

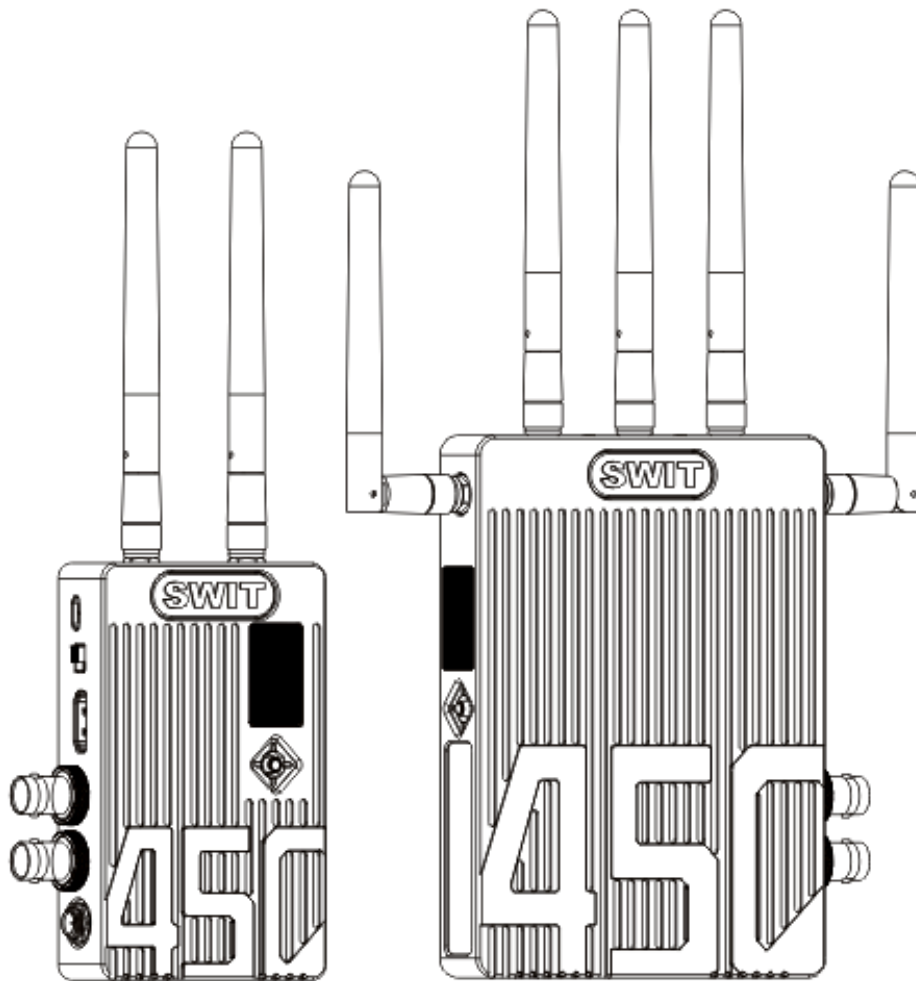
SWIT[®]

SWIT ELECTRONICS CO., LTD.

Model: SW-M450

Ver: A

3GSDI&HDMI-450m Wireless HD Transmission System



User Manual

Please read this user manual
throughout before using.

Preface

1. All internal technologies of this product are protected, including device, software and trademark. Reproduction in whole or in part without written permission is prohibited.
2. All brands and trademarks of SWIT Electronics Co., Ltd. are protected and other relative trademarks in this user manual are the property of their respective owners.
3. Due to constant effort of product development, SWIT reserves the right to make changes and improvements to the product described in this manual without prior notice.
4. The warranty period of this product is 2 years, and does not cover the following:
 - (1) Physical damage to the products;
 - (2) Any damage or breakdown caused by use, maintenance, or storage not according to the user manual's instructions;
 - (3) The attenuation of signal quality resulting from being used in any special environments;
 - (4) Any damage caused by not powering the product by package supplied power adaptor.
 - (5) Any damage or breakdown not caused by the product's design, workmanship, or manufacturing quality, etc.; or unauthorized repairs or parts replacement or other operations.
5. For any suggestions and requirements on this product, please contact us through phone, fax, Email, etc.

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CE Compliance Statement



SW-M450 Tx and SW-M450 Rx operate in the following bands:

- 5.15-5.25GHz, 5.25-5.35GHz with maximum radiated power of 23dBm EIRP for indoor use only
- 5.47-5.725GHz with maximum radiated power of 23dBm EIRP
SWIT postal address is: 10 Hengtong Road, Nanjing Economic and Technological Development Zone,
Nanjing 210038, P.R.China

SWIT hereby, declares that this Radio Transmitter is in compliance with the essential requirements and other relevant provisions of Directives 2014/53/EU and 2011/65/EU. The full text of the EU Declaration of Conformity is available at the following internet address:

http://www.swit.cc/Declaration/SW-M450_EC_Declaration.aspx



Waste Electrical and Electronic Equipment (WEEE)

English: Waste electrical and electronic equipment should not be disposed of with household waste. Please recycle where facilities exist. Check with you local authority or retailer for recycling advice.

Français: Déchets d'équipements électriques et électroniques ne doit pas être jeté avec les ordures ménagères. S'il vous plaît recycler où les installations existent. consultez auprès de votre autorité locale ou le détaillant pour obtenir des conseils de recyclage.

Deutsch: Elektro- und Elektronik-Altgeräte dürfen nicht mit dem Hausmüll entsorgt werden. Bitte recyceln, wo Anlage vorhanden sind. Beraten Sie sich bei Ihren lokale Behörde oder händler über Recycling information

For Your Safety

Before start, please follow the safety precautions below:

Do not try the followings:

1. Unauthorized repairs or parts replacement or other operations.
2. Inappropriate placement including but not limited to lighting, fire, exposure to rain, water or gas.
3. Switch to the power not in the voltage allowable range.



Warning

- Do not get any liquid inside the product.
- Do not block the ventilation openings or get substances inside, in order to avoid short circuit, fire or electric shock.
- Do not place the product in the rain or moisture to avoid electric shock or fire.



Danger

- Switch the power off before connecting other devices.
- Power socket: Make sure the power socket under the voltage range of the product to avoid short circuit, electric shock and fire.
- Power cable: Make sure the power cable is not pressed or tightened by any items or weights.
- Power Load: Do not exceed the load on the wall outlet, extension cable or other porous receptacle to avoid fire or electric shock.
- Lightning: Disconnect the power cable if it is lightning or not using in a long period of time.

Working environment

- Please don't lay the product on any unstable place to avoid fallen damage.
- Please don't use the product in a place overheating, undercooling or with lots of moisture, or near by strong magnetic devices.
- Please don't lay the product on metal shelf, in order to ensure the effective wireless transmission.

Packing list

This wireless system includes below accessories:

- | | | | |
|--|------------------|----------------|-----------------------------|
| 1. Transmitter | 2. Receiver | 3. Antenna*7 | 4. Articulating arm trestle |
| 5. D-tap to lockable pole cable (0.6m) | 6. Power adaptor | 7. User manual | 8. Warranty card |

1. Product Introduction

SW-M450 includes transmitter and receiver, adopts the latest encrypted transmission technology, supports uncompressed SDI and HDMI wirelessly transmitted in 450 meters scale (Line-of-Sight) , auto pairing , less than 1ms latency, instant playback, and OLED display. SW-M450 is equipped with DC power connector, compact size, portable, and the receiving signal is very stable.

2. Features

◆ Uncompressed 3G/HD/SD-SDI and HDMI transmission

Support up to 1080p 50/60Hz uncompressed SDI & HDMI wireless transmission.

◆ 450 meters transmission distance

In open outdoor area, the effective transmission distance is approx 450 meters.

◆ Less than 1ms latency

There's no discernible video delay and you can use it as real time on-location monitoring.

◆ License free operation frequency

The wireless frequency is 5.1-5.9GHz ISM with DFS comply, license free operated and work without interference with devices such as wireless walkie-talkies.

◆ Pairing mode

Support auto pairing connection, support visualized wireless conditions of all 11 channels, and manually select a best one to work. Support one transmitter to four receivers multicast mode. DFS comply.

◆ OLED Display

Both Tx and Rx are equipped with OLED to display signal format, wireless channel and signal strength.

◆ Instant Playback Mode

Provide the "Instant Playback" mode to support the constant wireless video receiving.

◆ Encryption

Support AES 128-bit encryption to protect the transmission.

◆ Battery plate optional

User can choose various standard DV battery plates for transmitter and V-mount or Gold mount battery plate for receiver.

◆ All-Metal Shell

Both the transmitter and receiver adopt metal shell which is durable and solid.

◆ Simple connection

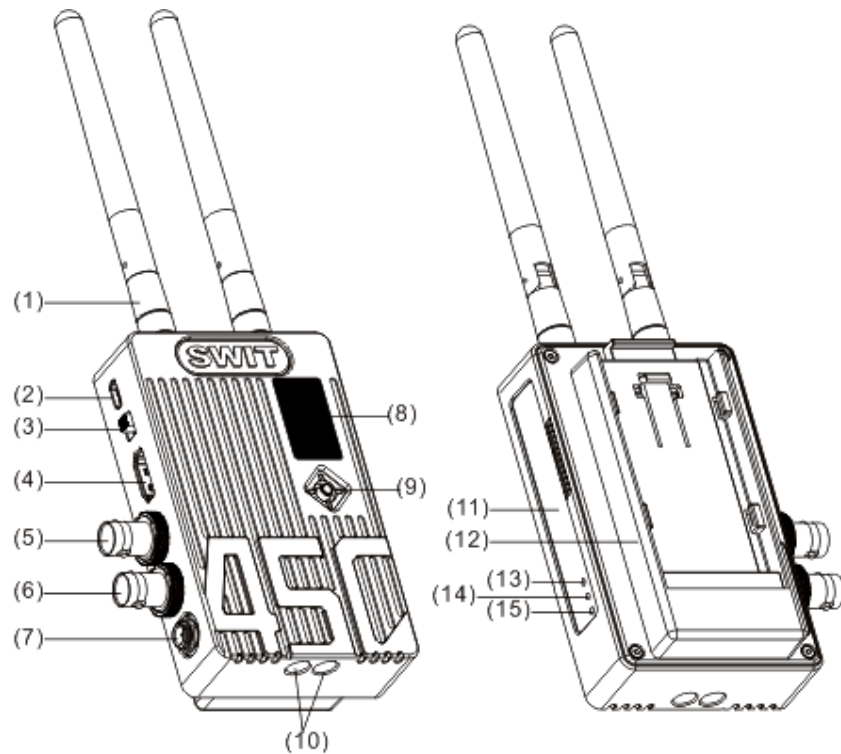
The wireless system is plug-and-play designed, without any software connection and configuration

Remark:

1. The transmission distance may be different, and depend on surroundings, radio wave conditions, buildings, etc., the 450 meters transmission distance may be not guaranteed.
2. The wireless transmission might be interrupted if there're many other devices of 5GHz wireless bandwidth operated in the same location.
3. Signal reception may be affected by the position, height and angle of devices. If reception video is not stable, please physically adjust placement for the optimized signal.
4. Set the antennas straight up and set receiver higher to enhance the transmission efficiency.
5. The product offers the AES 128-bit encryption to protect the wireless transmission. Anyway, please be aware of the intentional capture from third person.
6. During the use of wireless products, according to the requirements of health assessment, the distance between the wireless products and the human body should be at least 20cm

3. Appearance Instruction

Transmitter SW-M450

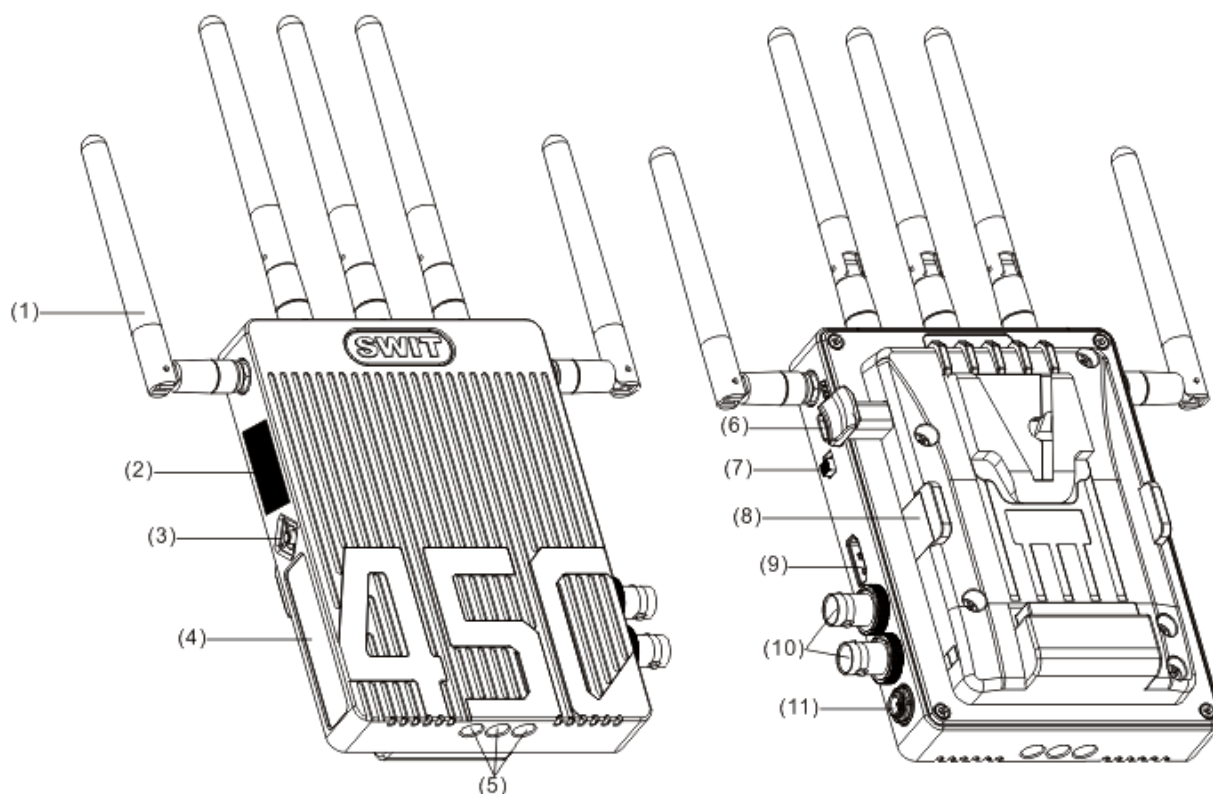


- (1) **Antenna**
- (2) **USB:** Micro USB, software upgrade interface
- (3) **ON/OFF:** Power switch
- (4) **HDMI in:** HDMI input (HDMI-A type connector)
- (5) **SDI LOOP:** SDI Loop out (BNC connector)
- (6) **SDI in:** SDI input (BNC connector)
- (7) **DC in:** Support DC 7-34V voltage input, 5.5mm/2.1mm. Outside: negative, Inside: positive
- (8) **OLED:** 0.96-inch OLED
- (9) **Five-direction switch:** Five-direction adjustment button (adjust the display menu to switch and confirm in five directions: up, down, left, right, and vertical)
- (10) **Installation thread:** 1/4"-20 thread. Use the package supplied articulating arm trestle to install the device to the camera.
- (11) **Product label**
- (12) **Battery plate:** Various standard DV battery plates optional. See details in "8. Battery Plate"
- (13) **Link:** RSSI LED indicator
- (14) **Video:** Video signal indicator
- (15) **Power:** Power status indicator

The description of LED status indicator

Device	LED indicator	Status	Description
SW-M450 Transmitter	Power	Constant On	Power connected and switched on
		Off	Power disconnected and switched off
	Video	Constant On	Network is connected, and there is recognizable video signal input
		Flash	Network connection failed and there is no recognizable video signal input
	Link	Constant On	The wireless network connection is normal
		Flash	The wireless network connection is abnormal

Receiver SW-M450

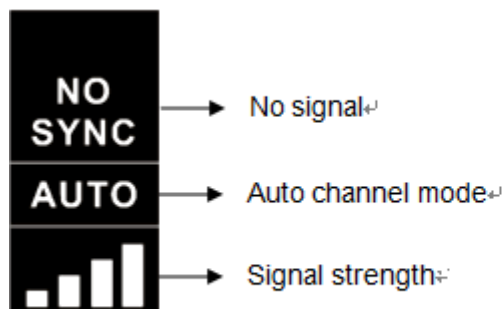


- (1) **Antenna**
- (2) **OLED:** 0.96-inch OLED
- (3) **Five-direction switch:** Five-direction adjustment button (adjust the display menu to switch and confirm in five directions: up, down, left, right, and vertical)
- (4) **Product label**
- (5) **Installation thread:** 1/4"-20 thread. Use the package supplied articulating arm trestle to install the device to the camera.
- (6) **USB:** Micro USB, software upgrade interface
- (7) **ON/OFF:** Power switch
- (8) **Battery plate:** V-mount or Gold-mount battery plate optional. See details in "8. Optional Battery Plate"
- (9) **HDMI out:** HDMI output (HDMI-A type connector)
- (10) **SDI out:** SDI output (BNC connector)
- (11) **DC in:** Support DC 7-34V voltage input, 5.5mm/2.1mm. Outside: negative, Inside: positive

4. OLED Display

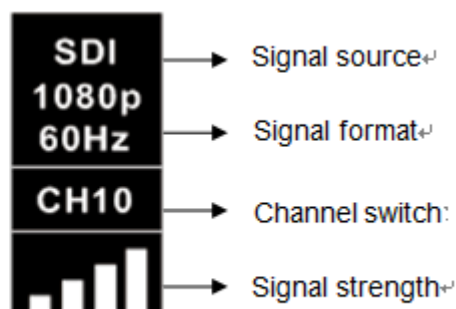
Boot Screen

(When Tx and Rx both have no signal connection, Tx and Rx display the same. Fig.1)



Main Screen

(When Tx and Rx have normal signal connection, Tx and Rx display the same. Fig.2)

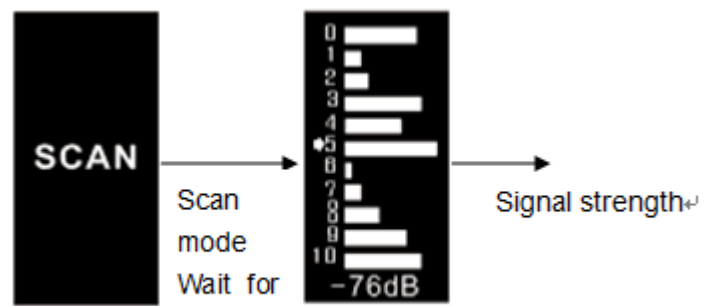
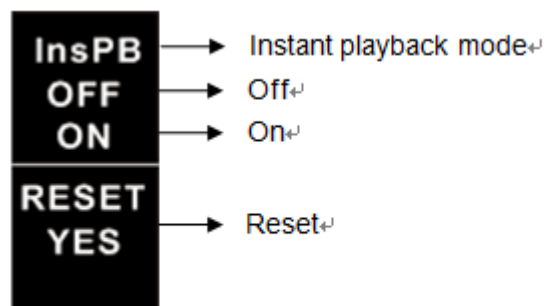


Note: Channel switch is adjusted up and down by the red five-direction adjustment button under OLED, 11 wireless channels in total.

Switch Screen

a: (Tx switch screen is adjusted left and right by the red five-direction adjustment button under OLED, same screen display. Fig 3)

b: (Rx switch screen is adjusted left and right by the red five-direction adjustment button under OLED, same screen display. Fig 4)



Remark: 1. Instant playback mode is off by default.

2. Turn on instant playback mode "ON" or reset "YES" by adjusting the red five-direction adjustment button up and down to select the required mode, and then press the red button vertically.

3. Under scan mode, the output signal is interrupted, and the output monitor displays "SPECTRUM ANALYZER". After 10s, the receiver OLED displays the signal strength of all 11 channels as shown in fig 4, and then select the stronger channel by the red five-direction adjustment button on the transmitter.

4. Support manual selection of the best channel only through the transmitter.

5. Setup connection

(1) Connect the "SDI in/HDMI in" port of SW-M450 transmitter with the SDI/ HDMI out video source.

(2) Connect the "SDI OUT" port of SW-M450 receiver with the SDI/HDMI in of monitor or other receiving devices.

(3) Power the SW-M450 transmitter and receiver, the transmitter "Power" LED on, "Video" and "Link" LED flash, wait for 5s and OLED on; the receiver wait for 5s, OLED on; they will automatically search the network, and detect video signal. When the "Video" and "Link" LED of transmitter is constant on, the OLED information of transmitter and receiver are the same, and the output display is normal.

Remark: 1. When SW-M450 transmitter and receiver are powered on, the power switch shall be set to "ON".

2. SW-M450 transmitter supports SDI input and HDMI input, and it will automatically detect the connected signal input. If both SDI and HDMI are connected, it will give priority to transmit SDI signal.

6. Pairing

- (1) Connect the “SDI in/HDMI in” port of SW-M450 transmitter with the SDI/ HDMI out video source.
- (2) Connect the “SDI OUT” port of SW-M450 receiver with the SDI/HDMI in of monitor or other receiving devices.
- (3) Power the SW-M450 transmitter and receiver, the transmitter “Power” LED on, “Video” and “Link” LED flash, wait for 5s and OLED on; the receiver wait for 5s, OLED on; the monitor or switcher display Fig. 5.
- (4) Press the Receiver red five-direction adjustment button and hold till OLED display “PAIR” as Fig.6, the monitor or switcher display Fig.7, and then release the adjustment button; Press the Transmitter red five-direction adjustment button and hold till OLED display “PAIR” as Fig.6, the monitor or switcher display progress bar as Fig. 8, and then release the adjustment button.
- (5) When the progress bar is completed, they are paired into the encrypted transmission state.



Fig. 5



Fig. 7



Fig. 8

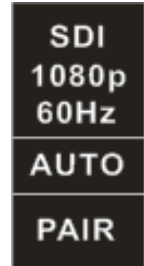


Fig. 6

- Note:
1. Please keep the transmitter and receiver in distance of 1-2m to avoid pairing failure.
 2. Please do not use more than 4 sets of devices under the same environment to avoid interference.
 3. User can use at most 4 receivers to pair with one transmitter under the same environment.

7. How to get the best effective of Wireless Transmission

- (1) Set the antenna on both transmitter and receiver vertically straight up, no request to spread. If lay down installation, still keep the antenna vertically straight up to extend transmission distance and stabilize transmission quality. (See Fig. 9)

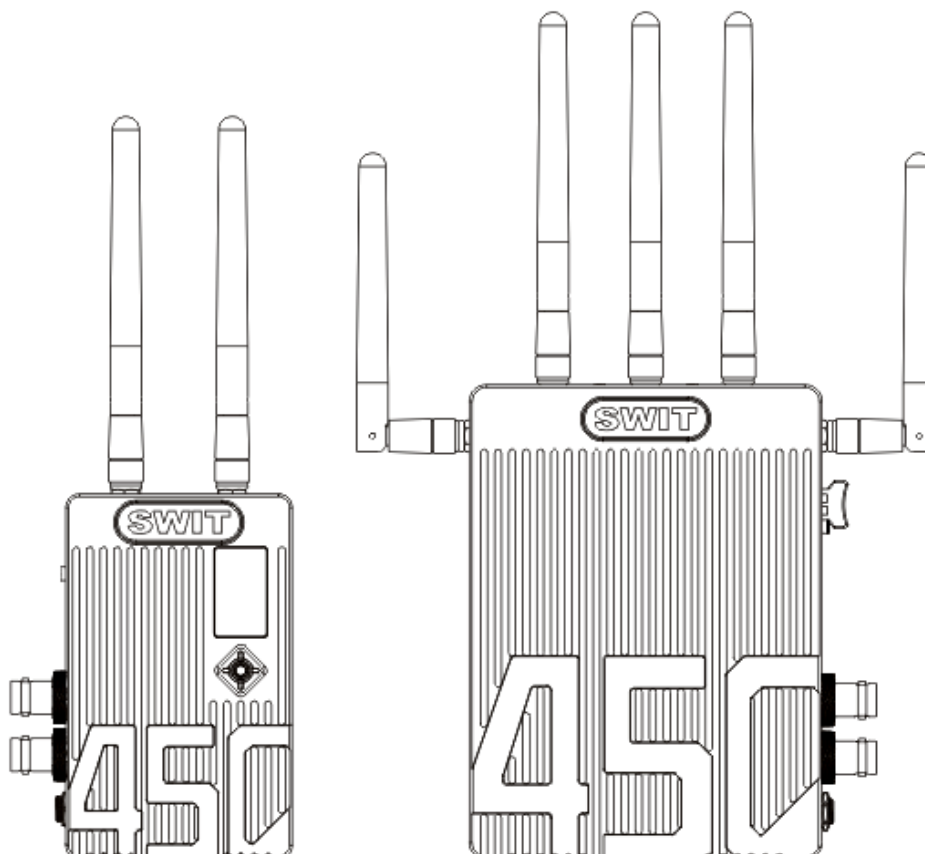
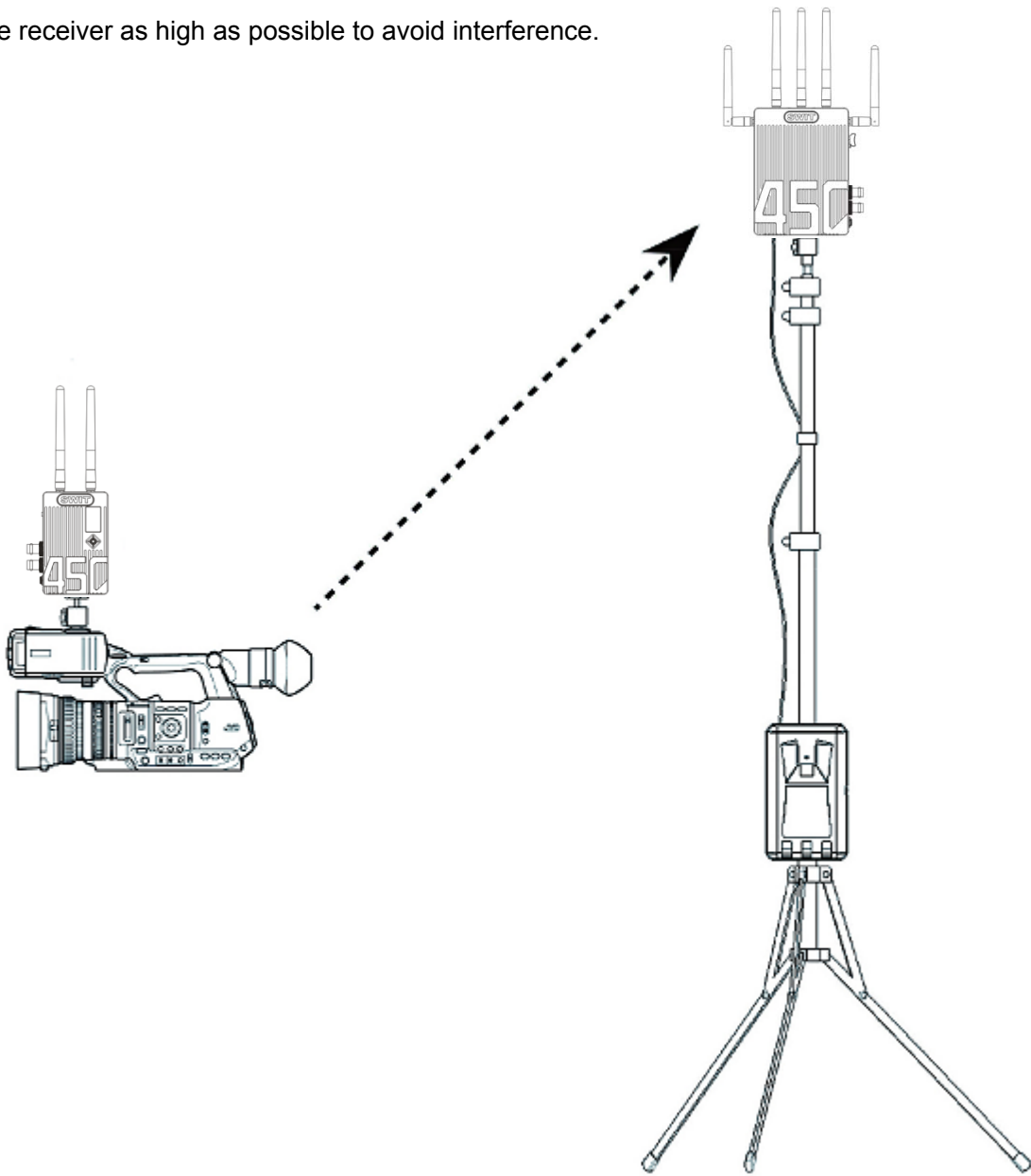
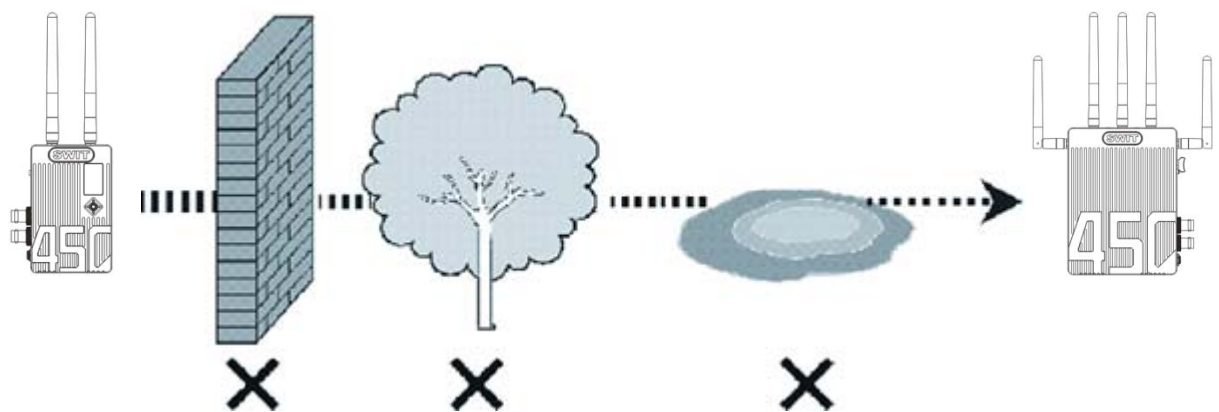


Fig. 9

(2) Set the receiver as high as possible to avoid interference.



(3) Avoid walls, trees, water and any blockage as best as you can



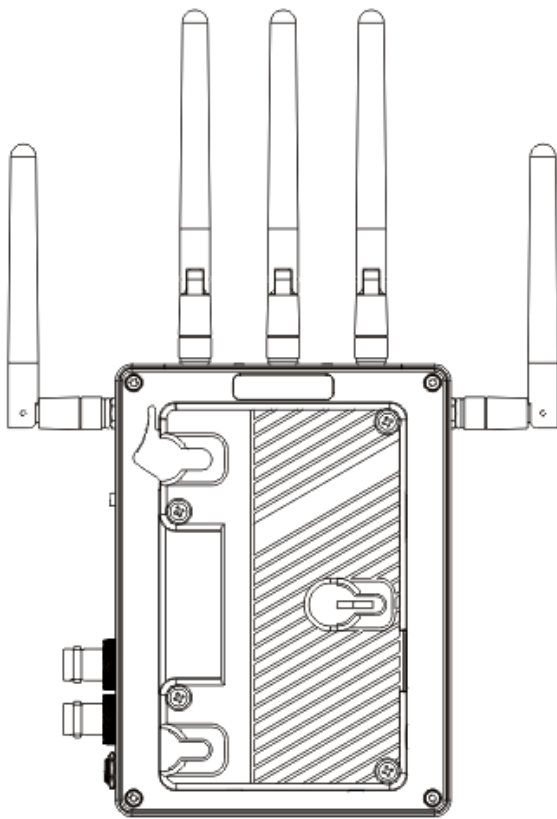
8. Battery plate

SW-M450 supports various battery plates.

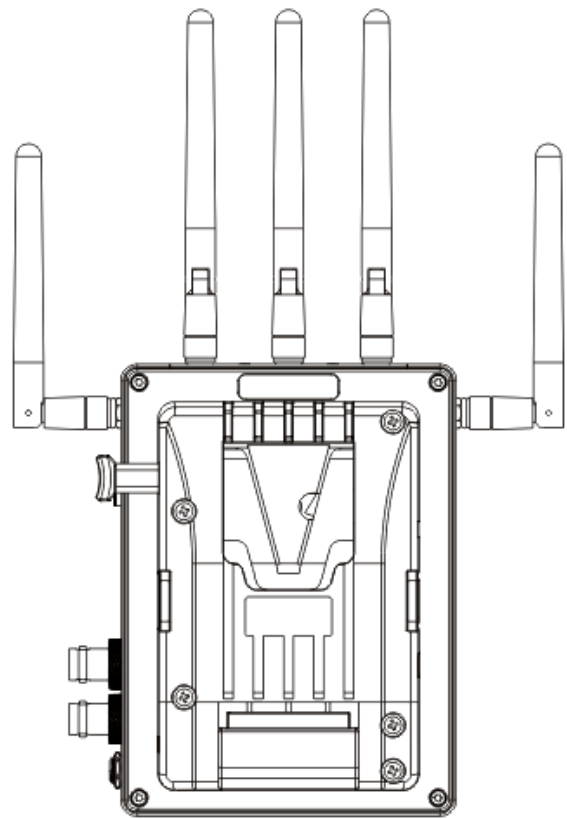
SW-M450 transmitter can choose various DV battery plates to be powered by standard DV camera batteries, there are following different kinds of battery plates for option:

Plate Type	Compatible battery	Recommended SWIT battery
F	Sony L series NP-F770/970	S-8972, S-8970, S-8770
U	Sony PMW-EX series BP-U60/30	S-8U63, S-8U65, S-8U93, S-8U95
D	Panasonic CGA CGA-D54S/D28S Panasonic VBD VW-VBD58	S-8D62, S-8D58, 8D98
E	Canon DSLR battery LP-E6	S-8PE6

SW-M450 receiver is equipped with V-mount or Gold mount battery plates to be powered with batteries:



Gold-mount



V-mount

9. Trouble shooting

If the receiver failed to output video correctly, the possible causes are as below; please find the solution from following chart:

The receiving video	Possible causes	Solution
No display	The transmitter receiver is not powered on	Check power connection and switch on the transmitter and receiver
	The antennas are not installed properly and screwed tightly	Install the antennas properly and screw tightly of both transmitter and receiver
	Bad connection of video cable	Check video cable connection of both transmitter and receiver
	Video format is not supported	Check the format of video source. (See the supported video formats at Specifications .)
Video quality is poor	Bad connection of video cable	Check video cable connection and if possible, change to better quality cables
	The wireless transmission is disturbed by environment.	Wait for one minute or reboot both the transmitter and receiver
	The transmission distance is out of effective range or being interfered by obstacles.	Try the wireless transmission at a closer distance or clean out the obstacles

10. Specification

Model	SW-M450T Transmitter	SW-M450R Receiver
Input	SDI×1, HDMI×1	/
Output	SDI×1	HDMI×1, SDI×2
Video format	1080i (60 / 59.94 / 50) / 720p (60 / 59.94 / 50) / 1080p (60 / 59.94 / 50 / 30 / 29.97 / 25 / 24 / 23.98)	
Wireless frequency	5.1~5.9GHz	
Radio module	OFDM 16QAM	
Max transmission distance	450m (Line of sight)	
Latency	≤1 millisecond	
Power consumption	≤7W	≤9W
Transmitting power	100mW	/
Human-Machine Interaction	0.96-inch OLED, Five-direction adjustment button	
Input voltage	DC/Battery: 7~34V	DC/Battery: 7~34V
Working environment	Temperature: 0℃~+40℃	
Dimension(without antenna)	66x106.5x24.7 (mm)	102.8x138.5x20.8 (mm)
Net weight (without antenna)	195.4g	358.4g