

ET V2/3S Series

Instruction manual



User manual and video please visit: WWW.LDARC.COM

Note: 2S configuration using 3S battery will cause damage to electronic equipment			
Name	ET100 V2	ET115 3S	ET125 V2
Flytower 20*20(V2)	F411+OSD FC+4in1 ESC 12A BLHeliS		
Receiver	FM800,RX2A PRO,DSM2,AC900(S-FHSS+D16)		
Camera	OV231(800TVL 150° NTSC)		
VTX	Q100 VTX(25mW/100mW 16CH)		
Input Voltage	Only 2S	2-3S	Only 2S
Weight (not include battery&receiver)	78.6g	97.3g	96.7g
Wheelbase	100mm	115mm	125mm
Motor	XT1103-7800KV	XT1105-5000KV	XT1104-7500KV
Battery	7.4V 450mAh 80C(JST)	11.1V 600mAh 50C(XT30)	7.4V 550mAh 80C(JST)
Prop	1935	2345	2840



Wheelbase : 100mm

Flytower 20*20(V2) :

F411+OSD

4in1 12A BLheliS

VTX : Q100(25mW/100mW 16CH)

Camera : OV231(800TVL 150° NTSC)

Motor : XT1103-7800KV

Prop : 1935

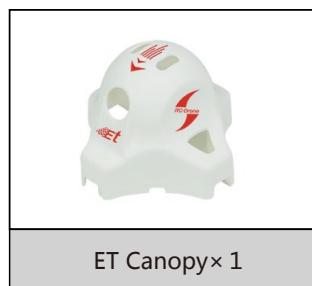
Battery : 7.4V 450mAh 80C(JST)

Voltage : 7.4V

Weight : 78.6g(not include battery and receiver)

Receiver : FM800,RX2A PRO,DSM2 ,
AC900(S-FHSS+D16)

Package List





Wheelbase : 115mm

Flytower 20*20(V2) :

F411+OSD

4in1 12A BLheliS

VTX : Q100(25mW/100mW 16CH)

Camera : OV231(800TVL 150° NTSC)

Motor : XT1105-5000KV

Prop : 2345

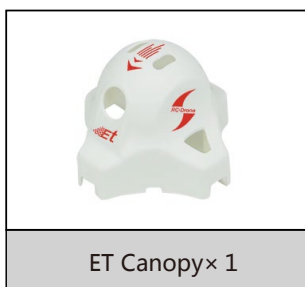
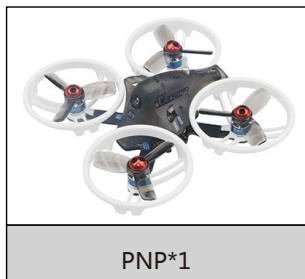
Battery : 11.1V 600mAh 50C(XT30)

Voltage : 11.1V

Weight : 97.3g(not include battery and receiver)

Receiver : FM800,RX2A PRO,DSM2 ,
AC900(S-FHSS+D16)

Package List





Wheelbase : 125mm

Flytower 20*20(V2) :

F411+OSD

4in1 12A BLheliS

VTX : Q100(25mW/100mW 16CH)

Camera : OV231(800TVL 150° NTSC)

Motor : XT1104-7500KV

Prop : 2840

Battery : 7.4V 550mAh 80C(JST)

Voltage : 7.4V

Weight : 96.7g(not include battery and receiver)

Receiver : FM800,RX2A PRO,DSM2 ,
AC900(S-FHSS+D16)

Package List



PNP*1



Suitcase*1

2840 Prop*4Pairs
(Color random)

7.4V 550mAh 80C*1(JST)

ET Canopy $\times$ 1

ET125 V2
Red Canopy× 1

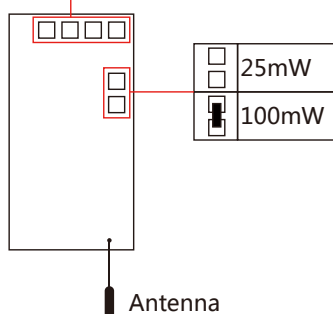


ET125 V2
Clear Black Canopy x 1



Paper Stickers*1

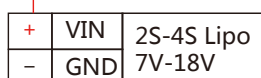
VTX	
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Click the key change frequency point



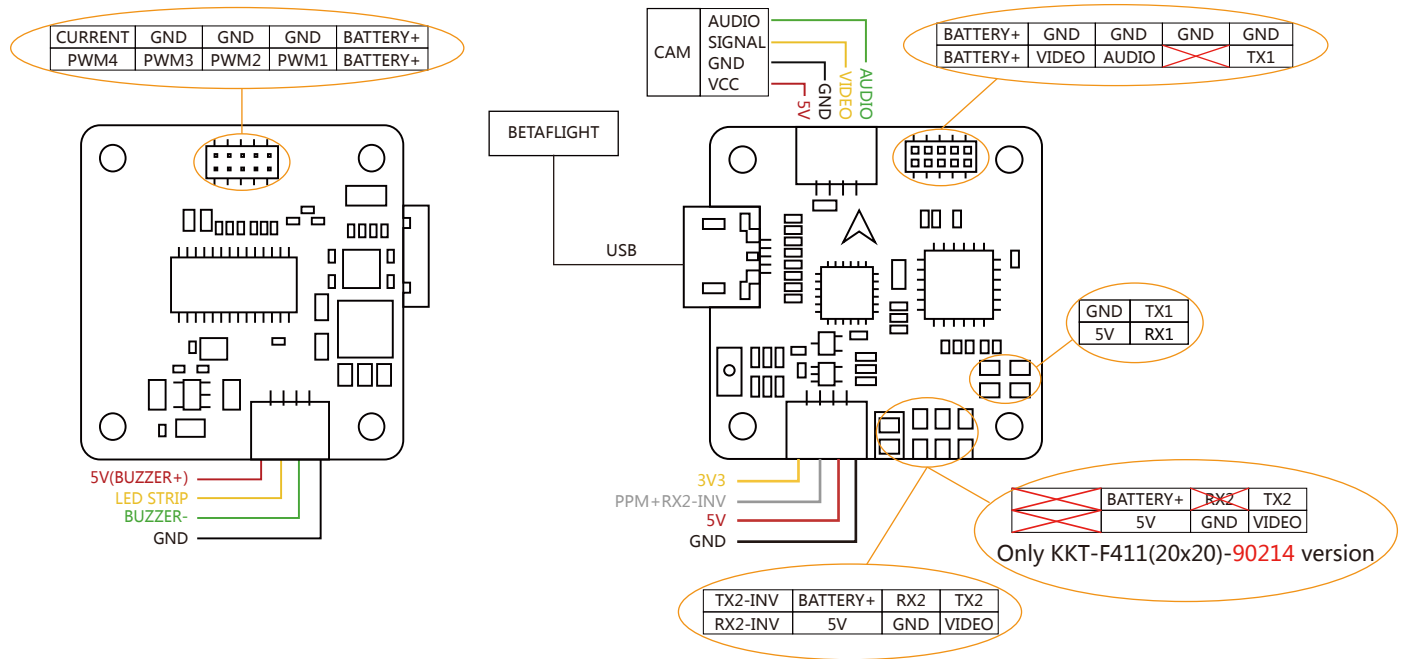
LED Frequency table			
  5658MHZ	  5806MHZ	  5705MHZ	  5790MHZ
  5695MHZ	  5843MHZ	  5740MHZ	  5820MHZ
  5732MHZ	  5880MHZ	  5760MHZ	  5860MHZ
  5769MHZ	  5917MHZ	  5780MHZ	  5945MHZ



Q100-Mini 25mW/100mW 16CH VTX (2S-4S Lipo 7V-18V)
L=28mm,W=11mm,Weight=2.5g(Without camera and wire)

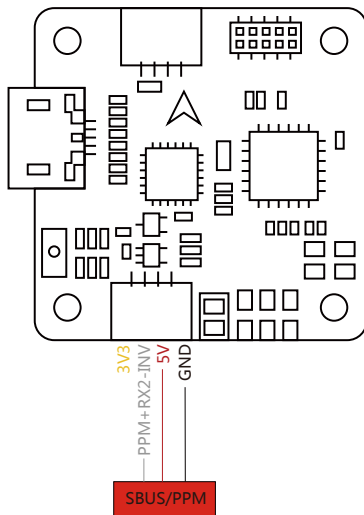
Please attention ventilation cooling

Pin definition



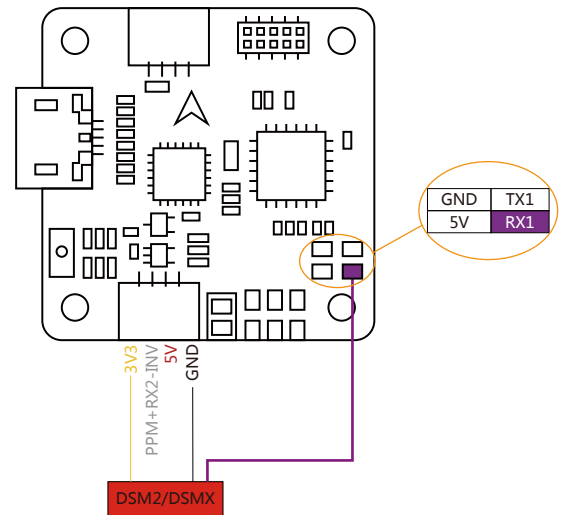
S.BUS and PPM receiver connection

Supply voltage is 5V
PPM or invert RX2 signal input



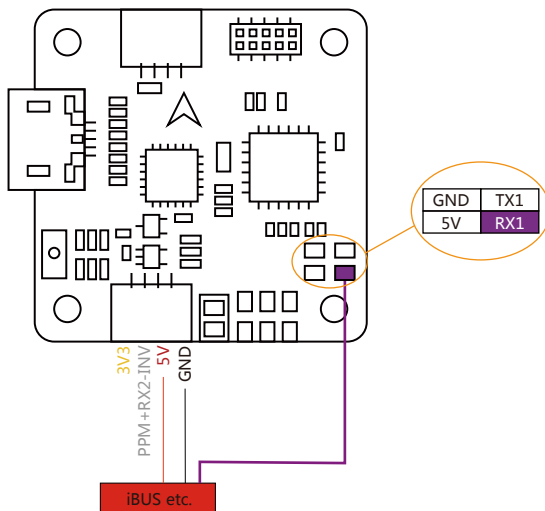
DSM2 and DSMX receiver connection

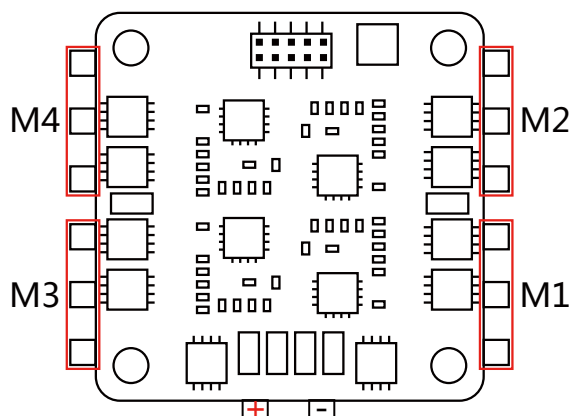
Supply voltage is 3.3V
NOT invert RX2 signal input



iBUS receiver connection

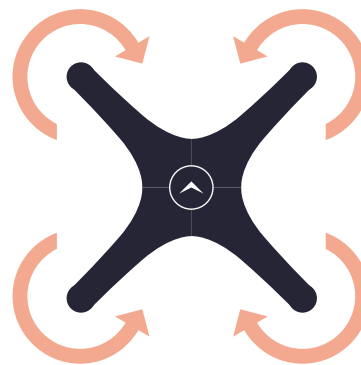
Supply voltage is 5V
NOT invert RX1 signal input





M4(CW)

M2(CCW)



M3(CCW)

M1(CW)

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

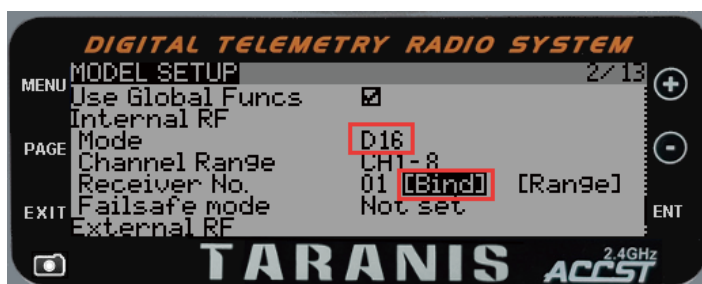
Receiver Bind

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)

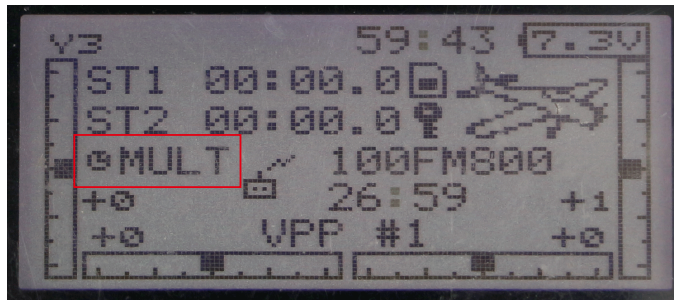
1. Open remote control, hold receiver bind button to power
2. Green light constant lighting means bind success

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

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

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's green 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)
- ☐ 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

Firmware Update

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

1.Open betafight configuration ,then click  Firmware Flasher ,select FW version

MATEKF411

3.5.3-MATEKF411-15-11-2018 13:35(stable)

- ☒ No reboot sequence
- ☒ Flash on connect
- ☒ Full chip erase
- ☒ Manual baud rate 256000
- ☐ Show unstable releases

2.Click ,then click  to download FW to FC, click  after FW updating finish into setting menu

3.Calibration "Calibrate Accelerometer"

4.Selected UART3,then open "Serial RX" switch and saved

5.Configuration , select ESC protocol “DSHOT600” , Set up the receiver protocol , then open LED,OSD and DYNAMIC_FILTER

BETAFLIGHT Configuration v10.5.1
Firmware: BFL3.5.3 (Target: MATEKF411)

2019-05-20 @ 14:27:29 -- Running firmware released on: Nov 15 2018 00:02:09
2019-05-20 @ 14:27:29 -- Board: MATEKF411, version: 0
2019-05-20 @ 14:27:29 -- Unique device ID: 0x1a003a34791173035933
2019-05-20 @ 14:27:29 -- Craft name:
2019-05-20 @ 14:27:29 -- Arming Disabled

Setup Ports Configuration

Configuration

Note: Not all combinations of features are valid. When the flight controller firmware detects invalid feature combinations conflicting features will be disabled.
Note: Configure serial ports before enabling the features that will use the ports.

Mixer
Quad X
Motor direction is reversed

System configuration
Note: Make sure your FC is able to operate at these speeds! Check CPU and cyclotime stability. Changing this may require PID re-tuning. TIP: Disable Accelerometer and other sensors to gain more performance.
Enable gyro 32kHz sampling mode
8 kHz Gyro update frequency
2 kHz PID loop frequency
Accelerometer
Barometer (if supported)
Magnetometer (if supported)

ESC/Motor Features
DSHOT600 ESC/Motor protocol
MOTOR_STOP Don't spin the motors when armed
4.5 Motor Idle Throttle Value [percent]

Board and Sensor Alignment
0 Roll Degrees 0 Pitch Degrees 0 Yaw Degrees
Default GYRO Alignment
Default ACCEL Alignment
Default MAG Alignment

Accelerometer Trim
0 Accelerometer Roll Trim
0 Accelerometer Pitch Trim

Arming
25 Maximum ARM Angle [degrees]

Port Utilization: 0.24% U: 1% Packet error: 0 I2C error: 1 Cycle Time: 131 CPU Load: 15%

Firmware: BFL3.5.3, Target: MATEKF411, Configuration: 10.5.1 (7d3c3e9f5)

BETAFLIGHT Configuration v10.5.1
Firmware: BFL3.5.3 (Target: MATEKF411)

2019-05-20 @ 14:27:29 -- Running firmware released on: Nov 15 2018 00:02:09
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2019-05-20 @ 14:27:29 -- Craft name:
2019-05-20 @ 14:27:29 -- Arming Disabled

Setup Ports Configuration

Configuration

Note: Not all features are supported by all flight controllers. If you enable a specific feature, and it is disabled after you hit 'Save and Reboot', it means that this feature is not supported on your board.

Other Features
INFLIGHT_ACC_CAL In-flight level calibration
SERVO_TILT Servo gimbal
SOFTSERIAL Enable CPU based serial ports
SONAR Sonar
TELEMETRY Telemetry output
LED_STRIP Multi-color RGB LED strip support
DISPLAY OLED Screen Display
CHANNEL_FORWARDING Forward aux channels to servo outputs
TRANSPONDER Race Transponder
AIRMODE Permanently enable Airmode
OSD On Screen Display
ESC_SENSOR Use KISS/BLHeli_32 ESC telemetry as sensor
ANTI_GRAVITY Temporary boost 1-Term on high throttle changes
DYNAMIC_FILTER Dynamic gyro notch filtering

3D ESC/Motor Features
3D 3D mode (for use with reversible ESCs)

GPS
GPS GPS for navigation and telemetry

Dshot Beacon Configuration
1 Beacon Tone
RX_LOST Beeps when TX is turned off or signal lost (repeat until TX is okay)
RX_SET Beeps when aux channel is set for beep

Beeper Configuration
GYRO_CALIBRATED Beeps when gyro has been calibrated
RX_LOST Beeps when TX is turned off or signal lost (repeat until TX is okay)

Port Utilization: 0.23% U: 1% Packet error: 0 I2C error: 1 Cycle Time: 149 CPU Load: 16%

Firmware: BFL3.5.3, Target: MATEKF411, Configuration: 10.5.1 (7d3c3e9f5)

6.PID setting

BETAFLIGHT Configuration v10.5.1
Firmware: BFL3.5.3 (Target: MATEKF411)

2019-05-20 @ 14:27:29 -- Running firmware released on: Nov 15 2018 00:02:09
2019-05-20 @ 14:27:29 -- Board: MATEKF411, version: 0
2019-05-20 @ 14:27:29 -- Unique device ID: 0x1a003a34791173035933
2019-05-20 @ 14:27:29 -- Craft name:
2019-05-20 @ 14:27:29 -- Arming Disabled

Setup Ports Configuration

Configuration

PID Tuning
Profile: 1 Rateprofile: 1

	Proportional	Integral	Derivative	Feedforward	RC Rate	Super Rate	Max Yd [deg/s]	RC Expo
Roll	40	40	30	60	1.00	0.70	667	0.00
Pitch	58	50	35	60	1.00	0.70	667	0.00
Yaw	36	45	0	60	1.00	0.70	667	0.00

Roll
Strength: 50 Horizon: 50 Angle Limb: 55

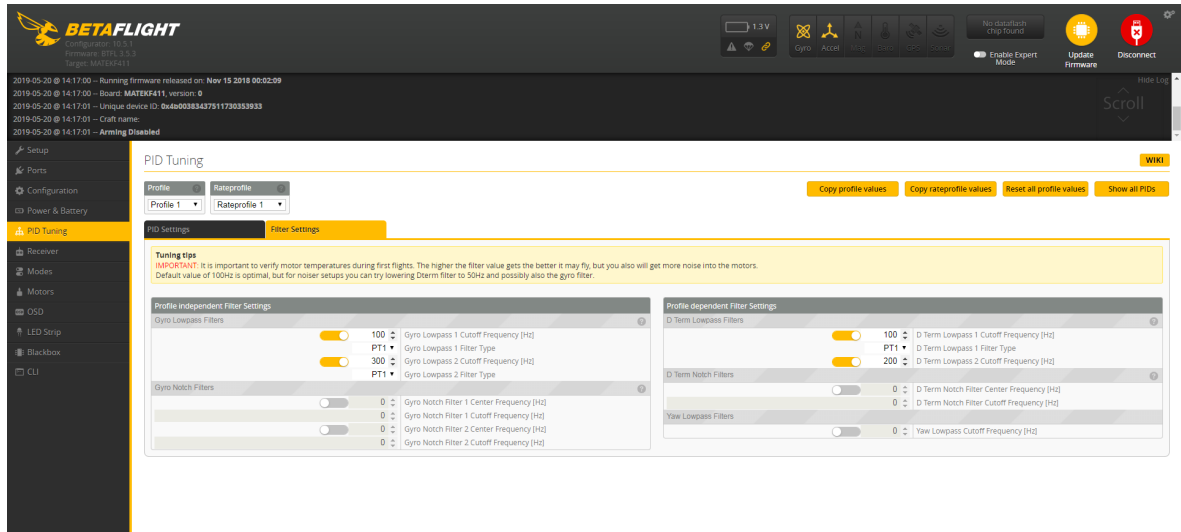
PID Controller Settings
I-Term Rotation
Yaw PID Compensation
Smart Feedforward
I-Term Rate

Anti Gravity Mode
Smooth Anti Gravity Gain: 5

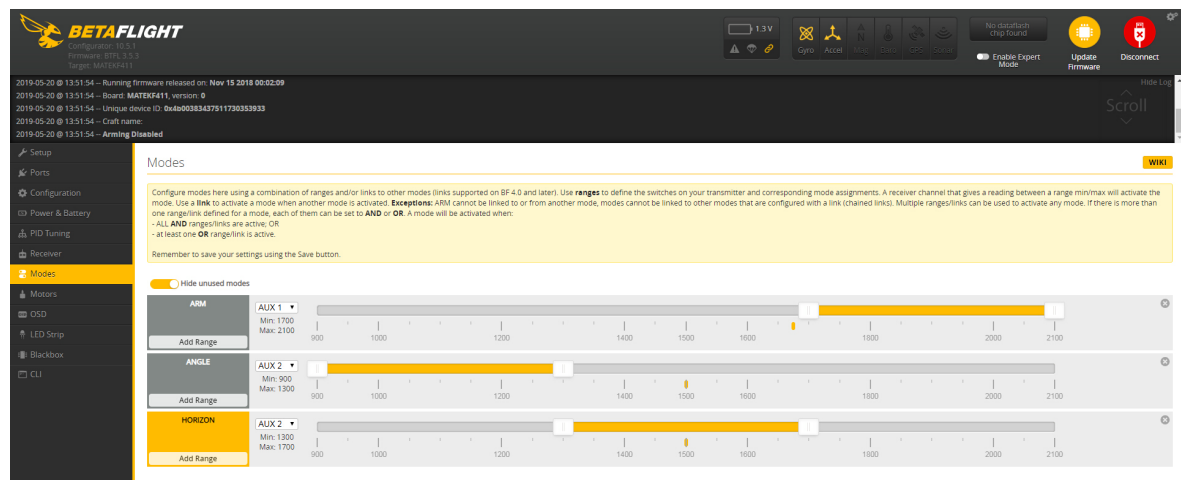
Rolls Preview

Port Utilization: 0.40% U: 3% Packet error: 0 I2C error: 1 Cycle Time: 127 CPU Load: 15%

Firmware: BFL3.5.3, Target: MATEKF411, Configuration: 10.5.1 (7d3c3e9f5)

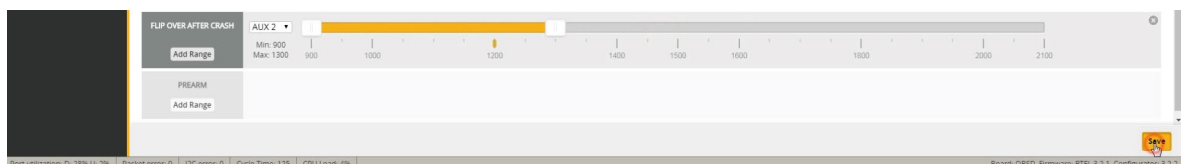


7.Default setting of receiver is 5th channel ARM(AUX1),6th channel mode switching(AUX2)

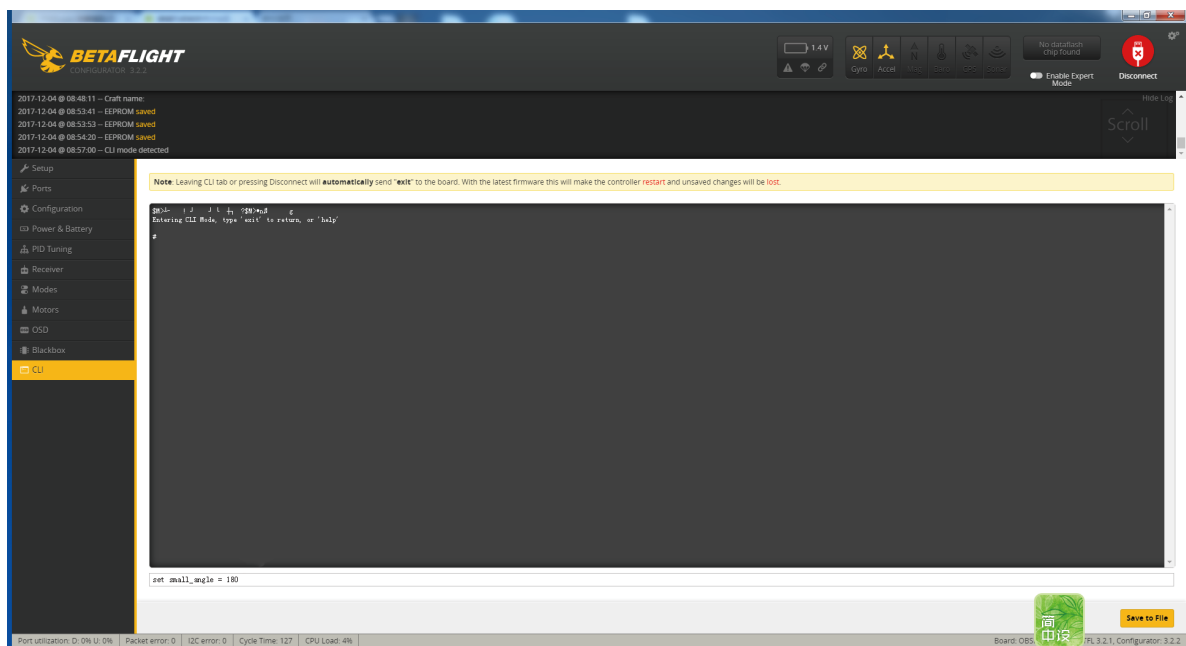


FLIP OVER AFTER CRASH please upgrade the firmware to 3.2.1 version first,then set by BETAFLIGHT

8.Setting 7th channel mode switching(AUX2).



9.Input "set small_angle = 180 ",then set



Product and Factory Code

Name	Factory Code	Name	Factory Code
ET100 V2 PNP NO RX	PNP.ET100 V2.NO RX	1935 Prop	PROP.1935.3.WHITE
ET100 V2 PNP AC900	PNP.ET100 V2.AC900	2345 Prop	PROP.2345.3.WHITE
ET100 V2 PNP FM800	PNP.ET100 V2.FM800	2840 Prop	PROP.2840.3.WHITE
ET100 V2 PNP RX2A PRO	PNP.ET100 V2.RX2A PRO	Battery 7.4V 450mAh 80C	BAT.7.4V 450MAH 80C
ET100 V2 PNP DSM2	PNP.ET100 V2.DSM2	Battery 7.4V 550mAh 80C	BAT.7.4V 550MAH 80C
ET100 V2 KIT	KIT.ET100 V2	Battery 11.1V 600mAh 50C	BAT.11.1V 600MAH 50C
ET115 3S PNP NO RX	PNP.ET115 3S.NO RX	Carbon fiber plate(ET100 Part)	PART.BOTTOM PLATE.ET100
ET115 3S PNP AC900	PNP.ET115 3S.AC900	Carbon fiber plate(ET115 Part)	PART.BOTTOM PLATE.ET115
ET115 3S PNP FM800	PNP.ET115 3S.FM800	Carbon fiber plate(ET125 Part)	PART.BOTTOM PLATE.ET125
ET115 3S PNP RX2A PRO	PNP.ET115 3S.RX2A PRO	XT1103-7800KV	MOTOR.XT1103-7800KV
ET115 3S PNP DSM2	PNP.ET115 3S.DSM2	XT1104-7500KV	MOTOR.XT1104-7500KV
ET115 3S KIT	KIT.ET115 3S	XT1105-5000KV	MOTOR.XT1105-5000KV
ET125 V2 PNP NO RX	PNP.ET125 V2.NO RX	Flytower 20*20(V2)	FLYTOWER.20*20(V2)
ET125 V2 PNP AC900	PNP.ET125 V2.AC900	4in1 ESC 12A(KK Tower Part)	ESC.KK TOWER 12A
ET125 V2 PNP FM800	PNP.ET125 V2.FM800	F411+OSD FC(V2)	FC.F411+OSD(FLYTOWER 20*20 V2)
ET125 V2 PNP RX2A PRO	PNP.ET125 V2.RX2A PRO	2 Layer Tower Screw(KK Tower Part)	PART.KK TOWER SCREW(2 LAYER)
ET125 V2 PNP DSM2	PNP.ET125 V2.DSM2	Wire(KK Tower Part)	PART.KK TOWER WIRE
ET125 V2 KIT	KIT.ET125 V2	ET100 V2/115 3S Canopy	PART.ET100 V2/115 3S CANOPY
OV231	CAM.OV231	ET125 V2 Canopy	PART.ET125 V2 CANOPY
Q100 VTX	VTX.Q100	1.9 inch black propeller protector (all surround)	PART.1.9 PROTERTOR ALL.BLACK
LED+Buzzer(ET V2/3S Part)	PART.LED+BUZZER(ET V2/3S PART)	2.3 inch black propeller protector (all surround)	PART.2.3 PROTERTOR ALL.BLACK
Air Cowling(Φ5 M2)	PRRT.AIR COWLING(Φ5 M2)	2.8 inch black propeller protector (all surround)	PART.2.8 PROTERTOR ALL.BLACK

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: _____