

ChainLinkDare Long Range System

Dear pilot,

Thank you for purchasing the ChainLinkDare 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. ChainLinkDare 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.**

CLD (ChainLinkDare) is a system specially designed for FPV and UAV use, which works on the ISM band 433Mhz-435Mhz.. CLD features robust FHSS policy, hops to a new frequency every 22ms, which make it hard to be interfered. The diversity receiver will choose the best signal antenna to use for every packet, which can greatly improve performance under multi-path fading conditions and solve the problem caused by the polarity of the antenna. Normally the range will be 4-20 times

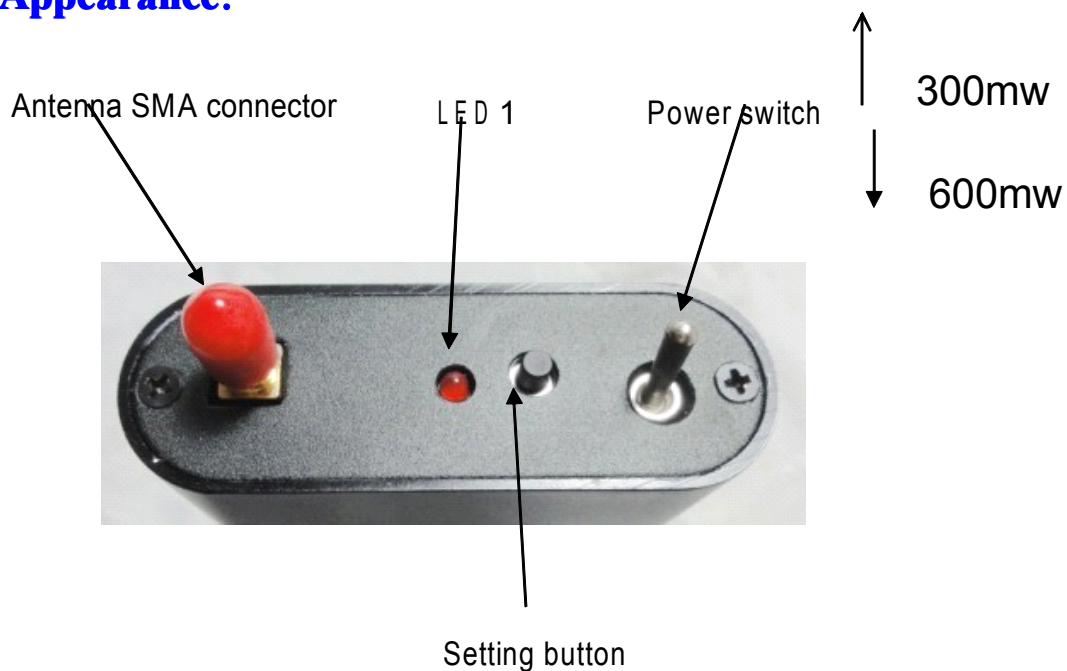
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of the normal RC radio, which will offer you far superior range compared to the stock RC transmitters offer.

SPEC:

Voltage: Tx: 7-16V(2s or 3s lipo),Rx: 4.8-6V
Power: High power mode: 600mw, 12V@300mA
Low power mode: 300mw, 12V@170mA
Micro power mode: 0.1mw (used for range test)
Sensitivity: -115dBm
Channels : 11 channels, 9 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*29*13mm(Rx)
Weight: 120g (Tx), 18g(Rx)

Appearance:

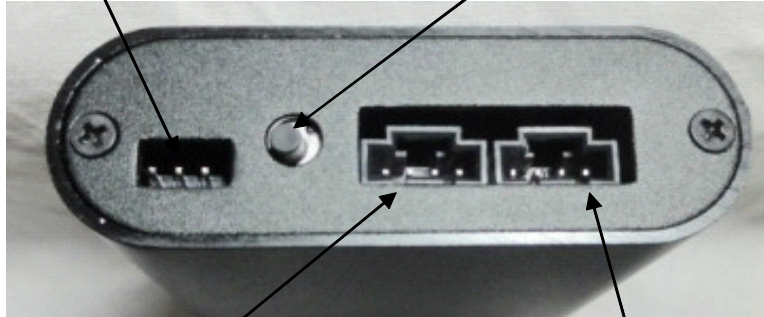


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GND, TX, Rx

COM port

Boot button



HeadTracker connector

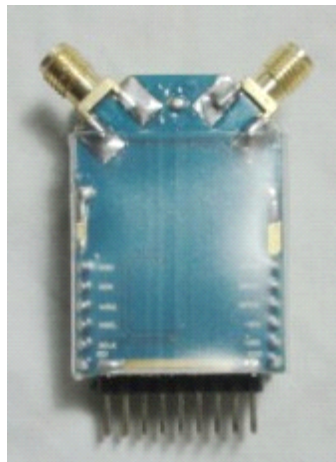
PPM and power connector

HT IN,PPM,VCC,GND

GND,PPM,VCC,GND

Left antenna

Right antenna

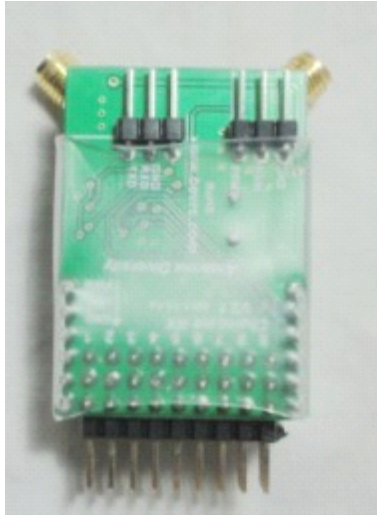


Channel 1-9

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Com port

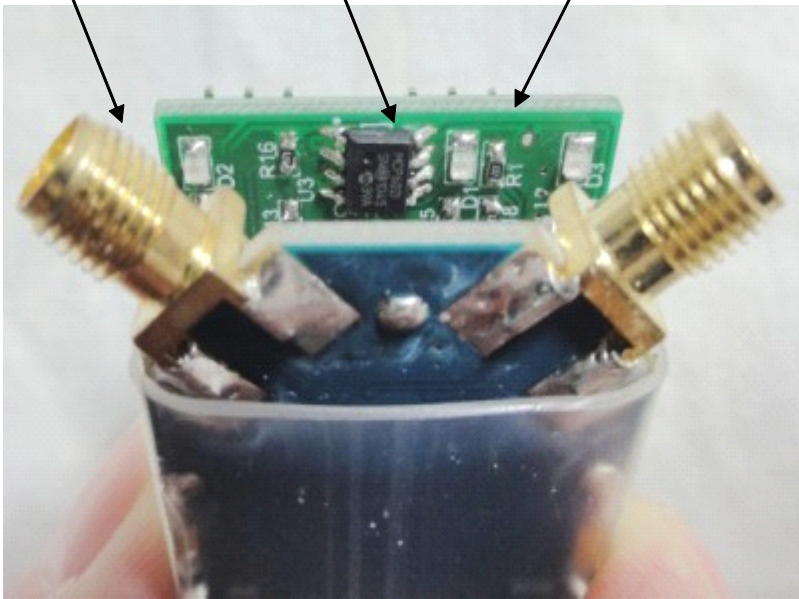
SPPM VRSSI GND



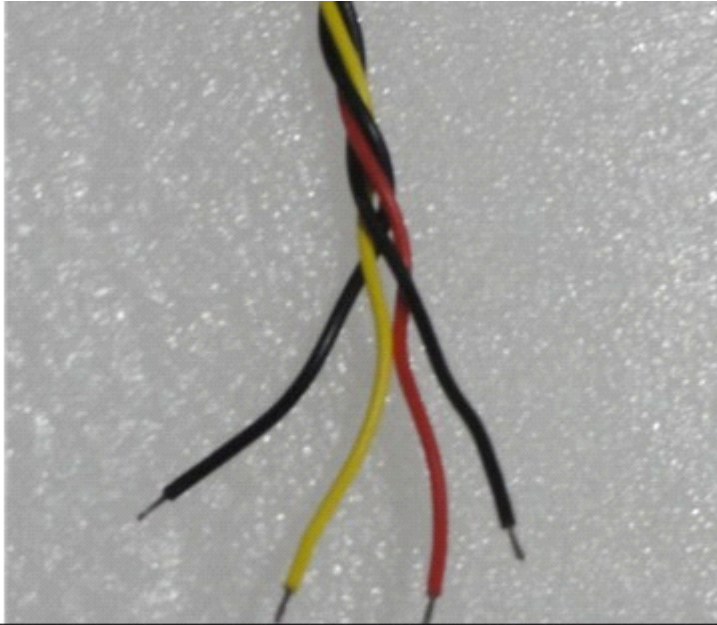
L-LED

S-LED

R-LED



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

Includes:

1* Tx module

1* Rx module

1* cable with locked connector

Installation:

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>.

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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)



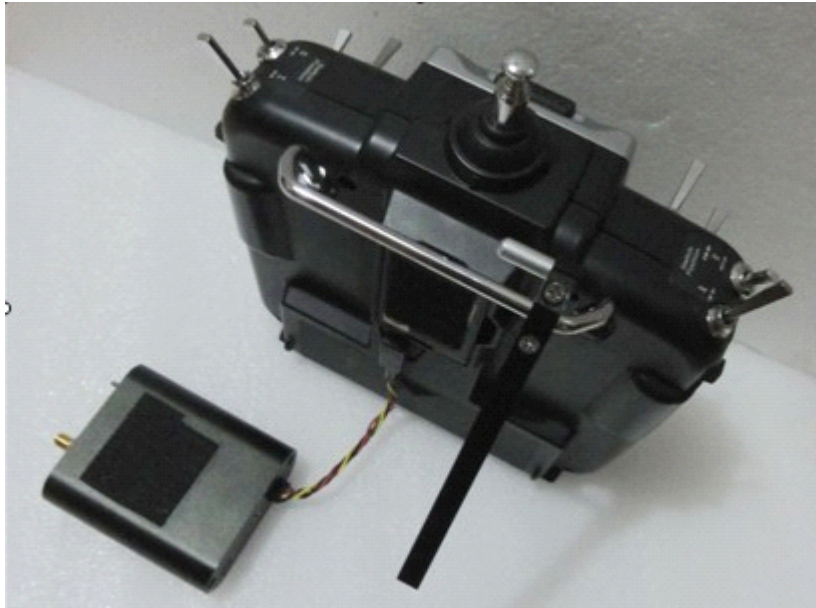
Futaba 9C,10C(TDF8, TDF9)

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: Remember to connect both the Tx and Rx's antenna, when the Tx module is on power-off mode, press the setting button and power on the Tx module, after a beep from the Tx, 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 signal LED of the Rx will be light up solid, which shows the binding has been completed. Cycle the power of the Tx, and you are good to go. You can also bind multiple Rxs with 1 Tx following the same way.

Warning: Everytime when the Tx enters the binding mode, the ID will be changed

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randomly, so all the Rxs binded with the Tx have to be binded again, so if you want to bind one Tx to multi Rxs, bind them at one time.

2. Failsafe setting: When the Tx and Rx module are working, press and hold 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. **The FS issue of the old ChainLink has been solved in ChainLinkDare.**

3. Micro mode: When the Tx module is power on, press the boot button until you hear a beep, You will hear the built in buzzer in Tx module beep every 2 seconds, which means the Tx moduel has entered the micro mode, you can now do a range test. If you can still get solid control over a range of 5-10m, then you can cycle the power of 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 ChainLinkDare Rx from video Tx and camera and some big amp devices and cables. An easy way to check if u put the ChainLinkDare Rx in a right place is below:
Set ChainLinkDare into micro power mode, check if there is any difference in range if u power on other devices and power off them. Normally the cameras are the main resource of the range killer, then keep far away form them and don't share power with them.
Try to keep the antenna of the Tx module vertical, the policy to set up the 2 diversity antennas is the "double V" shape, which mean the 2 antenna should be like a "V" from both the view of the upside and the backside.

5. How to plug a headtracker:

The new ChainLinkDare supports most of the headtrackers on the market, such as AEO XGY1000, SKY-EYE, TrackerR2, DT-3K and etc. The headTracker connector is a 4-pin locked connector, you can find the definitions of the pins in above pics, you need to connect the GND, HT IN, VCC to your headtracker, and set the channels of your headtracker to channel 7 and channel 8.

The policy of the HT channels are below:

For 4 channel radio, the HT channels are channel 5 and channel 6;

For 5 channel radio(if have), the HT channels are channel 6,channel 7;

For 6 channel radio, the HT channels are channel 7,channel 8;

For 7 channel radio, the HT channels are channel 7,channel 8;

For 8 channel radio, the HT channels are channel 7,channel 8;

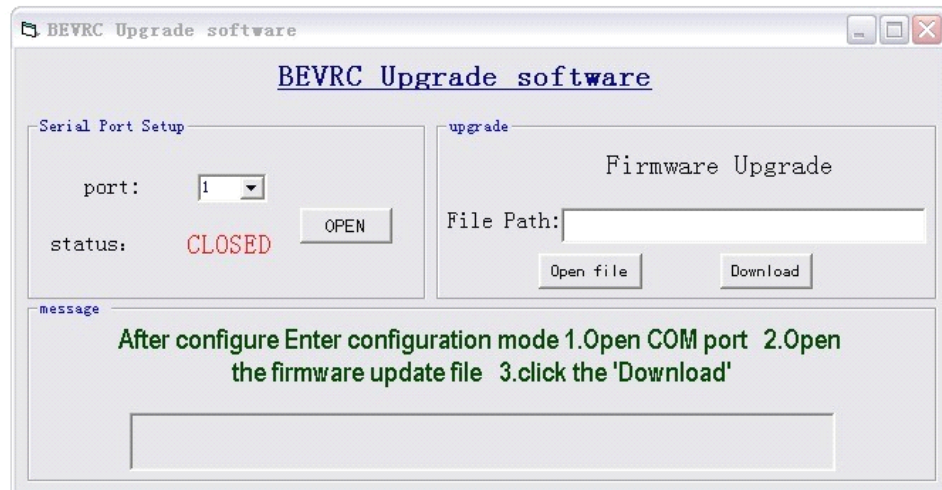
For 9 channel radio, the HT channels are channel 8,channel 9;

All the numbers of channel we mean are in PPM mode, not in PCM mode.

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6. How to update the firmware:

First, you should set up the BEVRC update software on your computer.



Tx: Press the boot button, then power on the Tx, the LED of Tx will be on, which means the Tx module enter the update mode, use a USB-TTL device to connect to your computer, choose the right port and click "open", then click "Open file" to find the update file, and click "download", it's really easy, when the update is done, the Tx will run the new firmware.

Rx: Use a wire to connect the S pin and GND pin of the channel 9, then power the Rx, the S-LED(signal LED) will be on, which shows the Rx enter the update mode. You can update the firmware as above.

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 u improve the range, but may break the SMA connector. Don't put the Tx antenna too close to the Rx antenna, the strong signal may make the Rx enter saturated mode, which will cause a bad communication between the Tx and Rx. Don't open the case of Tx and Rx, which will ruin the warranty for the product.
2. Normally the low-power mode(300mw) 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.
3. In order to get the best experience with this system, we need to make sure to

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offer the Rx module with clean and stable voltage power. If you use some big servos or use too many servos (more than 4), its 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 volt range 7-16V, if the power to the Tx module is getting low, you can hear the warning buzzer.

- 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 !