FIM-1440 User Manual

Directory

1. OPERATION CAUTIONS

1) Be sure to use the parts provided by IWAVE.

2) Reverse connecting power line positive and negative will burn the device out.

3) Before powering on please make sure the antenna are in good connection and do not install or remove the antennas with power on.

4) The drone's carbon fiber fuselage and payloads metal casing can shield wireless signals. Therefore, when install the Tx antenna, we should keep the antenna away from blocking, no wrap, vertically downward and no bending to avoid shortening the communication distance due to blocking.

5) Huge electromagnetic wave noise between multiple radios interferes with each other resulting in shortened communication distance and reduced communication reliability. Therefore, the Tx antenna should be installed as far as possible from other wireless antennas.

6) Do not disassemble or modify the FIM-1440. If you meet an unresolved problem during the installation, please contact support@iwavecomms.com

7) HDMI cable and antenna may interfere with GPS. Please keep the HDMI cable and antenna as far away as possible from the GPS module and its associated cables.

8) The camera should be fully charged to ensure normal video output.

9) Before powering on please make sure all the connections are firmly and parts are in good condition

10) Pay attention to the angle and direction of the Rx antenna during the flight and adjusting the antenna tip tilt angle may improve signal or image quality.

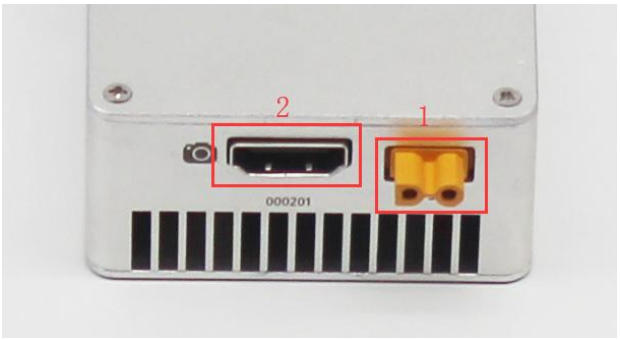
11) If the video is stuck or paused for 10~30s, which indicates the signal is weakening or the channel is narrowing. In order to ensure normal communication and safety, the aircraft should return immediately, otherwise the Tx onboard will loss connection.

2. Package List

Tx	Rx
	
Tx antenna x1	**Rx antenna x1**
	
DC power cable x4	
	
HDMI video cable x2	
	
Network cable x4	
	
Filter*1	
	
SMA Cable(Copper wire tinned shield semi-soft line) x3	
	
USB Cable for Configuration*1	
	

3. Interface Definition

3.1. Tx Interface



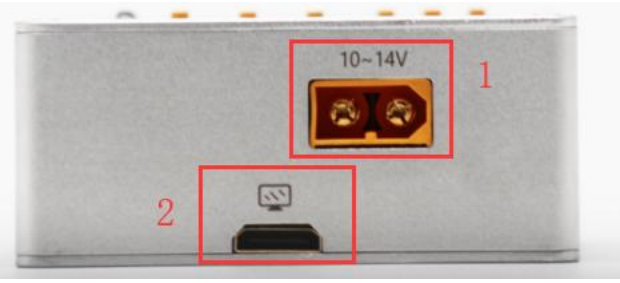
① Power Input: XT30 Plug supporting 14-18V power input(16V is suggested)
② HDMI Interface: Standard HDMI port

Micro USB Socket: Connect Tx with PC by USB Cable for configuration

Antenna Interface: Standard Outer crepe inner hole SMA Port

1/4 inch Camera fixed hole

3.2 Rx Interface



(1) Power Input Socket: XT60U supporting 10-14V power input(12V is suggested)
(2) HDMI Interface: Standard HDMI Video Output port

Keys and LCD for working status display	
1	LAN Power Light
2	Signal Light
3	LCD to display parameters
4	UP
5	Right
6	Left
7	Down
8	OK
9	Exit
10	Record(Not available at present)

A. ETH：EZH 4P 1.5mm

No	Signal
1	TX+
2	TX
3	RX+
4	RX

B. 1/4 inch fixed hole

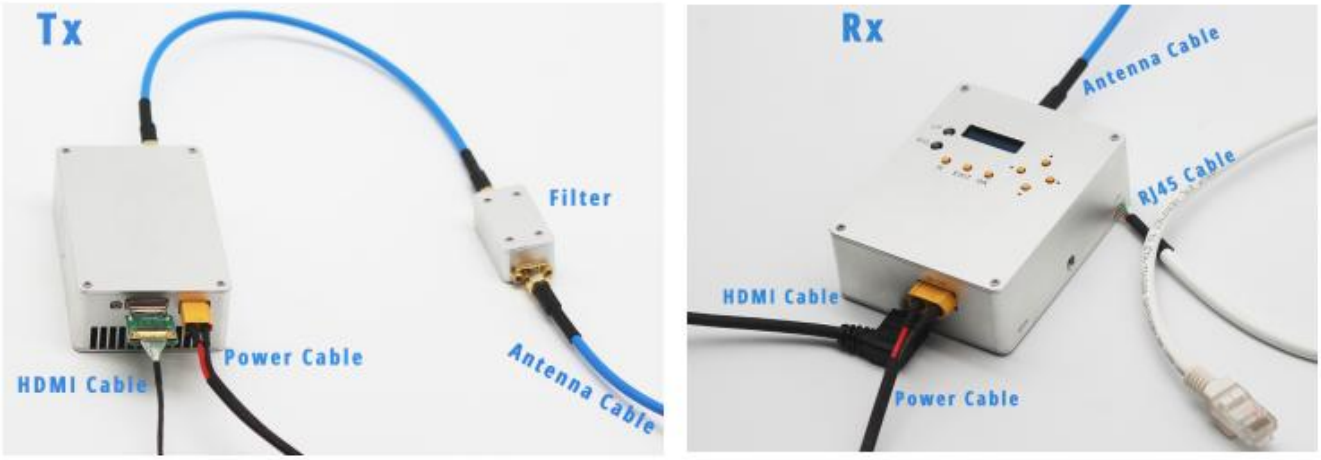
Antenna Interface: Standard Outer crepe inner hole SMA Port

4. Operating Steps

4.1. Preparing

Make TX and RX and accessories ready.
Besides the whole equipment we supply, you also need to make sure the video source, display and power ready before operating.

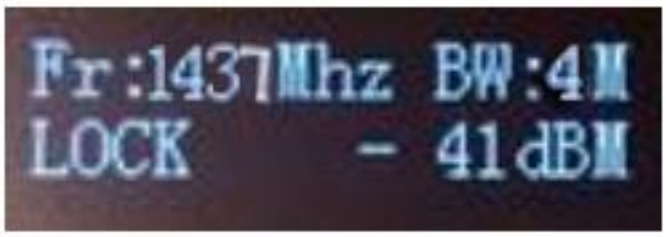
4.2. Connection



Ensure all the connections are in good condition, then turn on the power of Camera, Display, TX and Rx.

4.3. Rx Operation after powering on

The first time to build communication between Rx and Tx: Long-press"OK" key for 3seconds, then choosing bandwidth and frequency same as Tx **(Tx default frequency: 1437Mhz, Bandwidth: 4Mhz).** Then press "OK" key for signal searching. If the Tx signal is successfully received by Rx, Rx LCD will display parameters as follow picture. Then press "EXIT" to exit searching status.



Fr	Working frequency
BW	Bandwidth
LOCK	LOCK: The transmission working normally and the signal already be locked. UNLOCK: NO Signal
-41dBm	Signal Strength (-20dBm~-70dBm is normal range)

If no signal is received by Rx, Rx LCD will display **search.....no.** Then you can press"OK" to let Rx search the signal again.

5. Rx Configuration

Scaling and frame rate: Long-press"LEFT" for 5seconds to adjust the scaling and frame rate.

Scaling: When Upscal is ON, 480P can be scaled into 720P and 720P can be scaled into 1080P.

Frame Rate: if Tx frame is 30/25, you can sent the Rx frame rate 30 for lower latency or 60. Please make sure your monitor supports 30frame or 60frame video display.

AES: Long-press "RIGHT" for 5seconds to set AES encryption.

Setting range: 00000000----FFFFFFFF (8 hexadecimal numbers)

Reset: Press the four keys"UP", "DOWN", "LEFT" and "RIGHT" at same time for 10seconds, then "RESET ALL" will be displayed on the LCD. Now all the parameters of Rx are factory settings.

Then you need to power off and restart the Rx.

Note: After the first time successful communication, if the Tx paramters are not changed, Rx will no need to perform the above operations for next time. And they will automatically communicate with each other after power-on.

LP Light: to show the status of Rx supplying power to external low-noise amplifier.

If there is a external low-noise amplifier need to be powered, press "UP", "DOWN", "LEFT" and "RIGHT" four keys for 2seconds to open the LNA-PWR to power the low-noise amplifier.

If there is no external low-noise amplifier to be powered, press "UP", "DOWN", "LEFT" and "RIGHT" four keys for 2seconds to close the LNA-PWR.

SIG Light: When the signal is received, the light will keep bright. If no signal, the light will not bright.

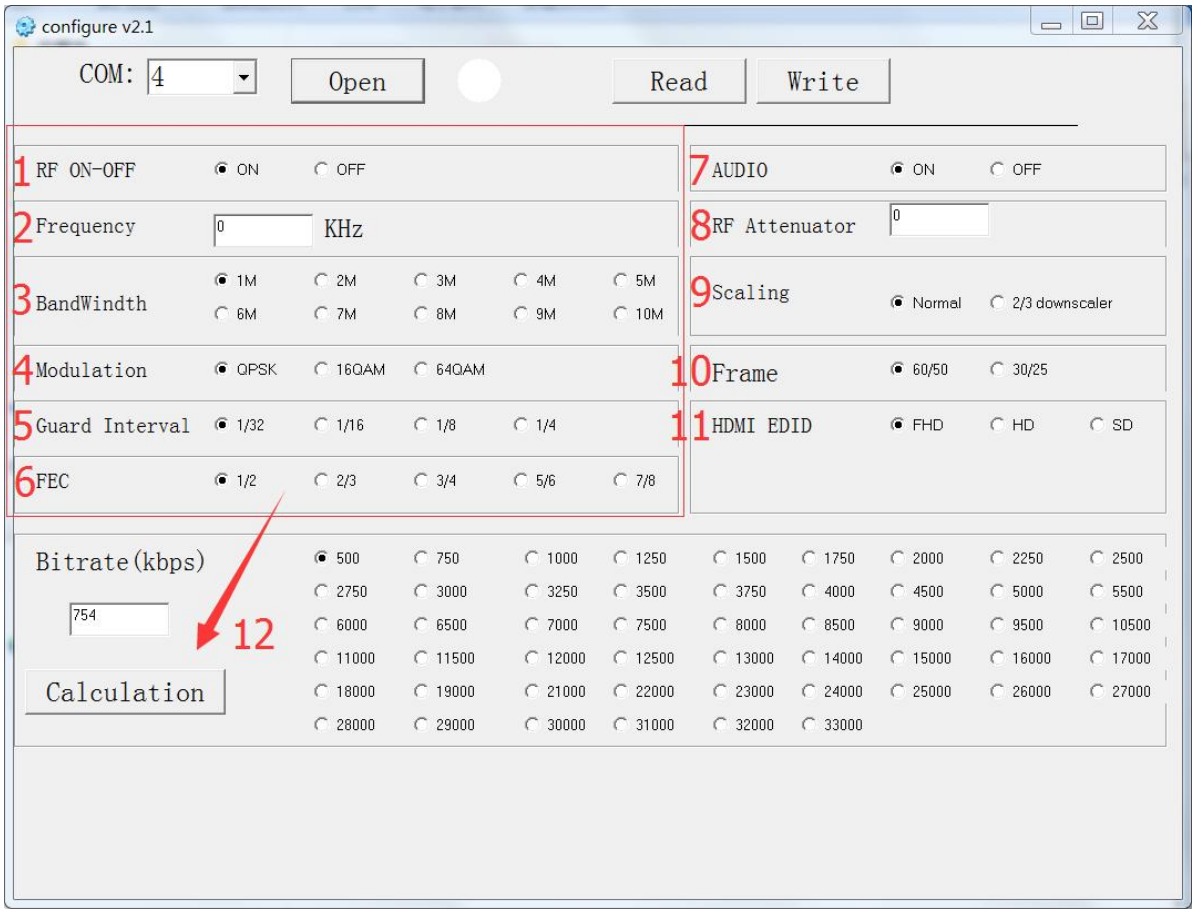
6. Tx Configuration

① Firstly, connect Tx with computer by USB cable and install the driver and parameter adjust software "V3.0.exe" on the computer.

② Right click the software "V3.0.exe" and run as administrator

Note: "MSCOMM32.ocx" file should be in the same directory as the above "V3.0.exe" file.

Software Operation Interface



③ Choose right COM→Click" Open"→Click "Read"→Adjust the settings→Click"Write"(It needs 3seconds to finish the writing)

1	RF ON-OFF: Choose Open or close the RF
2	Frequency: 1412~1462MHz for your option
3	Bandwidth: Default 4Mhz
4	Modulation: Default QPSK
5	Guard Interval: Default 1/32
6	FEC: Default 1/2(If you have a high demand of the video quality, you can choose 2/3, the Video bit rate will upto be 3.5Mhz and transmission range will be reduced by 30%.
7	Audio: Default OFF for better video quality
8	RF Attenuator: default 0. Other numbers will lead to the RF stop working.
9	Scaling: 2/3 downscaler reducing 2/3 resolution of the video input. For example make 1080p to be 720P and 720P to be 480P
10	Frame: 30/25 can reduce the frame rate of the signal input by half and then encode it.
11	HDMI EDID: Adjusting the HDMI EDID to make the camera or other devices output the corresponding resolution

12	Adjust the encoder stream
Note: After selecting the above 1, 2, 3, 4, 5 and 6 related data, click calculation to calculate the capacity of the RF channel. Then select the data on the right but not exceed the calculated value, otherwise mosaics will appear in the video.	

AES: Set 8 hexadecimal numbers same with Rx

7. Solution for COM port being occupied

The software supports COM1 to COM10. COM ports that are not in this range need to change the COM port in the device manager. If the port is found to be occupied, you can open the registry and then delete the ComDB and try again. (Note: This step will rebuild all COM ports). If it still doesn't work, restart your computer.

Parameter configuration software (Windows version, connected to the transmitter via USB)