

## HGLRC Flight Controller User Manual

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### HGLRC Flight Controller



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## Package Included

Zeus F722 Flight Controller*1	Accessory Bag*1
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## Product Specifications

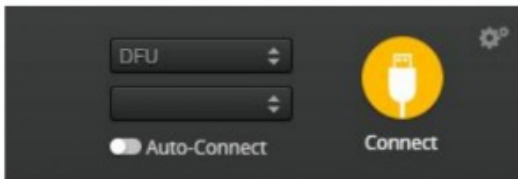
Product parameters	
Model	Zeus F722 Flight Controller
Weight	8.1g
Usage	for 100mm-450mm Frame Kit
MPU	MPU6000
CPU	STM32F722 RET6
Black Box	16M
Support receiver	SBUS .IBUS.DSMX/R9MM
Input Voltage	3-6S Lipo
BEC Output	5V/3A, 9V/2A
LED Output	5V/3A
Size	37.3×37.3mm board, 30.5mm mounting holes

**Interface Description**

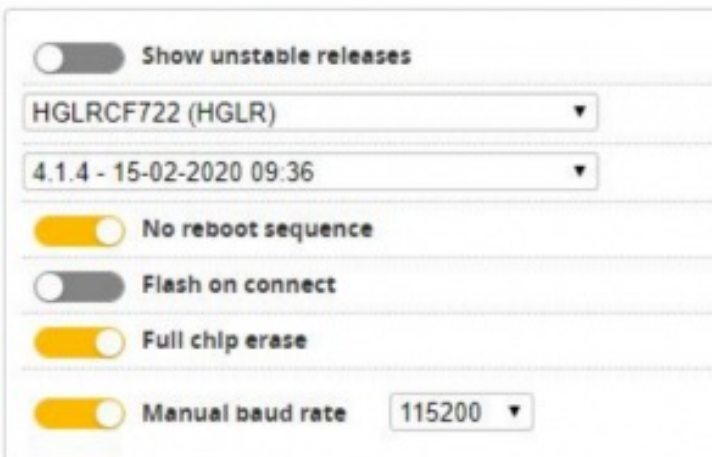




4. Open betafight configurator  , enter DFU mode



5. Click  Select firmware version




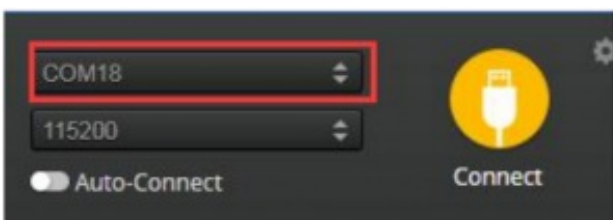
6. Click  Load firmware.  Waiting for completion



It will be prompted upon completion.



7. Open betafight configurator  .Controller plugged into the computer. Betaflight Automatically assigned port click "Connect" Enter setup interface (Different computer COM)



## Calibration accelerometer

1. Put the aircraft horizontal and click“ **Reset Z axis**” Click again

## Calibrate Accelerometer

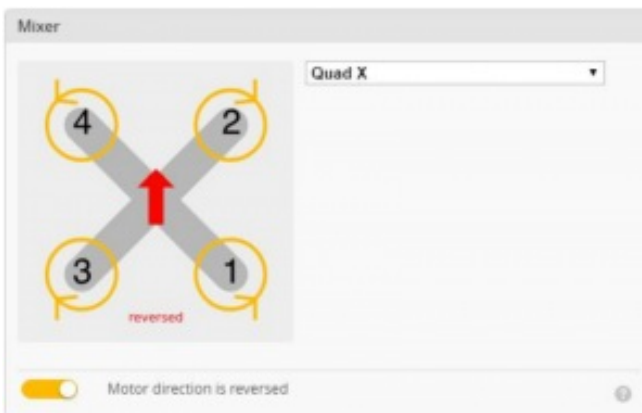



## URAT serial port use

1. URAT1 uses the receiver
2. URAT2 uses GPS
3. URAT3 uses VTX image transmission
4. URAT4 uses DJI
5. URAT6 uses ESC telemetry

## Select aircraft model

1. Click Select model

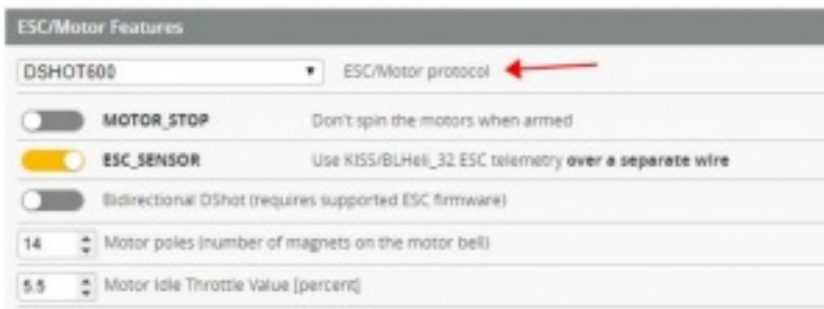


2. Click  **Motors** Click “**I understand the risks**” Push Master to check motor steering“ **Master**” Steering can be changed at [BLHeliSuite](#)



## Choose ESC protocol

1. Choose the right ESC protocol, the optional universal protocol DSHOT600.



## Turn on ESC telemetry

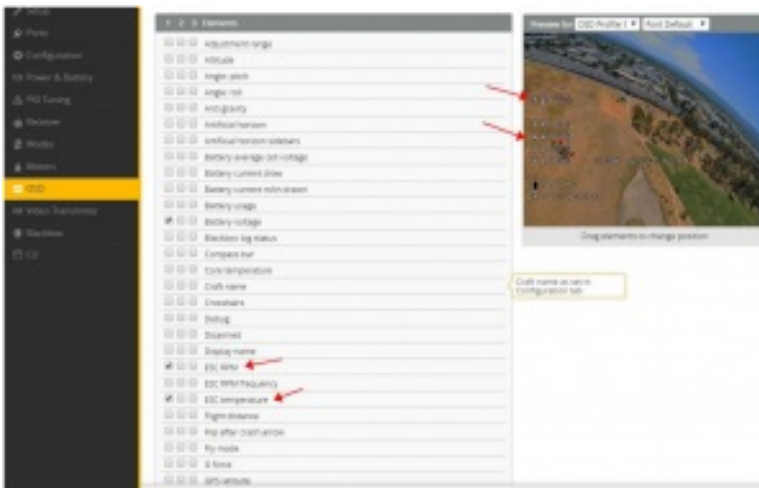
1. Use BLHeli\_32 ESC telemetry over a separate wire




2. Open ESC telemetry serial port. TX on the ESC needs to be connected to the RX6 on the flight controller to use the ESC telemetry



3. View telemetry data on OSD



## Voltage and current parameters setting

1. Click  **Power & Battery** Setting parameters

Battery

Onboard ADC

Voltage Meter Source

Onboard ADC

Current Meter Source

3.3

Minimum Cell Voltage

4.3

Maximum Cell Voltage

3.5

Warning Cell Voltage

0

Capacity (mAh)

Voltage Meter

Battery

0 V

112

Scale

10

Divider Value

1

Multiplier Value

Amperage Meter

Battery

0.00 A

179

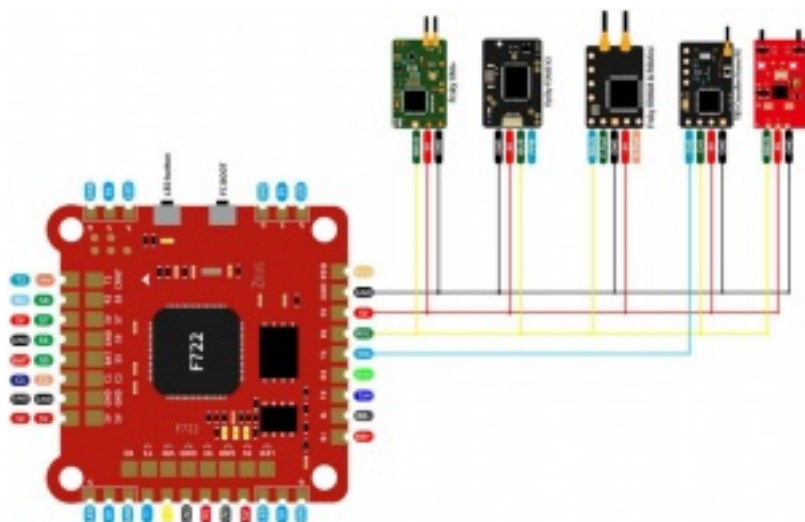
Scale [1/100th mV/A]

0

Offset [mA]

## Setting up the receiver

### 1. Receiver connection diagram



### 2. Click have found "UART1" Open the receiver serial port

Ports

Serial port configuration table:

Port	Configuration	Serial ID	Serial Mode	Serial Speed	Serial Parity	Serial Stop
UART0	115200, 8, 1, 1	UART0	UART0	115200	None	1
UART1	115200, 8, 1, 1	UART1	UART1	115200	None	1
UART2	115200, 8, 1, 1	UART2	UART2	115200	None	1
UART3	115200, 8, 1, 1	UART3	UART3	115200	None	1
UART4	115200, 8, 1, 1	UART4	UART4	115200	None	1
UART5	115200, 8, 1, 1	UART5	UART5	115200	None	1

### 3. Set the SBUS receiver

Receiver

Serial-based receiver (SPEKSAT, S)

Receiver Mode

Note: Remember to configure a Serial Port (via Ports tab) and choose a Serial Receiver Provider when using RX\_SERIAL feature.

SBUS

Serial Receiver Provider

### 4. Set the PPM receiver

Receiver

PPM RX input Receiver Mode

## 5. Set the DSMX receiver

Receiver

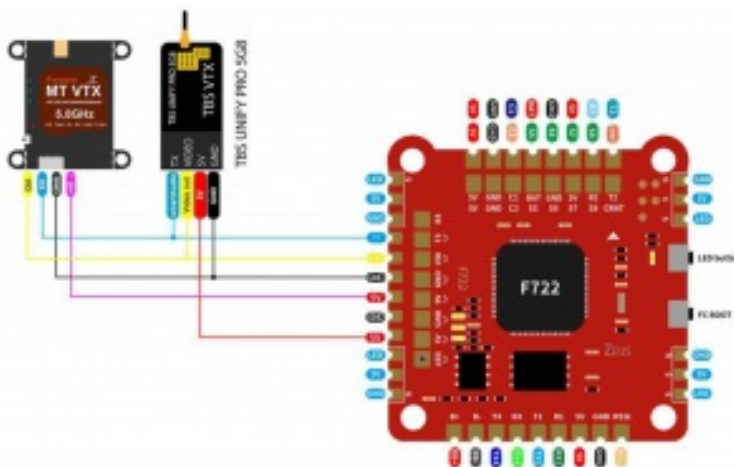
Serial-based receiver (SPEKTRUM2048) Receiver Mode

**Note:** Remember to configure a Serial Port (via Ports tab) and choose a Serial Receiver Provider when using RX\_SERIAL feature.

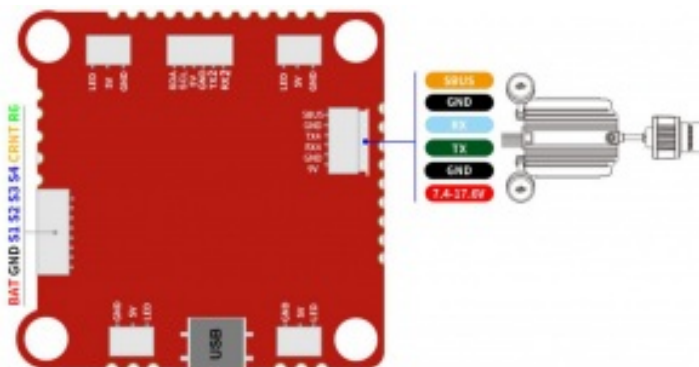
SPEKTRUM2048 Serial Receiver Provider

## VTX serial port use wiring . DJI serial port use wiring

### 1. 5.8VTX connection



### 2. DJI FPV Air Unit wiring



### 3. 5.8G VTX serial port opens. The protocol is selected according to its own VTX protocol.

Ports

Note: Serial communication will only work if the hardware configuration is correct. Please refer to the hardware configuration for more details.

Note: The serial port configuration is only valid when the hardware configuration is correct. Please refer to the hardware configuration for more details.

Port	Protocol	Mode	Speed	Parity	Stop	Flow Control
UART1	UART	TX	115200	N	1	None
UART2	UART	RX	115200	N	1	None
UART3	UART	TX	115200	N	1	None
UART4	UART	RX	115200	N	1	None
UART5	UART	TX	115200	N	1	None
UART6	UART	RX	115200	N	1	None
UART7	UART	TX	115200	N	1	None
UART8	UART	RX	115200	N	1	None
UART9	UART	TX	115200	N	1	None
UART10	UART	RX	115200	N	1	None
UART11	UART	TX	115200	N	1	None
UART12	UART	RX	115200	N	1	None
UART13	UART	TX	115200	N	1	None
UART14	UART	RX	115200	N	1	None
UART15	UART	TX	115200	N	1	None
UART16	UART	RX	115200	N	1	None
UART17	UART	TX	115200	N	1	None
UART18	UART	RX	115200	N	1	None
UART19	UART	TX	115200	N	1	None
UART20	UART	RX	115200	N	1	None
UART21	UART	TX	115200	N	1	None
UART22	UART	RX	115200	N	1	None
UART23	UART	TX	115200	N	1	None
UART24	UART	RX	115200	N	1	None
UART25	UART	TX	115200	N	1	None
UART26	UART	RX	115200	N	1	None
UART27	UART	TX	115200	N	1	None
UART28	UART	RX	115200	N	1	None
UART29	UART	TX	115200	N	1	None
UART30	UART	RX	115200	N	1	None
UART31	UART	TX	115200	N	1	None
UART32	UART	RX	115200	N	1	None
UART33	UART	TX	115200	N	1	None
UART34	UART	RX	115200	N	1	None
UART35	UART	TX	115200	N	1	None
UART36	UART	RX	115200	N	1	None
UART37	UART	TX	115200	N	1	None
UART38	UART	RX	115200	N	1	None
UART39	UART	TX	115200	N	1	None
UART40	UART	RX	115200	N	1	None
UART41	UART	TX	115200	N	1	None
UART42	UART	RX	115200	N	1	None
UART43	UART	TX	115200	N	1	None
UART44	UART	RX	115200	N	1	None
UART45	UART	TX	115200	N	1	None
UART46	UART	RX	115200	N	1	None
UART47	UART	TX	115200	N	1	None
UART48	UART	RX	115200	N	1	None
UART49	UART	TX	115200	N	1	None
UART50	UART	RX	115200	N	1	None
UART51	UART	TX	115200	N	1	None
UART52	UART	RX	115200	N	1	None
UART53	UART	TX	115200	N	1	None
UART54	UART	RX	115200	N	1	None
UART55	UART	TX	115200	N	1	None
UART56	UART	RX	115200	N	1	None
UART57	UART	TX	115200	N	1	None
UART58	UART	RX	115200	N	1	None
UART59	UART	TX	115200	N	1	None
UART60	UART	RX	115200	N	1	None
UART61	UART	TX	115200	N	1	None
UART62	UART	RX	115200	N	1	None
UART63	UART	TX	115200	N	1	None
UART64	UART	RX	115200	N	1	None
UART65	UART	TX	115200	N	1	None
UART66	UART	RX	115200	N	1	None
UART67	UART	TX	115200	N	1	None
UART68	UART	RX	115200	N	1	None
UART69	UART	TX	115200	N	1	None
UART70	UART	RX	115200	N	1	None
UART71	UART	TX	115200	N	1	None
UART72	UART	RX	115200	N	1	None
UART73	UART	TX	115200	N	1	None
UART74	UART	RX	115200	N	1	None
UART75	UART	TX	115200	N	1	None
UART76	UART	RX	115200	N	1	None
UART77	UART	TX	115200	N	1	None
UART78	UART	RX	115200	N	1	None
UART79	UART	TX	115200	N	1	None
UART80	UART	RX	115200	N	1	None
UART81	UART	TX	115200	N	1	None
UART82	UART	RX	115200	N	1	None
UART83	UART	TX	115200	N	1	None
UART84	UART	RX	115200	N	1	None
UART85	UART	TX	115200	N	1	None
UART86	UART	RX	115200	N	1	None
UART87	UART	TX	115200	N	1	None
UART88	UART	RX	115200	N	1	None
UART89	UART	TX	115200	N	1	None
UART90	UART	RX	115200	N	1	None
UART91	UART	TX	115200	N	1	None
UART92	UART	RX	115200	N	1	None
UART93	UART	TX	115200	N	1	None
UART94	UART	RX	115200	N	1	None
UART95	UART	TX	115200	N	1	None
UART96	UART	RX	115200	N	1	None
UART97	UART	TX	115200	N	1	None
UART98	UART	RX	115200	N	1	None
UART99	UART	TX	115200	N	1	None
UART100	UART	RX	115200	N	1	None

### 4. DJI serial port opens

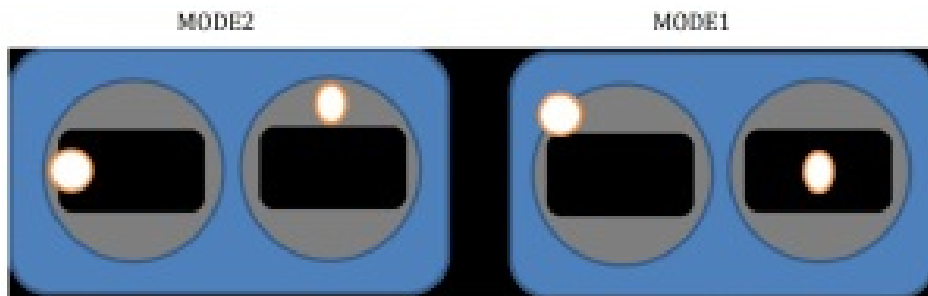
Ports Back

**Note:** Not all combinations are valid. When the flight controller firmware detects the serial port configuration will be reset.  
**Warning:** Do **not** enable AIO on the first serial port unless you know what you are doing. This may cause to refresh and reset your configuration if you do.

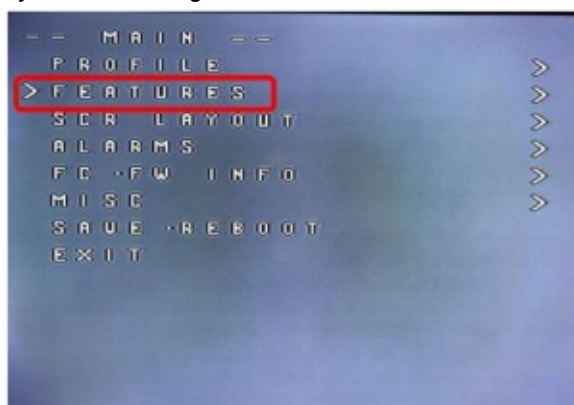
Connector	Configuration	Serial ID	Telemetry Output	Telemetry Input	Peripherals
USB VCP	115200	Off	Disabled	Disabled	Disabled
UART1	115200	On	Disabled	Disabled	Disabled
UART2	115200	Off	Disabled	Disabled	Disabled
UART3	115200	Off	Disabled	Disabled	VTX (IRC Tramp)
UART4	115200	On	Disabled	Disabled	Disabled
UART5	115200	Off	Disabled	IRC	Disabled

## Use OSD to adjust VTX

which displays information like battery voltage and mAh consumed while you fly. In addition, the Betaflight OSD can be used to configure the quadcopter, making in-field adjustments and tuning more convenient.



The graphics above show the stick command to bring up the OSD menu. The stick command is: throttle centered, yaw left, pitch forward. The exact stick command therefore depends on which mode your transmitter sticks are in. In the OSD menu, use pitch up/down to move the cursor between menu items. When a menu option has a > symbol to the right of it, this indicates that it contains a sub-menu.



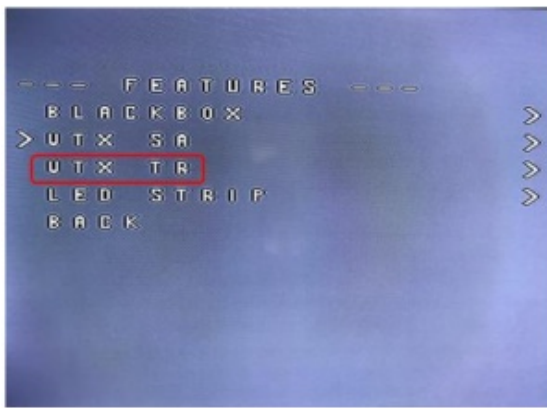
Roll-right will enter the sub-menu. For example, in the screen to the right, moving the cursor to “Features” and then moving the roll stick to the right will enter the “Features” sub-menu.

If you are using a video transmitter that supports remote configuration, enter the “Features” menu to configure the vTX. From there, enter either “VTX SA” if you are using SmartAudio (TBS Unify) or “VTX TR” if you are using IRC Tramp Telemetry.

To adjust PIDs, rates, and other tuning-related parameters, enter the “Profile” sub-menu.

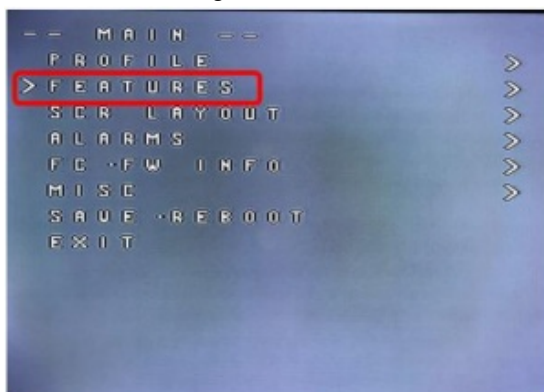
In the “Scr Layout” sub-menu, you can move the OSD elements (like battery voltage, mAh, and so forth) around on the screen.

The “Alarms” sub-menu lets you control when the OSD will try to alert you that battery voltage is too low or mAh consumed is too high.



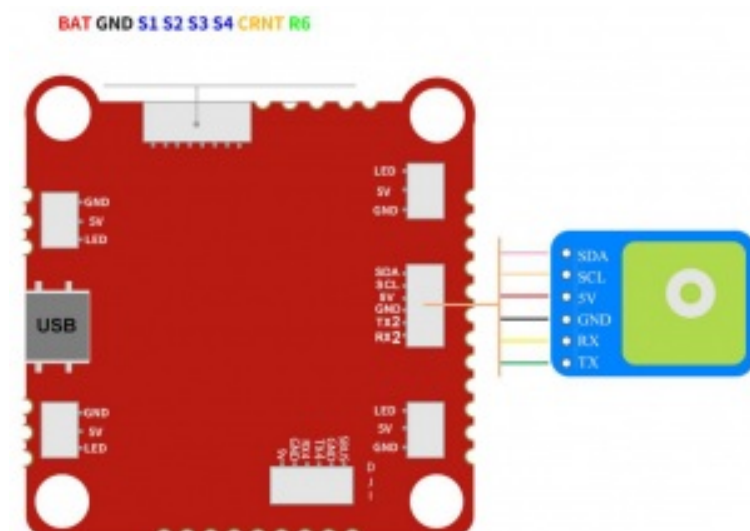
When a parameter can be modified, the parameter's current value will be shown on the right-hand side of the screen. In this case, roll left/right will adjust the parameter up and down.

The screen to the right shows the current vTX settings. From here, you can change the frequency band, channel, and power level of the video transmitter. After making the changes, move the cursor to "Set" and press roll-right to confirm the settings.



## GPS parameters setting

### 1. GPS connection diagram



### 2. Open the GPS serial port

Ports

Note: Not all combinations are valid. When the flight controller firmware detects this the serial port configuration will be reset.  
 Note: Do NOT enable UART on the first serial port unless you know what you are doing. You may have to reflash and erase your configuration if you do.

Identifier	Configuration	Serial No.	Serial Output	Serial Input	Peripheral
USB1CP	115200	<input type="checkbox"/>	Disabled	Enabled	Disabled
UART1	115200	<input type="checkbox"/>	Disabled	Enabled	Disabled
UART2	115200	<input type="checkbox"/>	Disabled	GPS	Disabled
UART3	115200	<input type="checkbox"/>	Disabled	Enabled	VTX (RC Tx)
UART4	115200	<input type="checkbox"/>	Disabled	Enabled	Disabled
UART5	115200	<input type="checkbox"/>	Disabled	Enabled	Disabled

- When using the GPS function, remember to configure the serial port (via the Ports tab).

GPS

☒ GPS GPS for navigation and telemetry

Note: Remember to configure a Serial Port (via Ports tab) when using GPS feature.

UBLOX Protocol

☐ Auto Baud

☒ Auto Config

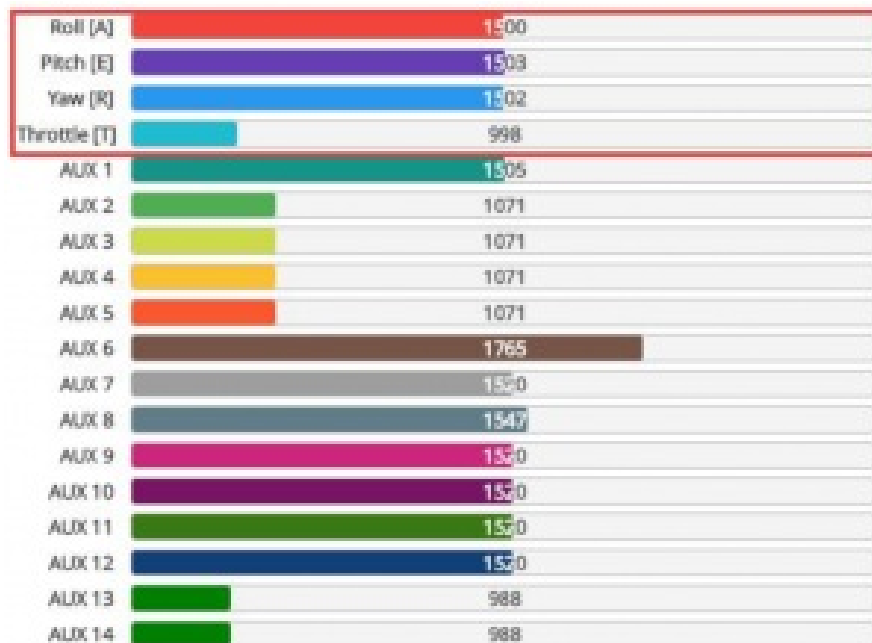
Auto-detect Ground Assistance Type

0.00 Magnetometer Declination [deg]

## Check receiver signal



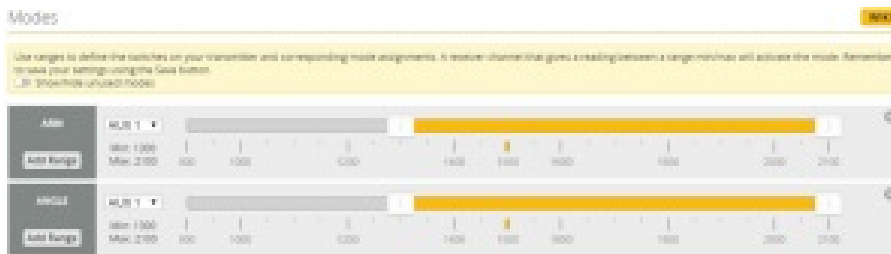
- Click **Receiver** Check the remote control output signal




## Select flight mode startup mode

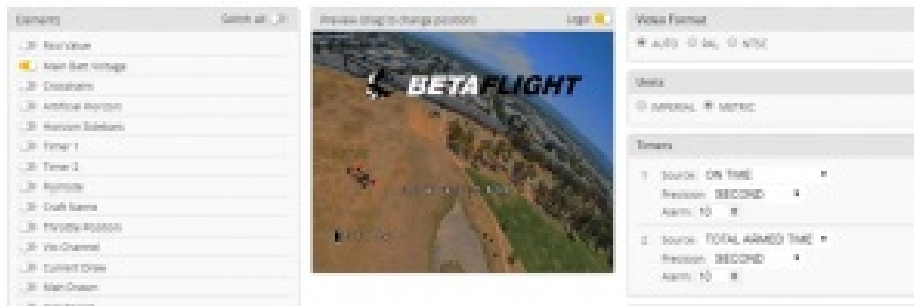


- Click **Modes** set up the function of remote control switch across the channel (below are for reference only)



## OSD settings

1. Click  the OSD Settings, according to the need to choose, drag the OSD schematic diagram of the parameters can be adjusted.




## LED settings

1. LED function buttons:  
Short press to switch colors.  
Press and hold for 3 seconds to enter the blinking mode switch (LED status light is always on)
2. Blinking mode:  
Steady / Fast Flash / Breathing Light / Colorful Slow Flash
3. LED light can be controlled via **CH5(AUX1)** of transmitter with Channel\_Forwarding enabled.

Click  enter

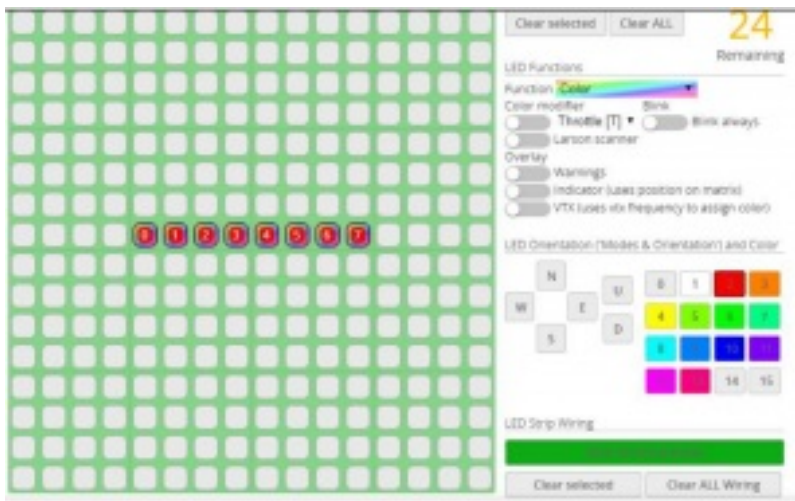
resource servo 1 A08

SAVE

4. Click  Turn on LED support



5. Click  Click  set according to need



## Troubleshooting

### Warning:

Please read the cautions as follows, otherwise stability of your flight controller cannot be ensured, your flight controller will even get damaged.

- Keep focus on the polarity. Check carefully before power supply.
- Cut off the power when you connect, plug and pull anything.
- The refresh rate of PID and Gyroscope is up to 8K/8K.

### after sales question:

1. After receiving the goods, it is found that the product can not be used normally. If the return to the factory is a quality problem, the repair service will be provided free of charge.
2. If the product is damaged due to improper operation, the repair service may be provided under the condition that the inspection can be repaired.
3. For domestic customers, please contact the after-sales service personnel.  
For overseas customers, please contact the official website for after-sales service.

### Product daily problems

#### 1.OSD garbled:

If you find garbled characters, please open Betaflight, click "OSD".and click "Font Manager" clicks on "Upload Font" to update

1. When plugged in the battery, the aircraft does not pass the self-test without "BBB" sound. There is only one sound.

Please check if the ESC agreement is correct


#### 3.The spin of the aircraft keeps spinning

1. Please check if the propeller is correct
2. Please check if the motor direction is correct



[www.hglrc.com](http://www.hglrc.com)

## Documents / Resources

	<p><a href="#">HGLRC Flight Controller</a> [pdf] User Manual Flight Controller, Zeus F722</p>
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Manuals+.