

Turtlebee F3 brushed flight controller built-in Flysky RX/OSD/Current meter Manual

1.Specification:

MCU: STM32F303CCT6

Gyro& Accelerometer: MPU6000

Working Voltage: 1s Lipo or LiHV

Firmware Target: Betaflight OMNIBUS

Motor Driver: Texas Instruments DRV8850

Continuous Current: 5A each

Peak Current: 8A each

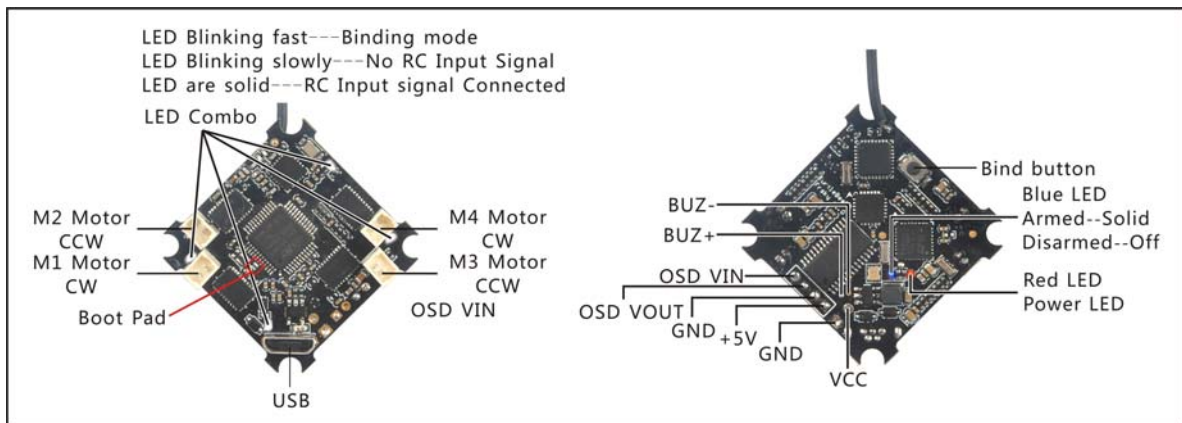
Receiver mode: Frsky D8/ Flysky AFHDS-2A/ DSM2 DSMX to choose

Motor Socket: JST 1.25MM 2pin

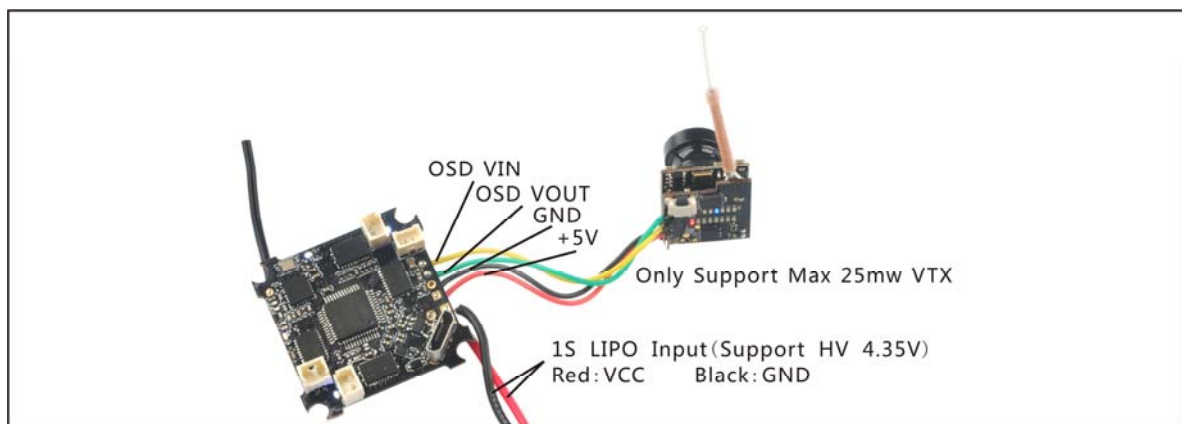
Weight: 4g

Mounting Hole Distance: 25.45*25.45mm

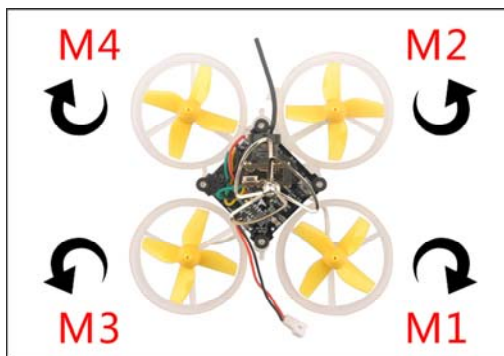
2.Connection and LED



3.Camera connection



4.Mixer type and ESC/Motor protocol



ESC/Motor Features

DSHOT150 ESC/Motor protocol ?

☒ MOTOR_STOP Don't spin the motors when armed

☐ Disarm motors regardless of throttle value (When ARM is configured in Modes tab via AUX channel) ?

5 Disarm motors after set delay [seconds] (Requires MOTOR_STOP feature)

4.5 Motor Idle Throttle Value [percent] ?

Notes:ESC protocol must set to be Dshot150

5.Receiver configuration

Ports and receiver mode sets like the bellowing diagram: First Enable Serial_RX for uart3 and Set Receiver mode to "RX_SERIAL" , Select IBUS signal in Betaflight configurator . And the default channel map is "AETR1234", please check your RC transmitter channel map, make sure they are matched, otherwise it will not armed.

Ports WIKI

Note: not all combinations are valid. When the flight controller firmware detects this the serial port configuration will be reset.
Note: Do **NOT** disable MSP 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/MSP	Serial Rx	Telemetry Output	Sensor Input	Peripherals
USB VCP	<input checked="" type="checkbox"/> 115200	<input type="checkbox"/>	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART1	<input type="checkbox"/> 115200	<input type="checkbox"/>	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART2	<input type="checkbox"/> 115200	<input type="checkbox"/>	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART3	<input type="checkbox"/> 115200	<input checked="" type="checkbox"/>	Disabled AUTO	Disabled AUTO	Disabled AUTO

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.

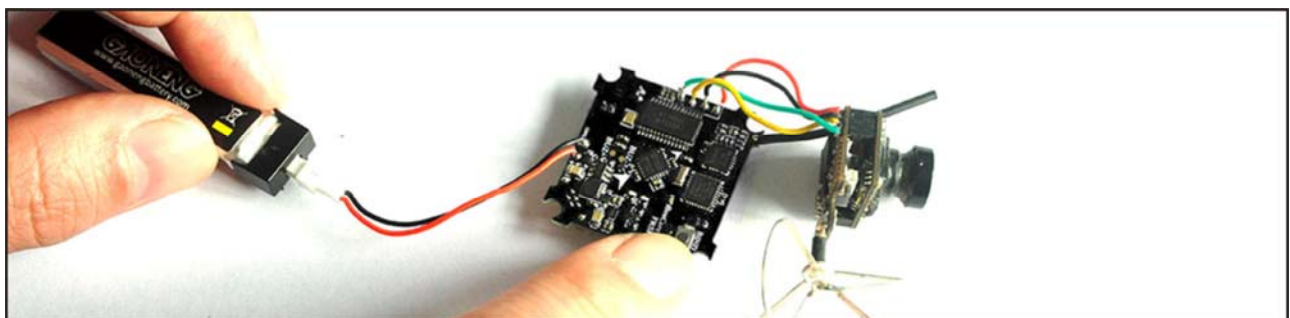
IBUS Serial Receiver Provider

Channel Map	RSSI Channel
AETR1234	Disabled

'Stick Low' Threshold	Stick Center	'Stick High' Threshold
1050	1500	1900

6.Binding procedure

a)Press and holding the bind button, then power on for the TURTLEBEE F3 FC, the LED Combo (2 Red and 2 White) will Blinking fast, this means the TURTLEBEE F3 FC is in binding mode, and then release the bind button

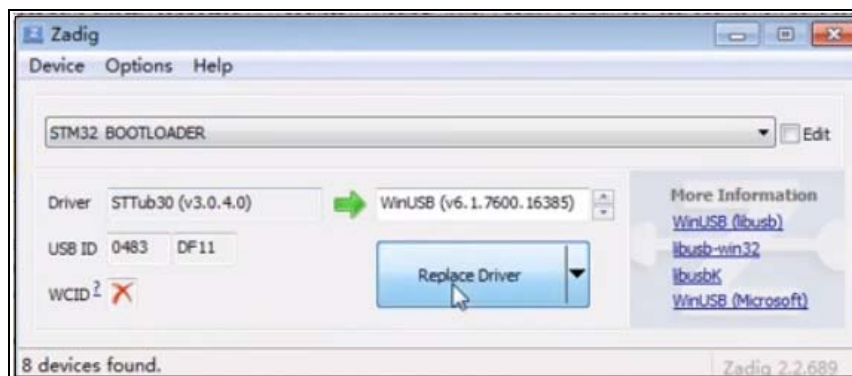


b) Enter to the RX setup and select AFHDS 2A Mode for your Flysky transmitter , turn off the transmitter and then turn on the transmitter while holding the bind button, the LED Combo (2 Red and 2 White) will first turning off and then starting to blinking slowly, this indicates binding successfully. Re-power for the TURTLEBEE F3 FC and turn on your transmitter again, the LED Combo (2 Red and 2 White) will getting to be solid ,this indicates the connection was established between TURTLEBEE F3 FC and your transmitter.



7. Firmware update

1. Install latest STM32 Virtual COM Port Driver <http://www.st.com/web/en/catalog/tools/PF257938>
2. Install STM BOOTLOAD Driver (STM Device in DFU MODE)
3. Open Betaflight configurator and choose firmware target "OMNIBUS", then select the firmware version.
4. There are 2 ways to get in DFU Mode: 1). solder the boot pad and then plug USB to computer 2). loading betaflight firmware and hit "flash", then it will getting into DFU Mode automatically.
5. Open Zadig tools to replace the drivers from STM32 Bootloader to WINUSB Driver.
6. Reconnect the flight controller to the computer after replace driver done , and open Betaflight configurator, loading firmware and flash.



8. "Flip over after crash" procedure

Set one channel of your radio transmitter to activate the Flip over function in the Mode tab of Betaflight configurator

