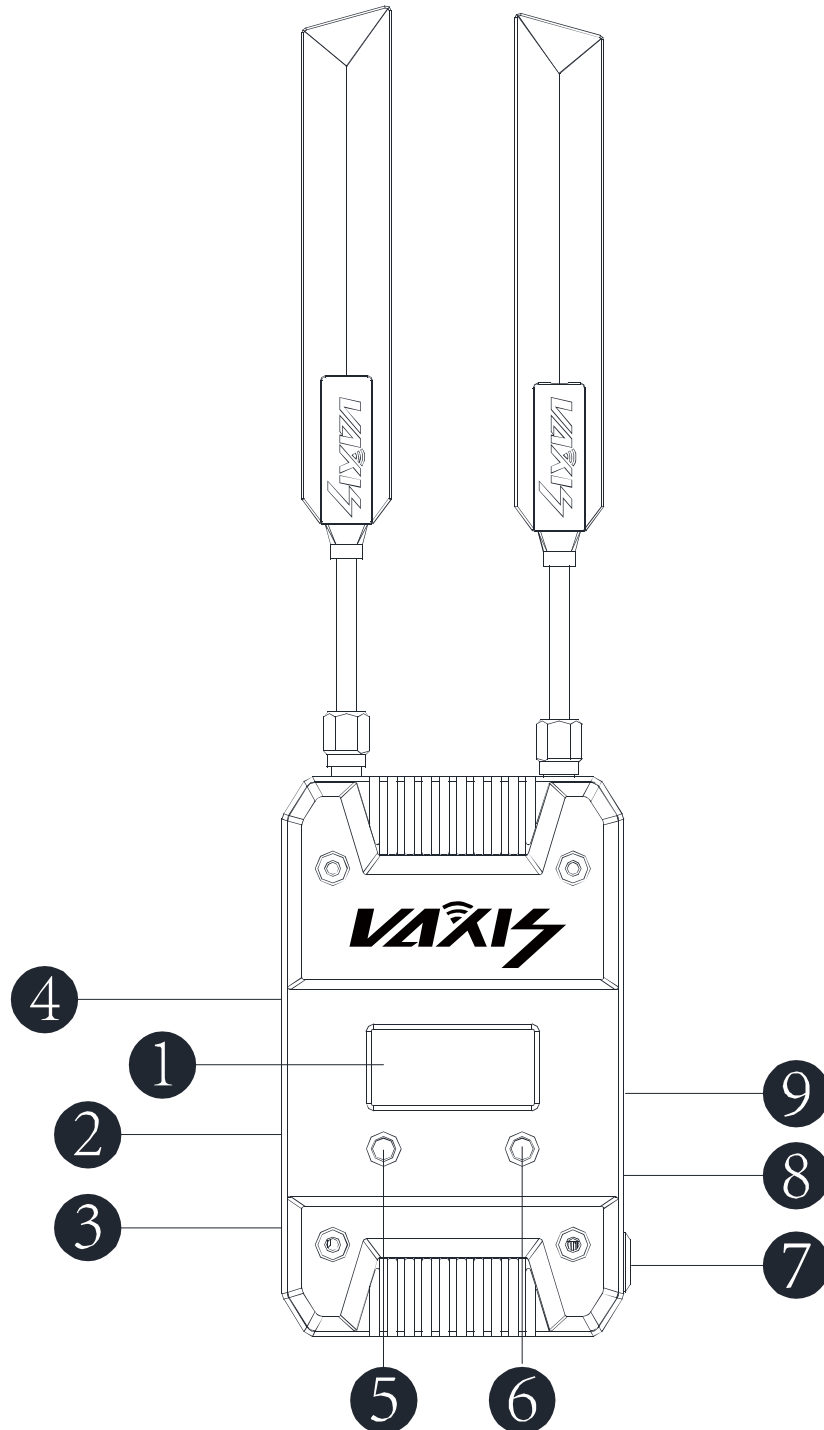
① OLED Screen

② 3G-SDI Input

③ 3G SDI Output

④ HDMI Input

⑤ Channel Button "-"

⑥ Channel Button "+"（*Long press the buttons to adjust the Fan）

⑦ DC input, LEMO 2-pin B series connector
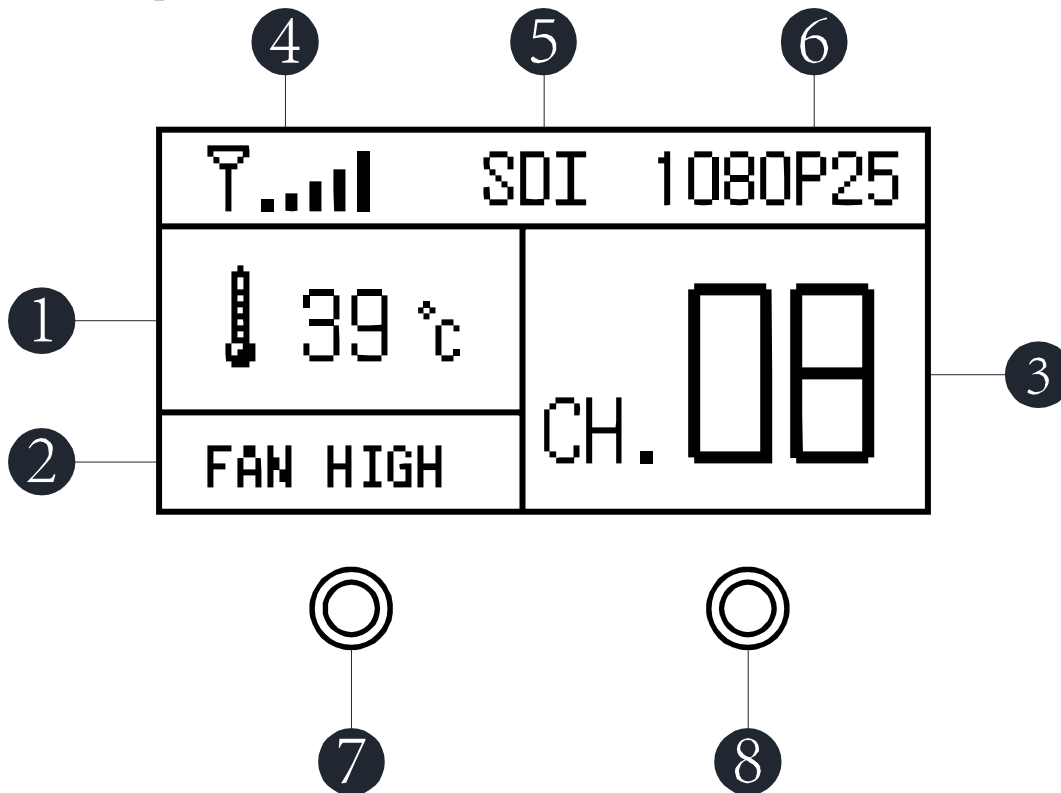
⑧ DC power switch

⑨ USB debugging interface

Receiver:
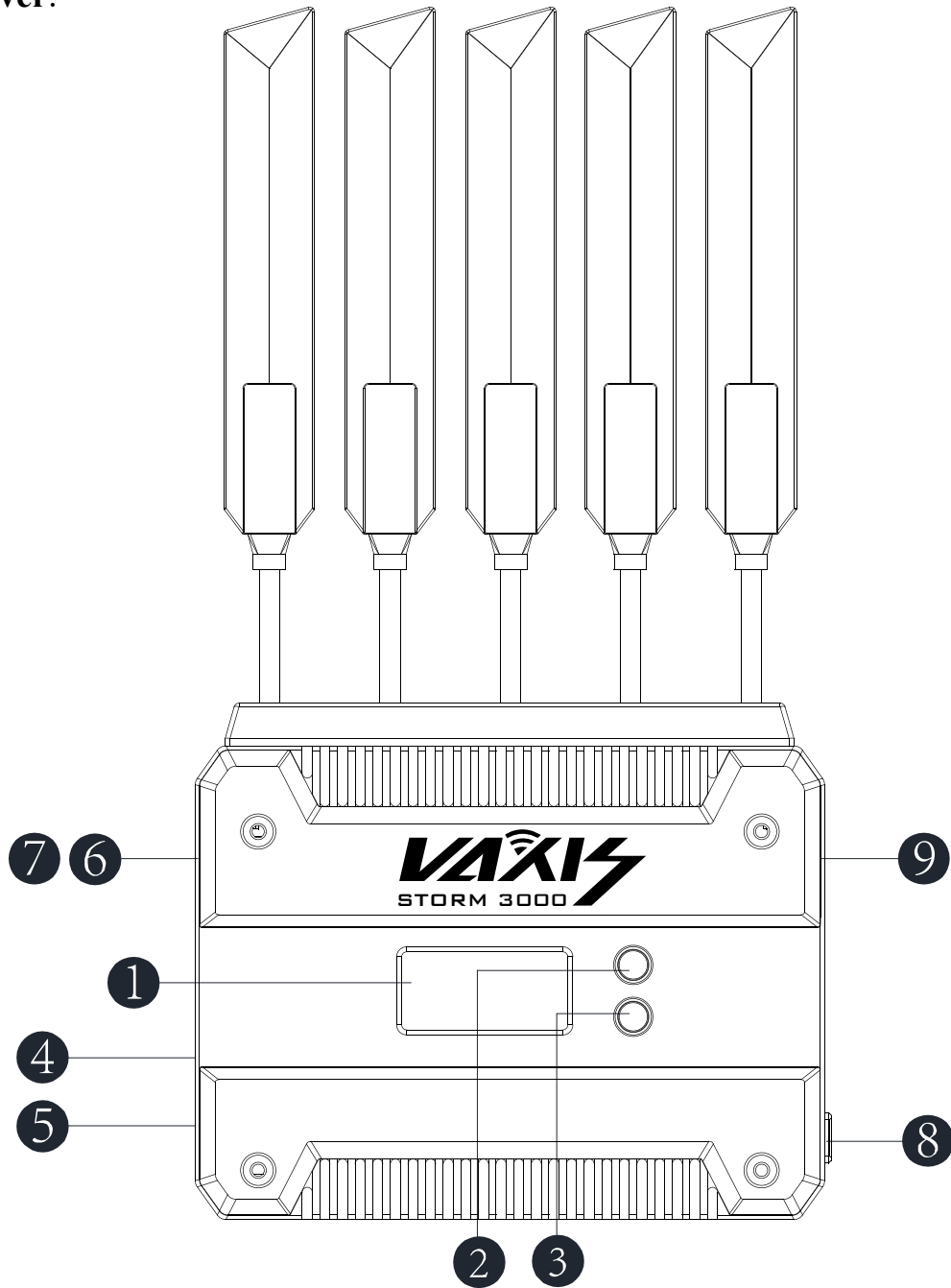
①OLED Screen

②Channel Button "-"

③Channel Button "+"

④3G-SDI Input

⑤3G-SDI Output

⑥HDMI Output

⑦USB debugging interface

⑧DC input, LEMO 2-pin B series connector

⑨DC debugging interface

Screen Operation:

①Temperature display

②Fan's speed display

③Channel display

④Signal strength display

⑤Signal source display

⑥Signal input format display

⑦Regulating Button 1

⑧Regulating Button 2

■**Packing list:**

- 1x unit Transmitter
- 1x unit Receiver
- 7x 5GHz sword Antennas
- 2x DC convert cable (LEMO 2 pin-male to D-Type receptacle)
- 1x 1/4-20 screw to ISO518 hot-shoe converter
- 1x 7" Articulating magic arm
- 1x User Manual
- VAXIS flight case

3. Installation

■**Installation details and cautions**

- **Transmitter side**
  a) Install 2 Omni-directional and high efficiency antennas to Transmitter's SMA male antenna connectors.
  b) There are 3 1/4-20 screw nuts in transmitter metal case, which are located on the bottom. So the user can utilize a 1/4 screw to ISO518 hot-shoe converter fix the transmitter on camera.
  c) The user can also utilize a subsidiary LEMO 2 pin male to D-Type receptacle power cable to get power input from an outside power source.

- **Receiver side**
  a) Install 5 pcs Omni-directional and high efficiency antennas to receiver's SMA male antenna connectors.
  b) The user can utilize a subsidiary LEMO 2 pin-male to D-Type receptacle power cable to get power input from an outside power source.
  c) The user can also utilize the Battery plate accessory Sony U-39 or Sony NP-970 to connect the power source.

● Typical connection instruction

Connect camera SDI or HDMI output to transmitter SDI or HDMI input port, and the transmitter can fixed in hot-shoe port of the camera. Connect HDMI or SDI output port of the receiver to SDI or HDMI input port of the HD monitor. Make sure all antennas ,batteries and Video cable are equipped normally.

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 SDI or HDMI cables are connected.

c) Ensure all antennas are installed, and it is better to keep TX 2 antennas and RX 5 antennas with orthogonal angle each other for best RF performance.

d) Ensure both the transmitter and receiver installed batteries or DC input ports connected to outside power sources. Then toggle power switch of transmitter and receiver to 'ON' respectively, then 'Power' screen will be light.

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.

f) If the camera is on and video input is OK, TX side 'video' screen will be light.

g) Before RX finished wireless link with TX, the Reciever's OLED Screen⑤ is not display; when wireless link is OK, the Reciever's OLED Screen⑤will display, and ④ will indicate the received RF signal strength. If the receiver detects normal wireless video

internally from air interface, then the ⑤ will light. Before that, if SDI or HDMI video out port of the receiver has HD monitor connected, it will display an OSD of "Link connecting……" like below picture.

```
Link Connecting  . .
```
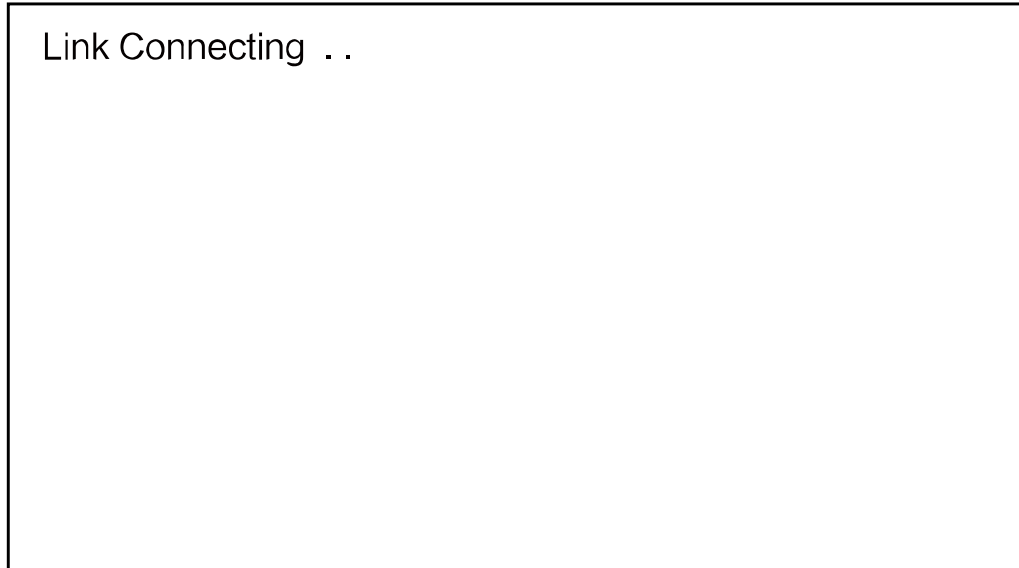
h) The system will spend about 20 seconds on constructing communication link, and real link period will depend on the current wireless channel condition. When wireless link is set up, ④ will display wireless signal strength, as well ⑤ will light, means had receive the normal signal; then connected HD monitor will display the HD video and audio from TX module.

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 od 5GHz band air interference, we suggest the users should do a manual frequency sweep by adjusting frequency selection knob with a circle before using the equipment, then choose the best frequency channel for stable performance.

■ Input video port selection of transmitter

The transmitter has a 3G SDI video input port and a HDMI video input port, and the system will detect valid video source automatically of SDI and HDMI port, and then switch it as main video input channel. If both SDI and HDMI have valid video inputs, the system will take SDI input as priority.

■ RSSI indicators

The receiver will calculate received RF signal strength internally and The OLED Screen will indicate wireless signal power and quality. The user can observe the OLED Screen status to know if the current wireless link is reliable or not.

Signal Strength indication	Wireless Link quality	Video Quality
4-5	Strong	Best
2-3	Middle	Good
1 or no lit LED	Weak	Visible Video Noise

■ 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. Meanwhile,on the front of both transmitter and receiver have OLED Screen, press the Green Button "-" and Button "+" to adjust the channel.Please note: Transmitter and Receiver should keep in the same channel.It provide maximum 10 workable frequency channels, and support maximum 10 sets working simultaneously.

5. Maintenance

■**Storage conditions**

Products storage temperature should be -20°C~60°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, place choose well-known brand DC batteries, and guarantee suitable work conditions that battery manual mentioned.

6. Trouble shooting

■**Normal problems**

a) No output on display

Check TX and RX power first, and see if TX or RX is powered from external power, then check if TX antennas and RX antennas are installed right. After that, check the Transmitter's ⑤, if TX ⑤ is not light, then check SDI or HDMI cable is plugged in and video source is ready please. Finally may check input video format is compatible with this product specs.

b) Poor output video quality

Check if SDI or HDMI input or output cable is plugged well, then checks the status of ④ wireless signal strength , there should be at least 2-3 frames lit if the user want to get better video quality; if there is only 1 frames lit, that means the received wireless signal is weak, and should shorten the transmission distance.