

# ChainLink

## Long Range System

Dear pilot,

Thank you for purchasing the ChainLink Long Range System.

In order to achieve full potential and safe operation of this product, please carefully read this manual prior to use.

### **Warnings:**

- 1. Make sure you can use this system legally. ChainLink is in UHF ISM band, in most of the countries, you can use it legally if you have a HAM license.**
- 2. Although this system can give you a 10km-40km range under proper installation and usage, we still strongly recommend you fly in proper range and height.**
- 3. In order to get the best experience with this system, some knowledge about basic electronics and RF are needed.**

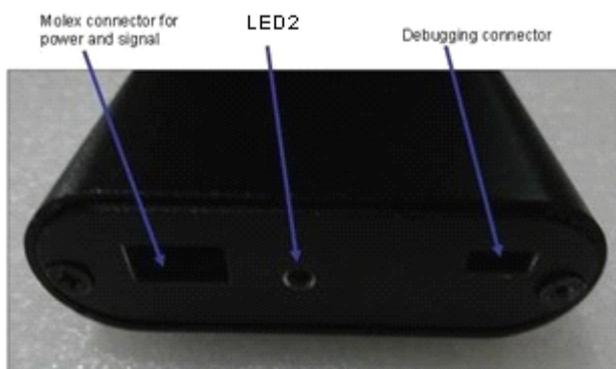
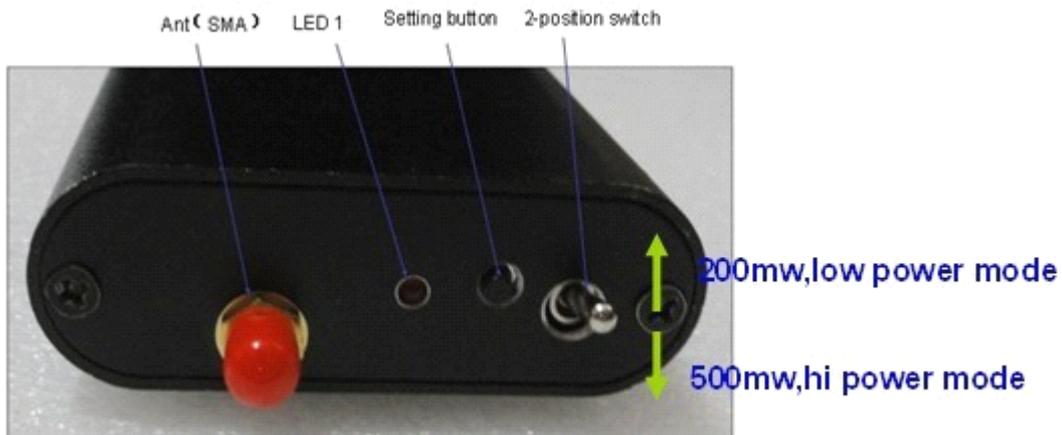
CL (ChainLink) is a system specially designed for FPV and UAV use, which works on the ISM band 433Mhz-435Mhz.. CL features robust FHSS policy, which make it hard to be interfered, even work with a 60W 433Mhz radio side by side. Normally the range will be 4-20 times of the normal RC radio, which will offer you far superior range compared to the stock RC transmitters offer.

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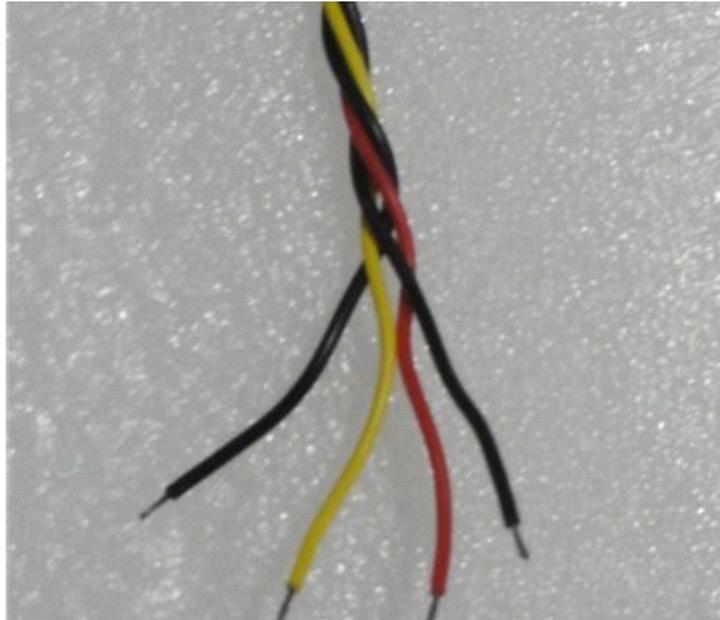
### SPEC:

Voltage: Tx: 7-30V, Rx: 4.8-6V  
Power: High power mode: 500mw, 12V@210mA  
Low power mode: 200mw, 12V@120mA  
Micro power mode: 0.1mw (used for range test)  
Sensitivity: -115dBm  
Channels : 14 channels, 12 channels for control signal , 1 channel for PPM output, 1 channel for analog RSSI output  
RSSI : 0-3.3V (buffered)  
size: 80\*68\*23mm (Tx), 40\*27\*13mm(Rx)  
Weight: 120g (Tx), 18g(Rx)

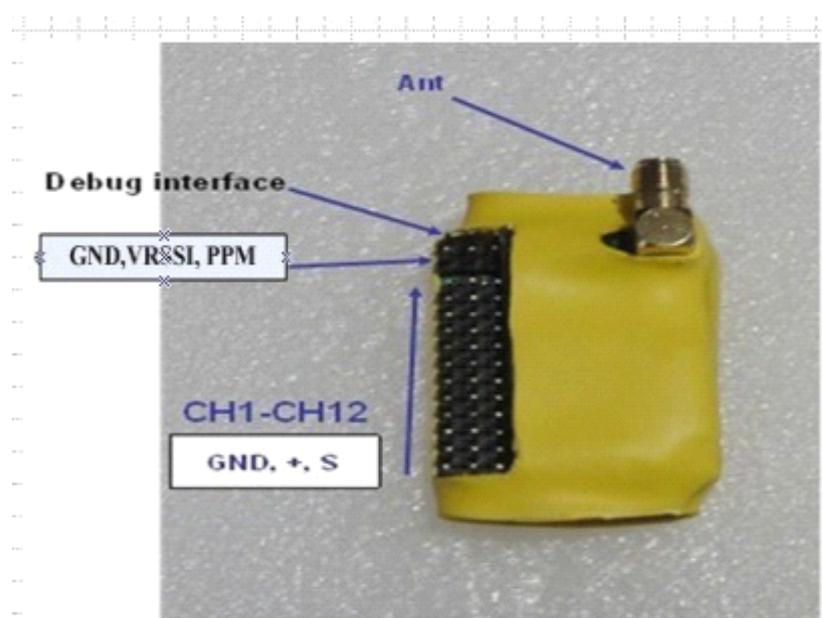
### Appearance:



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From left to right : GND(-),ppm signal input , DC7-30V input , GND(-)



### Includes:

**1\* Tx module**

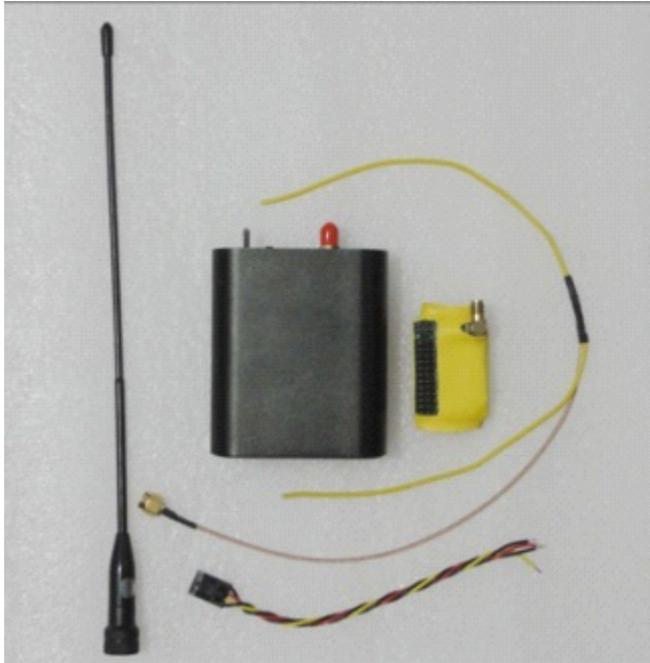
**1\* 2.15dB ant for Tx**

**1\* Rx module**

**1\* 2dB soft-wire ant for Rx**

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### 1\* cable with locked connector



### Installtion:

Basically, any 4-12 channel radio can work with this system, you just need to find the PPM signal from the radio.

We can get the PPM signal from the trainer ports for Futaba (Non-JR) series radios. Because the trainer port of JR just output 4-chans PPM signal, so we need to find the PPM output from other places, normally we can get the PPM signal from the pins of the RF connector.

You can get all the definitions of the trainer port for most of the popular radios here:

<http://users.belgacom.net/TX2TX/tx2tx/english/tx2txgb3.htm>.

For the radios which have removable RF modules, we can get the PPM signal from the pin of the RF connector. As bellow:

JR9X2 (Imax 9x, Turnigy 9x)

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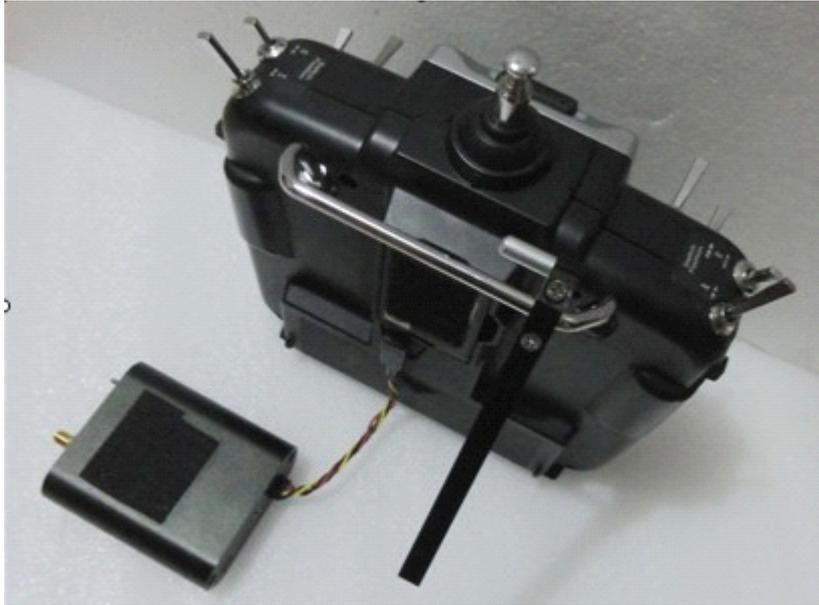
## Futaba 9C,10C(TDF8, TDF9)

WARNING: when your radio is Futaba, u should connect a 10k resistor between the +v and PPM signal if u want to get the PPM signal from here, the trainer port is not needed.



**How to connect:**

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### How to use:

First please make sure your radio is set to PPM mode.

**1. Binding:** When the Tx module is on power-off mode, and the 2-position switch is on the low-power place, press the setting button and power on the Tx module, after about 3 seconds, release the setting button. The LED1 will flash every second, which shows the Tx module has entered the binding mode. Then power on the Rx module, the LED of the Rx will be light up solid, which shows the binding has been completed. Turn the Tx and Rx power off. Power both on again and you are good to go. You can also bind multiple Rxs with 1 Tx following the same way.

**2. Failsafe setting:** When the Tx and Rx module are working, press and hold

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the setting button for about 3-5 seconds until the LED1 is off, and the Rx will remember the positions of all the channels of the radios.

**3. Micro mode:** When the Tx module is on power-off mode, and the 2-position switch is on the high-power place, press the setting button and power on the Tx module, after about 3 seconds, release the setting button. You will hear the built in buzzer in Tx module every 2 seconds, which means the Tx module has entered the micro mode, you can now do a range test. If you can still get solid control over a range of 20-70m, then you can re-power the Tx for a normal long range flight.

**4. How to set up in your plane:** This is very important, there are lots of interference resources in a standard FPV plane, we should keep the ChainLink Rx from video Tx and camera and some big amp devices and cables. An easy way to check if you put the ChainLink Rx in a right place is below:

Set ChainLink into micro power mode, check if there is any difference in range if you power on other devices and power off them. Normally the cameras are the main resource of the range killer, then keep far away from them and don't share power with them. Another way to do first pre-flight check is do a ground test with all the devices power on, in micro power mode, you can normally go to 20-70m, in low power mode you can go to about 400-1200m on the ground in city.

### Attentions:

**1.** Never power the Tx module without antenna, or you may damage the Tx module.

Don't rotate your antenna too tight, which won't help you improve the range, but may break the SMA connector.

**2.** Normally the low-power mode(200mw) can give you enough range for your flight, so we recommend always use the low-power mode to fly, when you find any sign you may lose control, then you can switch to the high-power mode and you can get a full control again, this is a very safe strategy. However, both the high-power and low-power mode consume low power, normally the same or less than your normal radio's.

**3.** In order to get the best experience with this system, we need to make sure to offer the Rx module with clean and stable voltage power. If you use some big servos or use too many servos (more than 4), it's highly recommended that you power the Rx and all the servos using a stand alone UBEC with clean 5v or 6v output. There is a switch-mode regulator built in the Tx module, you can power the Tx module with a wide voltage range 7-30V, if the power to the Tx module is getting low, you can hear the warning buzzer.

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**4.** Although the Rx has been heavily filtered, we still strongly recommend you install the Rx as far as possible with the video transmitters and some cams with bad power design(such as the KT&C cams, gopro, etc).

**Finally, enjoy the Long Range FPV flight without worries of Range Limitations !**