AK103 AK123

PNP manual

User manual and video please visit : WWW.LDARC.COM
PRODUCT>>MULTROTOR>>AK SERIES>>
AK103/AK123 PNP

AK103/AK123
PNP manual
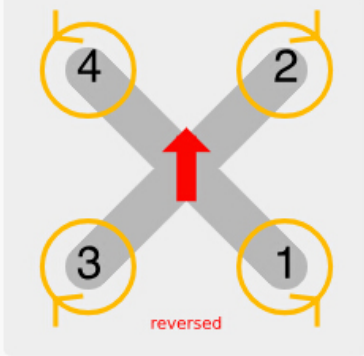
Caddx.US turtle
V2 manual

190826

Mixer

Quad X ▼

4   2

3   1

reversed

Note: Pay attention to the direction of rotation of the motor when installing the prop

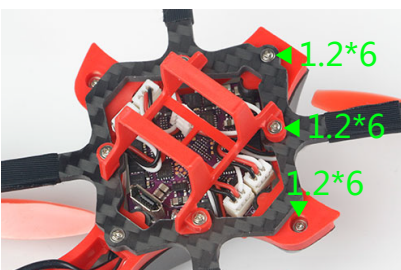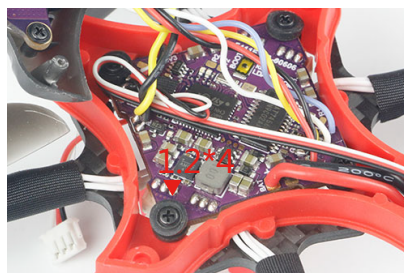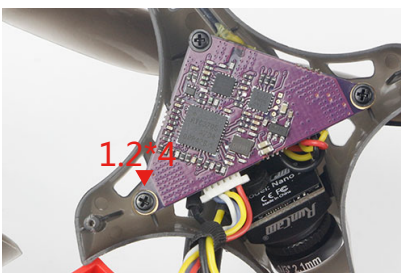Motor direction is reversed

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Note 2

VTX antenna need fixed with glue

Note 3

When the center hole is to small, please use the M1.5 or M1.0 drill to ream the hole.

Mounting screws

1.2*4

1.2*4

M2*7

AK123

M2*4 ▶

AK103

1.2*5

M2*3 ▶

◀1.2*6

◀1.2*6

1.2*6

Configuration

| Name	AK103	AK123
Wheelbase	109mm	122mm
Weight	42g	55g
Prop	65mm-2(1.0)	75mm Racer
Motor	XT11015-6100KV(1.0mm shaft)	XT1103-6500KV(1.5mm shaft)
Camera	RunCam Nano2	
FC	F411E12A(MATEKF411)	
ESC	4in1 12A BLheli_S(G-H-30)	
VTX	0/25/100/200mW 48CH IRC-Tramp	
Receiver	AC2000 DUAL-CORE TRI-MODE(S-FHSS,D16 non-E,D16 EU-LBT)	
Battery	11.4V 300mAh 30C	
The weight not include battery,receiver and bumper		

AK103

10 Pairs

AK123

10 Pairs

25.5mm   **25.5mm**

M2   **M4**

36mm

M1   **M3**

29mm   **29mm**
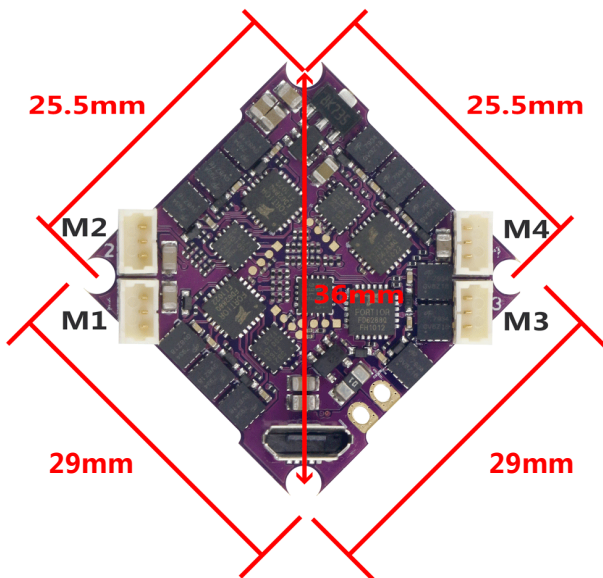
<1> STM32F411 MCU,Operation at 100Mhz,firmware target MATEKF411.

<2> MPU-6000 six-axis SPI sensor.

<3> Low power version AT7456E,support Betaflight OSD.

<4> BEC use MP9943 High-Efficiency Synchronous mode DC-DC, support 5V@1.5A output.

<5> TX1 and RX1 pads,can support IRC-Tramp or Camera control.

<6> UART2 have 4 pads, TX2, RX2, invert TX2, invert RX2, support all type receiver, like S.BUS, DSM, iBUS, F.Port, crossfire etc.

<7> TX2 and RX2 pads,RX2 support NOT invert receiver,for example DSM or iBUS.

<8> Invert TX2 and invert RX2 pads,invert RX2 support invert receiver like S.BUS,and PPM receiver also need connect to invert RX2 pad.

<9> Support buzzer and LED strip.

<10> Onboard current sensor,current scale value 210.

<11> BLheli_S four in one ESC,target is G-H-30.

<12> ESC maximum current 12A each way,support 2S~4S lipo battery, **if use 2S battery please make sure voltage not lower than 6.8V when ESC in heavy load.**

25.5mm   **25.5mm**

36mm
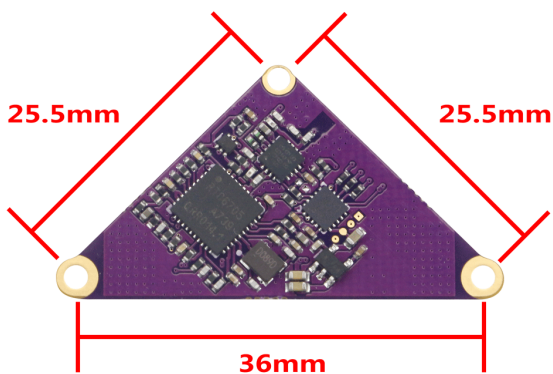
<1> 48 channels 0/25mW/100mW/200mW four stage out power.

<2> Single 5V power supply, support IRC-Tramp **(Key will be disabled when user enable IRC-Tramp)**

<3> Camera 5V power output use CLC filter.

<4> Antenna use IPEX socket, can update and maintain comfortably.

How to use the VTX: **BULE** LED is channel (CH) indicator,flash 1~8 times mean CH-1~8;**GREEN** LED is band(BD) indicator,flash 1~6 times mean BAND-A~F;**RED** is output power(PW) indicator,flash 1~3 times mean 25mW / 100mW / 200mW output power.In normal working state,quickly double-click button,R/G/B sync flash mean VTX turned off,and also quickly double-click can turn on the VTX.In normal working state,press and hold the key for 3s,only **BLUE** LED flashes,now click the key change channel(CH). Press and hold the key for 3s,only **GREEN** flashes,now click the key change band(BD).Press and hold the key for 3s,only **RED** LED flashes,now click the key change output power (PW).

	CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8
Band A	5865	5845	5825	5805	5785	5765	5745	5725
Band B	5733	5752	5771	5790	5809	5828	5847	5866
Band C	5705	5685	5665	5645	5885	5905	5925	5945
Band D	5740	5760	5780	5800	5820	5840	5860	5880
Band E	5362	5400	5436	5473	5510	5547	5584	5620
Band F	5658	5695	5732	5769	5806	5843	5880	5917

Firmware target : MATEKF411 + G-H-30
Voltage : 2S~4S
ESC : 12A x 4way
BEC : 5V@1.5A
Current scale value : 210

5V
Invert RX2
Invert TX2
3V3

LED

Buzzer

RX2
TX2

IF USE 2S BATTERY PLEASE MAKE SURE VOLTAGE NOT LOWER THAN 6.8V WHEN ESC IN HEAVY LOAD !

BAT+
2S-4S
BAT-

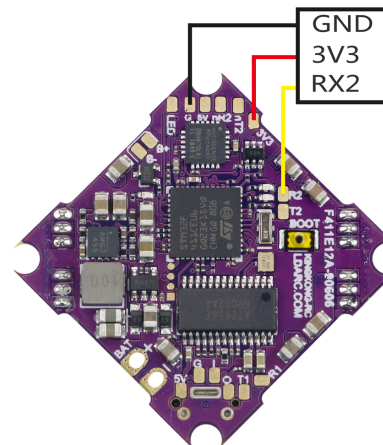**KEY WILL BE DISABLED WHEN USER ENABLE IRC-TRAMP**

RX1

CLC FILTER

TX1 IRC Tramp
Video out
Video in
GND
+5V

Camera
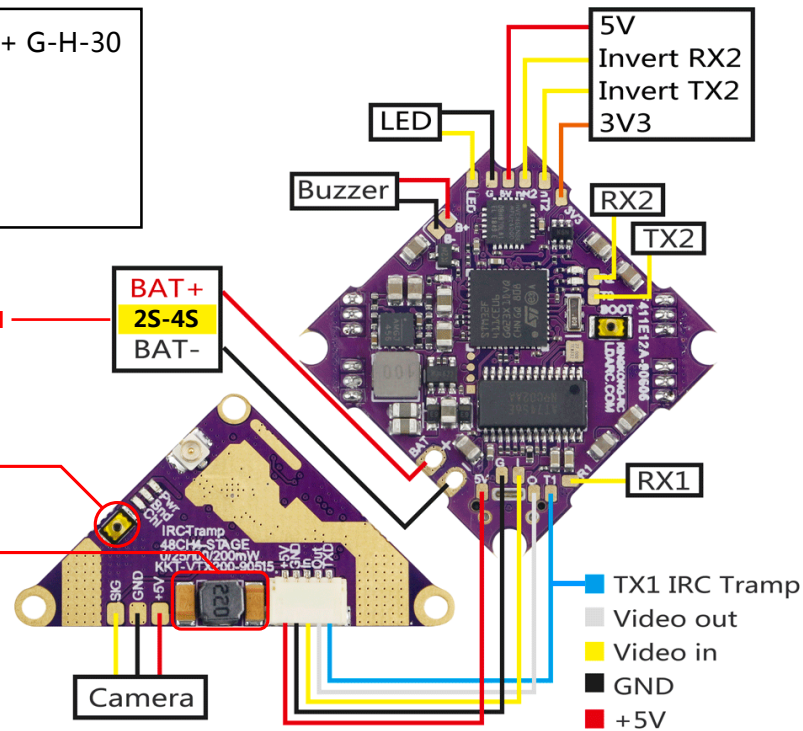
S.BUS & PPM Receiver connection	Supply voltage is 5V PPM or invert RX2 signal input	DSM2 & DSMX Receiver connection	Supply voltage is 3.3V NOT invert RX2 signal input
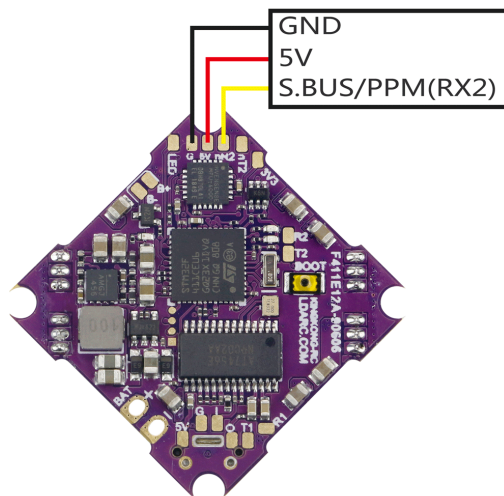
GND
5V
S.BUS/PPM(RX2)

GND
3V3
RX2

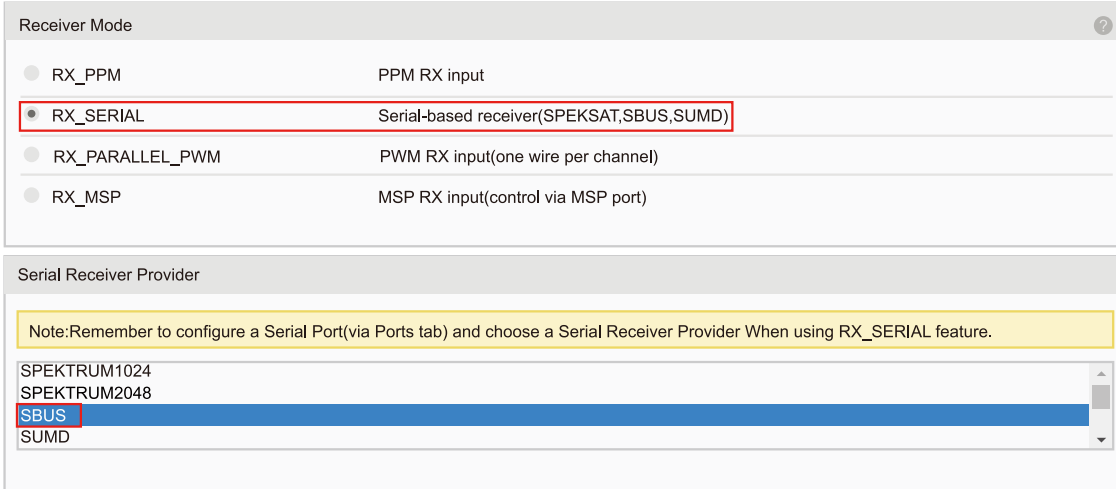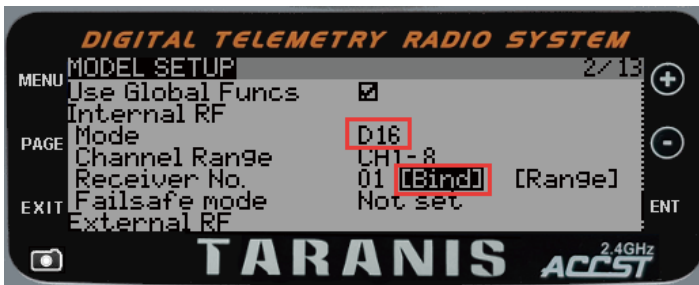| iBUS Receiver connection	Supply voltage is 5V NOT invert RX2 signal input

GND
5V
RX2
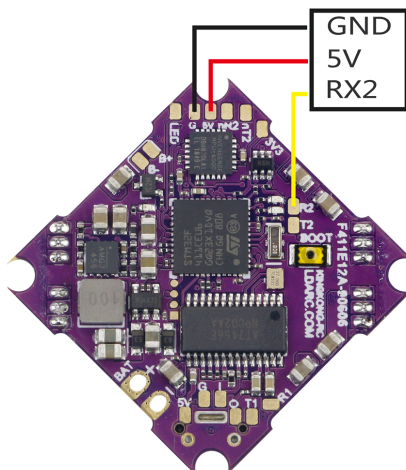
AC900(S-FHSS+D16) bind,transmitter(FRSKY X9D/Futaba T18SZ)

Bind:Check receiver mode before bind,the first blink after power on indicate the setting, ■is S-FHSS, ■is D16

FUTABA S-FHSS BIND:Turn on the TX then power on AC900 while pressing the key, green LED fast blink meaning already in bind mode, user can release the key. Bind procedure is completed and the receiver is working normally when green LED is solid

FRSKY D16(NO Telemetry) BIND:Power on AC900 while pressing the key, green LED fast blink meaning already in bind mode, user can release the key, then set your TX into D16 bind mode. red LED solid meaning bind finished, exit TX from bind mode, receiver's green LED solid meaning working normally

Receiver Mode

- ○ RX_PPM   PPM RX input
- ● RX_SERIAL   Serial-based receiver(SPEKSAT,SBUS,SUMD)
- ○ RX_PARALLEL_PWM   PWM RX input(one wire per channel)
- ○ RX_MSP   MSP RX input(control via MSP port)

Serial Receiver Provider

Note:Remember to configure a Serial Port(via Ports tab) and choose a Serial Receiver Provider When using RX_SERIAL feature.

SPEKTRUM1024
SPEKTRUM2048
SBUS
SUMD

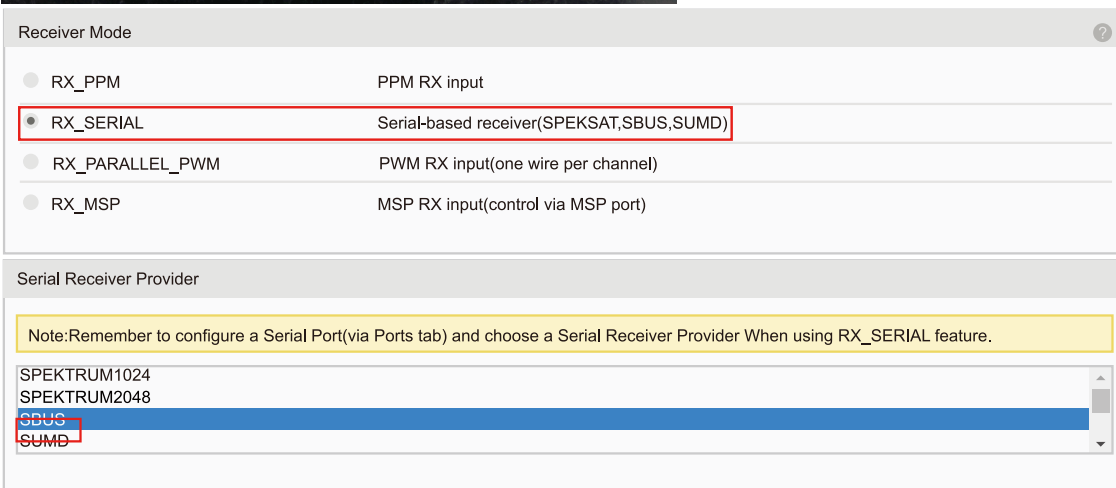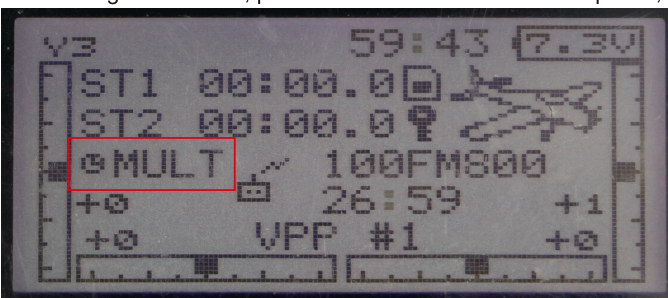## FM800 bind (default S.BUS, nonsupport PPM), example (FUTABA T8FG)

1. Open remote control, hold receiver bind button to power
2. Green light constant lighting means bind success

Note:

S.BUS and CPPM mode switch
Close remote control, press bind button 6S when red light flash, loosen until enter S.BUS and CPPM mode switch
1. Green light quick flashing, press bind button and disconnect power, power-on again, enter S.BUS mode
2. Green light slow flash, press bind button and disconnect power, power-on again, enter PPM mode

Receiver Mode

- ○ RX_PPM   PPM RX input
- ● RX_SERIAL   Serial-based receiver(SPEKSAT,SBUS,SUMD)
- ○ RX_PARALLEL_PWM   PWM RX input(one wire per channel)
- ○ RX_MSP   MSP RX input(control via MSP port)

Serial Receiver Provider

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SPEKTRUM1024
SPEKTRUM2048
SBUS
SUMD

DSM bind, example (T-SIX)

1. Remote control in off state,　　　　　bind button to power
2. Loosen until indicator light fast blink, enter to bind mode
3. Open remote control bind mode, indicator light constant lighting means bind success

Note 1:
DSM2 uses SPEKTRUM1024 or SPEKTRUM2048 protocol，according to the remote control model to choose corresponding serial port protocol (example T-SIX, set protocol as SPEKTRUM1024)

Note 2:
DSMX remote control bind to DSM2 and DSMX receiver, but DSM2 remote control only bind to DSM2 receiver.
DSM2: Old SPEKTRUM and JR remote control protocol, widely-used with good compatibility.
DSMX: Newest SPEKTRUM remote control protocol, DSMX backwards compatible DSM2.

Receiver Mode

○	RX_PPM	PPM RX input
◉	RX_SERIAL	Serial-based receiver(SPEKSAT,SBUS,SUMD)
○	RX_PARALLEL_PWM	PWM RX input(one wire per channel)
○	RX_MSP	MSP RX input(control via MSP port)

Serial Receiver Provider

Note:Remember to configure a Serial Port(via Ports tab) and choose a Serial Receiver Provider When using RX_SERIAL feature.
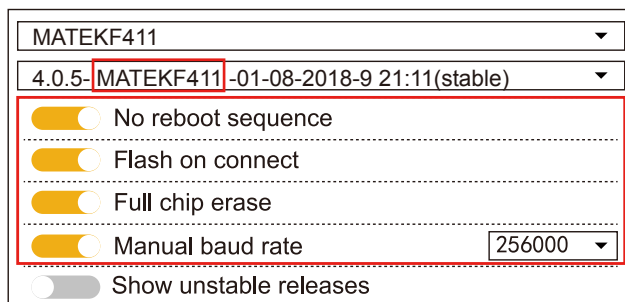
SPEKTRUM1024
SPEKTRUM2048
SBUS
SUMD

RX2A PRO Bind(S.BUS),transmitter(FLYSKY FS-i6)

BIND:Power on the receiver while pressing the key,green LED fast blink meaning already in bind mode,
user can release the key,then set your TX into bind mode.Green LED turn off and red LED solid mean bind finished,
exit TX from bind mode,receiver'sgreen LED solid mean working normally.
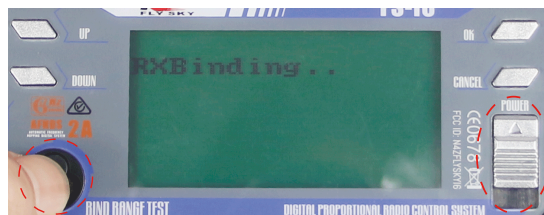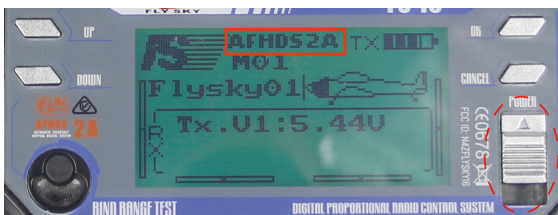
Receiver Mode

○	RX_PPM	PPM RX input
◉	RX_SERIAL	Serial-based receiver(SPEKSAT,SBUS,SUMD)
○	RX_PARALLEL_PWM	PWM RX input(one wire per channel)
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Serial Receiver Provider

Note:Remember to configure a Serial Port(via Ports tab) and choose a Serial Receiver Provider When using RX_SERIAL feature.
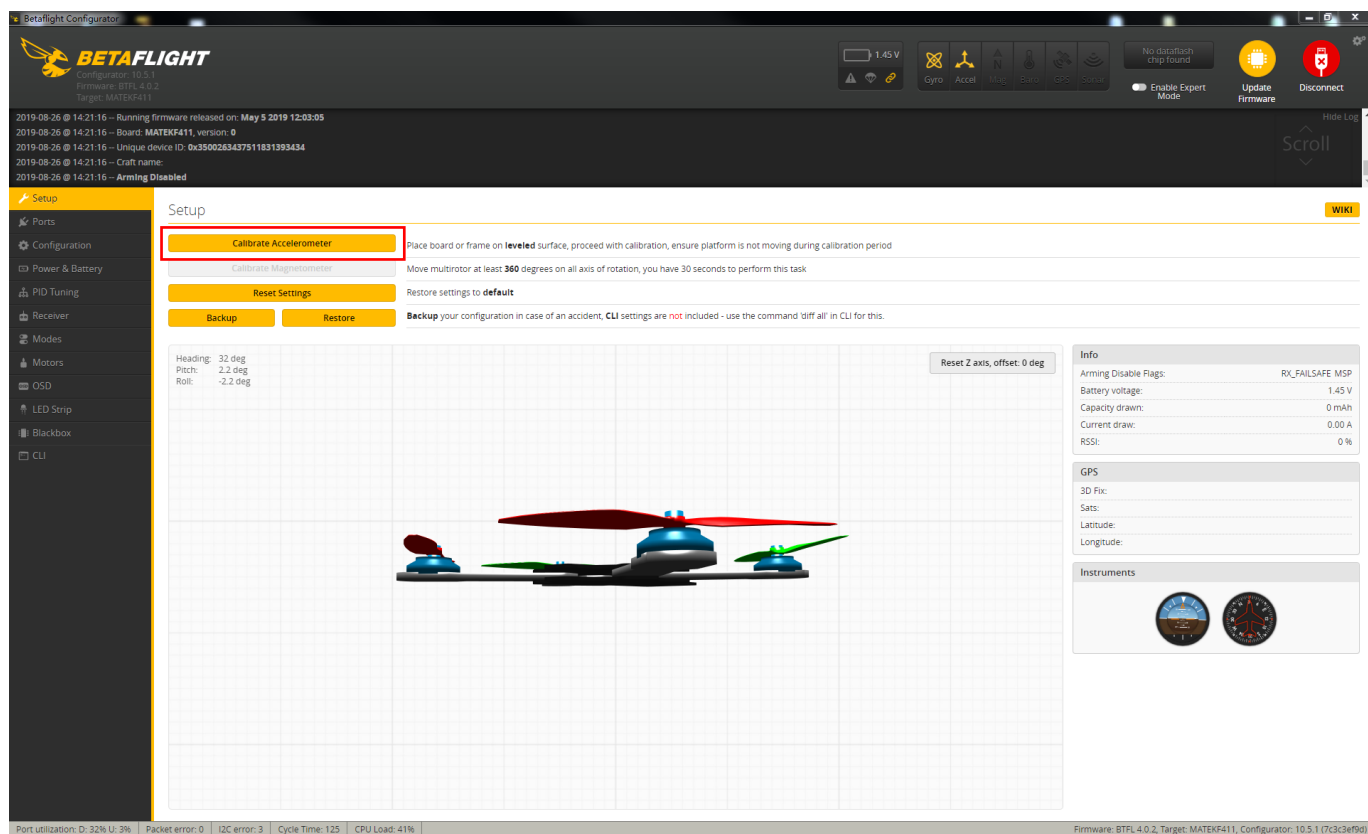
SPEKTRUM1024
SPEKTRUM2048
SBUS
SUMD

Firmware Update

BETAFLIGHT firmware allready flash before leave the factory,user just need connect PC to adjust the parameter

1.Open betaflight configuration **BETAFLIGHT** ,then click **Firmware Flasher** ,select FW version

MATEKF411	▼
4.0.5- MATEKF411 -01-08-2018-9 21:11(stable)	▼

- ⬤ No reboot sequence
- ⬤ Flash on connect
- ⬤ Full chip erase
- ⬤ Manual baud rate   256000 ▼
- ◯ Show unstable releases

2.Click **Load Firmware[Online]** ,then click **Flash Firmware** to download FW to FC, click 🔵 after FW updating finish into setting menu

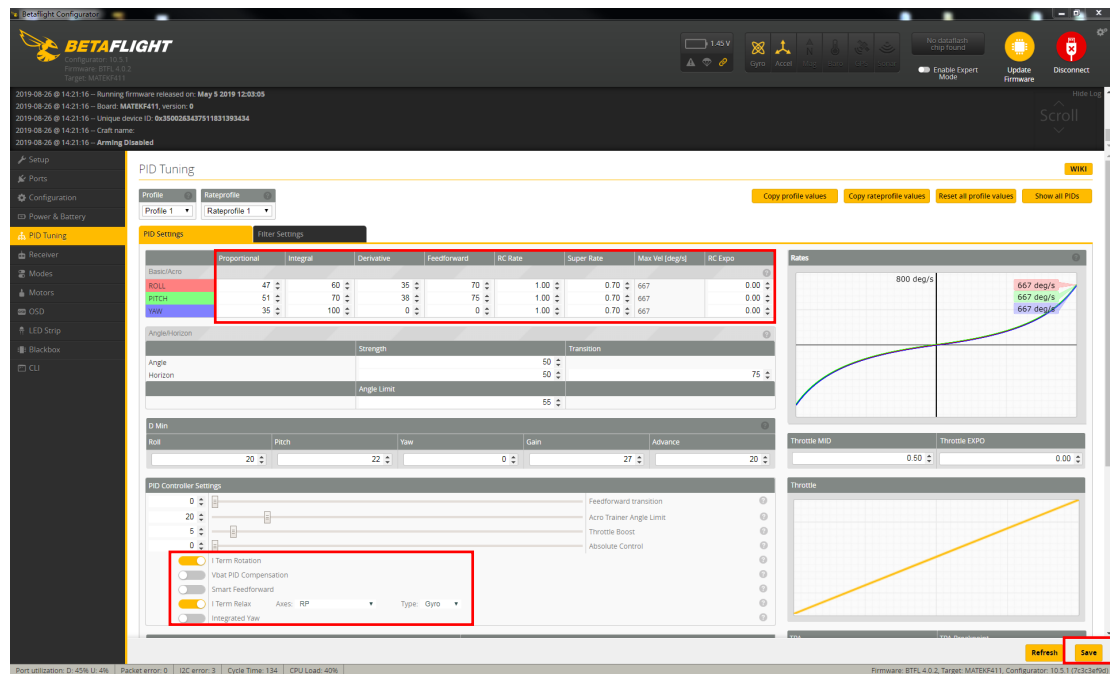3.Calibration "Calibrate Accelerometer"

4.Port，Open UART2 switch and save
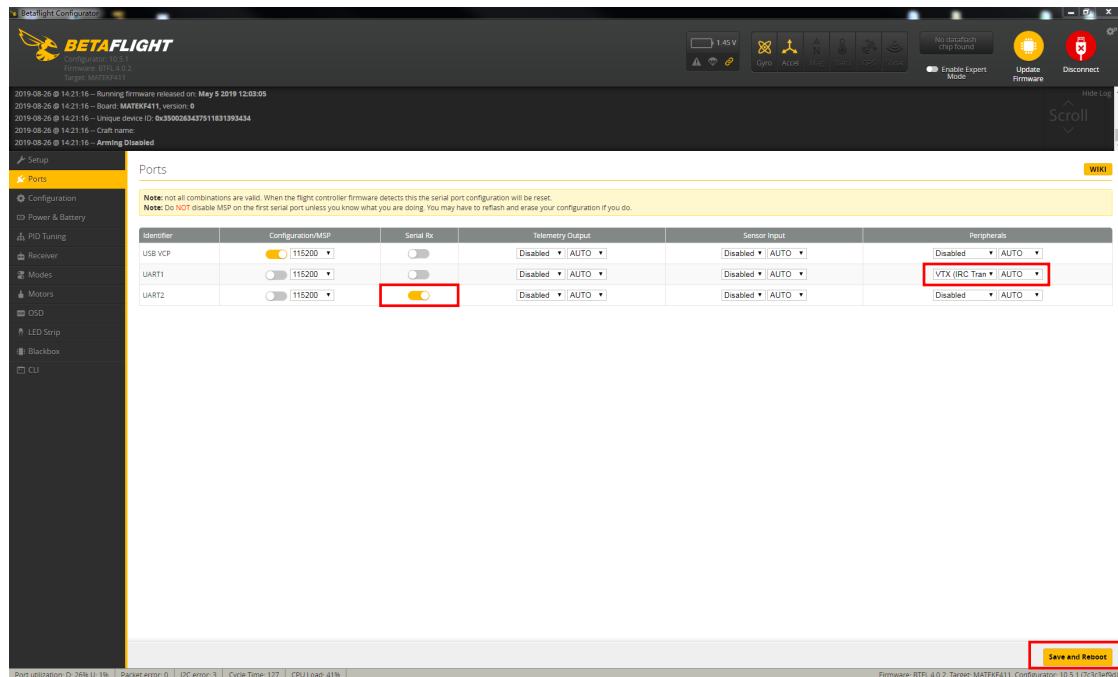
5.Configuration，select ESC protocol "DSHOT600" ，Set up the receiver protocol
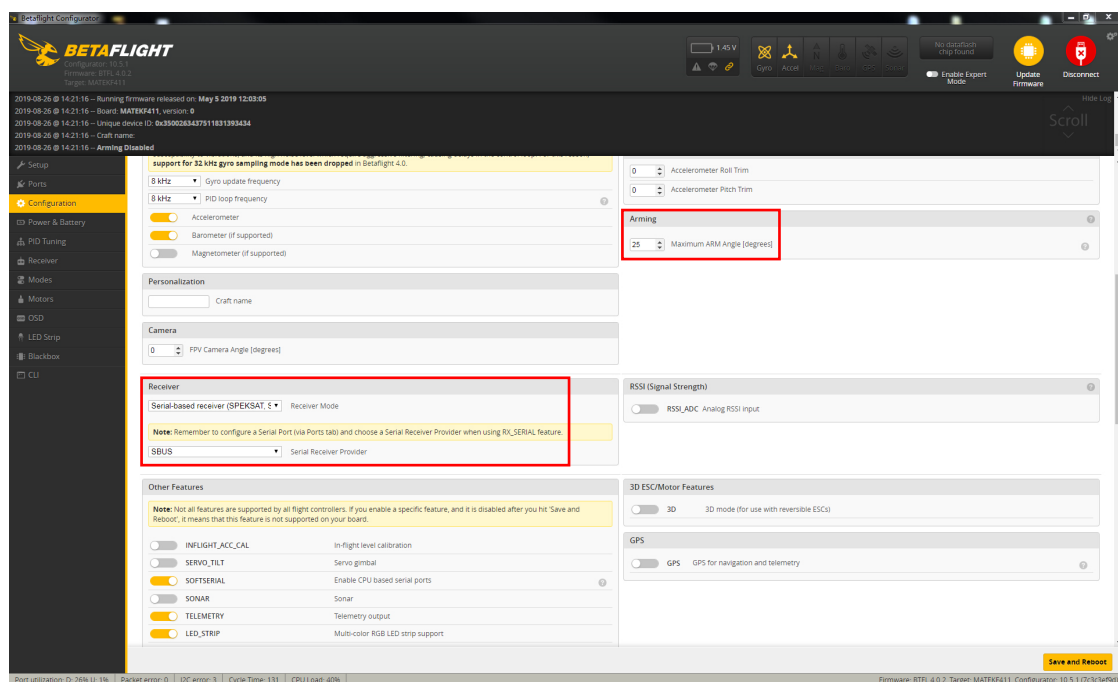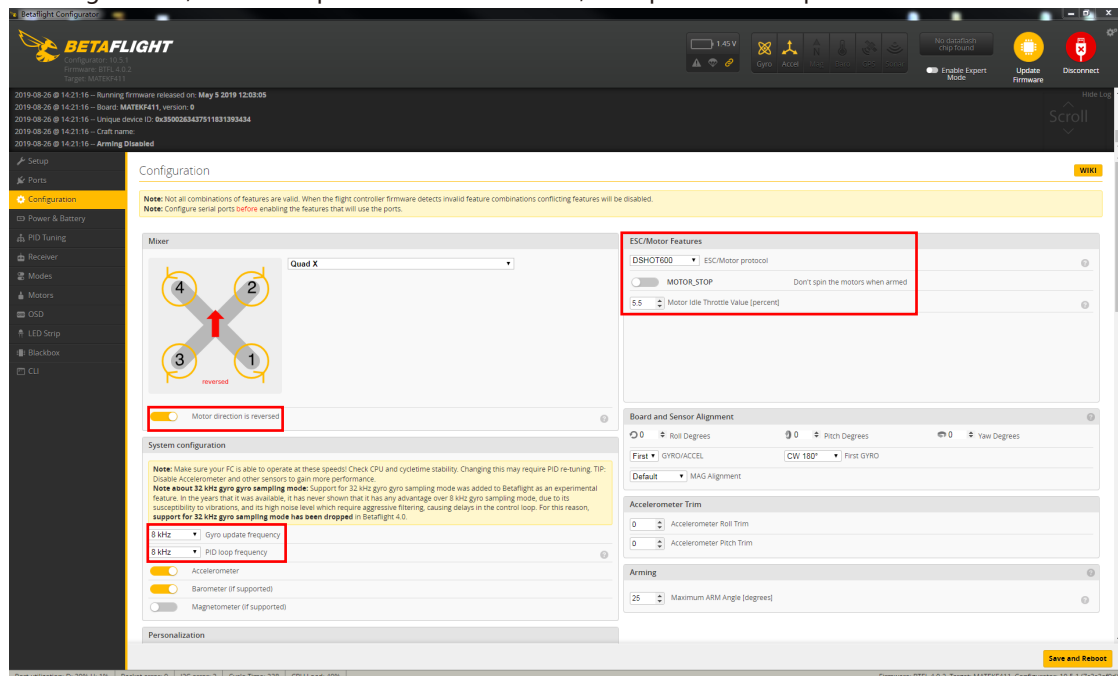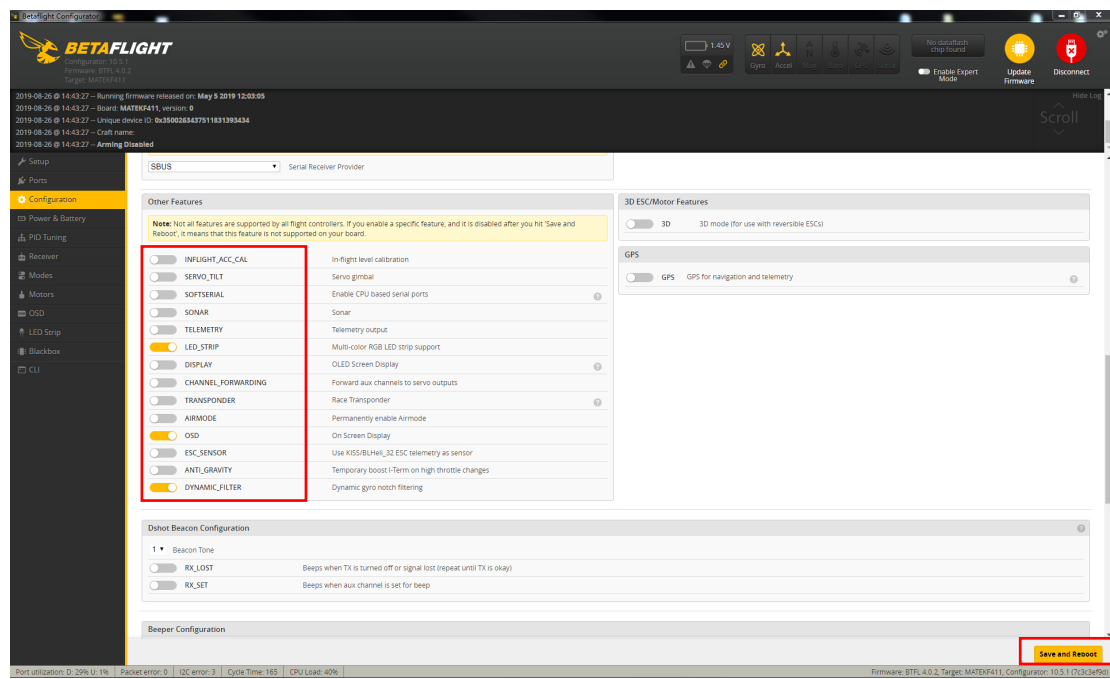
6.PID set

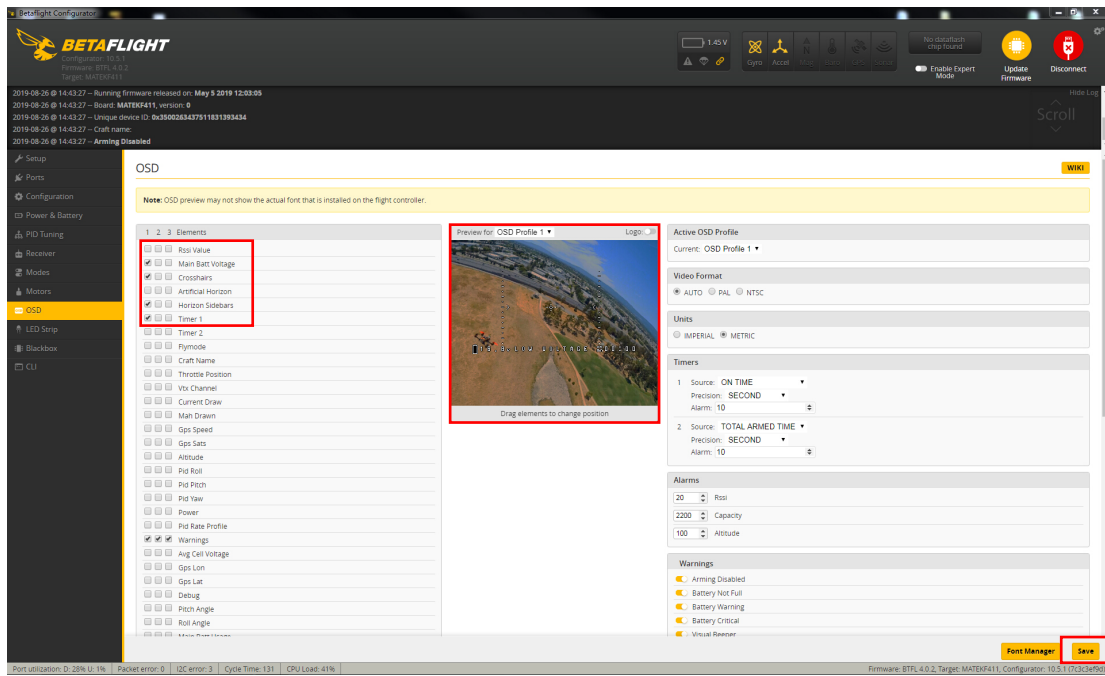## 7.Mode set
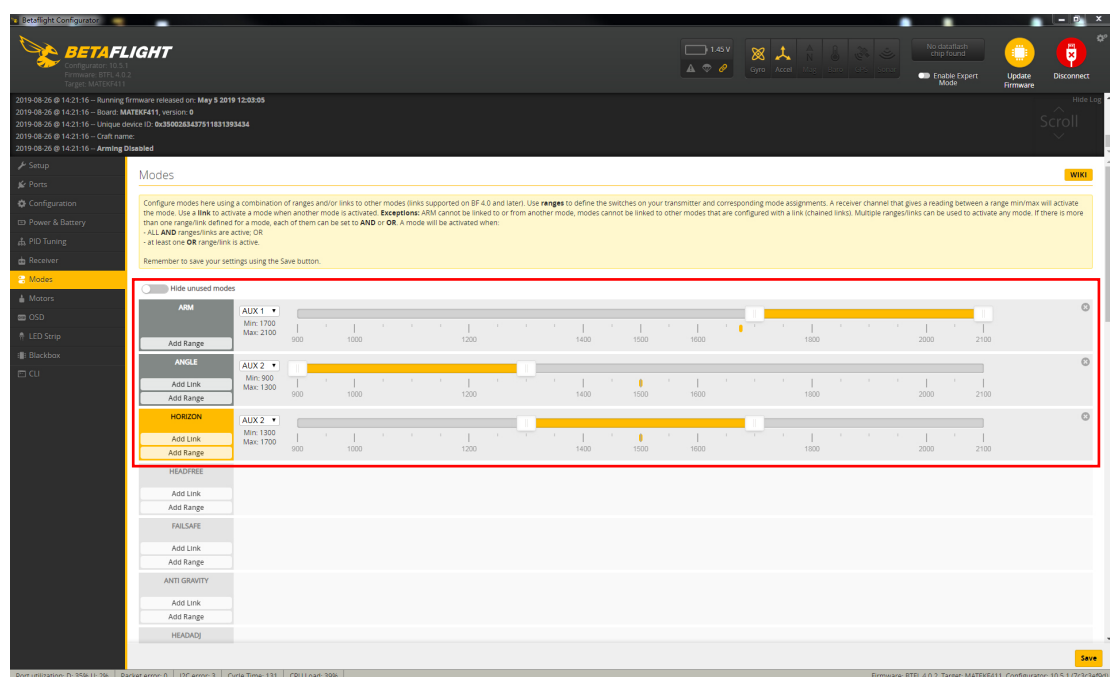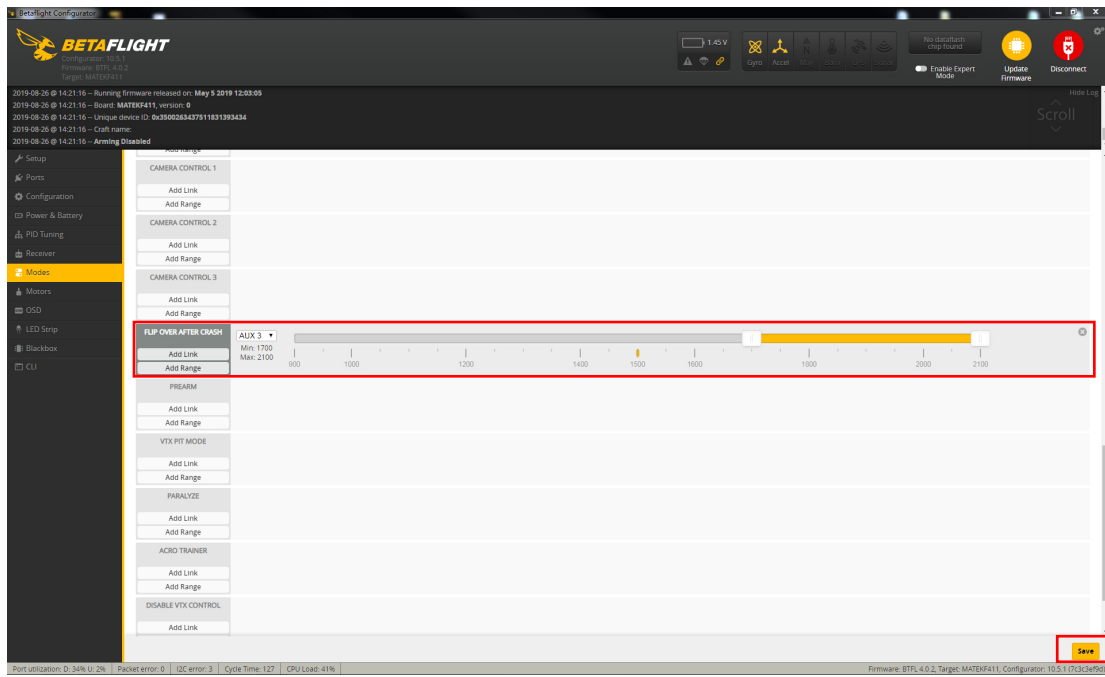
8.OSD set

Name	Factory code
AK103 NO RX	PNP.AK103.NO RX
AK123 NO RX	PNP.AK123.NO RX
AK103 AC2000	PNP.AK103.AC2000
AK123 AC2000	PNP.AK123.AC2000
AK103 KIT	KIT.AK103
AK123 KIT	KIT.AK123
XT11015-6100KV	MOTOR.XT11015-6100KV
XT1103-6500KV	MOTOR.XT1103-6500KV
65mm-2(1.0)	PROP.65MM-2(1.0)
75mm Racer	PROP.75MM RACER(1.5MM HUB)
11.4V 300mAh 30C	BAT.11.4V 300MAH 30C
F411E12A	FC.F411E12A
KKT-VTX200	VTX.KKT-VTX200
Nano2	CAM.NANO2(700 TVL 1/3' CMOS NTSC)
Prop tool	PART.PROP TOOL
AC2000	RX.AC2000
65mm Protector bumper	PART.65MM PROTECTOR BUMPER(HALF SURROUND)

After Sale Service

1.Provide free reparation service when find the product defect after purchase.

2.Provide pay-needed reparation service when product damage because improper operation.

3.China customers please contact with the after-sales service,overseas client please contact the dealer.

PNP/RTF Test report   ID :

Flight test
- ☐ Transmitter functions properly
- ☐ Flying in good condition
- ☐ Camera OK
- ☐ VTX OK

QC: _____

Package check
- ☐ PNP
- ☐ RTF
- ☐ Frame
- ☐ Transmitter
- ☐ ID is the same
- ☐ All parts of the installation
- ☐ Insulating sleeves have been installed manual
- ☐ Complete accessories,total _____packages

QC: _____