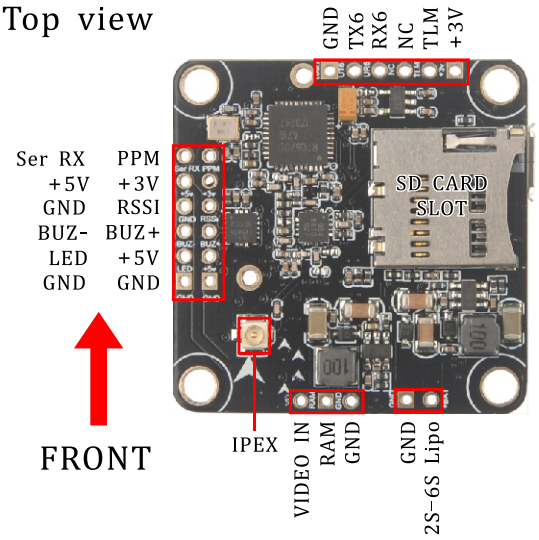
Specification:

MCU	STM32F405 32-bit processor at 168MHz
MPU	ICM20608 connected via SPI
Firmware version	Betaflight 3.2 FISHDRONEF4
VTX control	Set in Betaflight GUI CLI command or OSD
VTX Power	50MW/200MW Switchable in CLI Command
Channels	40ch
OSD Firmware	Betaflight OSD
Operating Voltage	2-6S Lipo (Power from ESC)
Frsky Smartport	UART1
SBUS Input	UART3
Board size	36*36mm
Mounted hole center distance	30.5mm*30.5mm

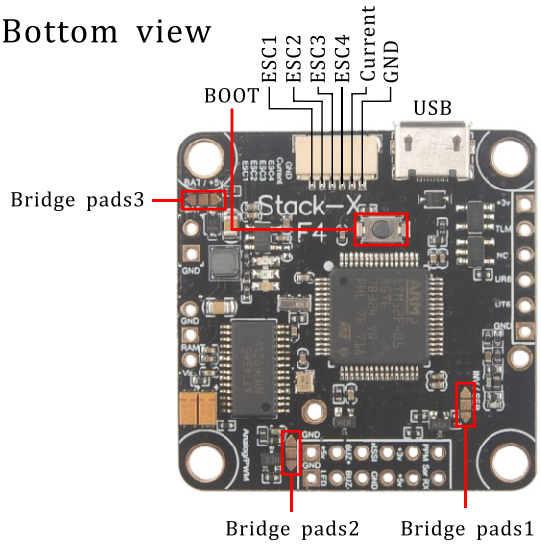
Connection Diagram:

Top view



1. TLM is Telemetry and also Support Frsky Smartport, Please Enable Smart. Port From the telemetry output tab for UART1
2. BAT+ and GND is connect to the 2S-6S Lipo battery
3. LED is connect to the WS2812 LED, configure the LED effect from the LED_STRIP tab

Bottom view



Notes:

1. Serial receiver Inverter select bridge pads [Bridge pads1]Create a solder bridge between TWO PADS ONLY to select Inverter or Non-inverter
a)bridge▲and■ to get Sbus Sginal input from Ser RX(UART3) pad [Inverter]
b)bridge■and▼to get IBUS/DSM2/DSMX Signal input from Ser RX(UART3) pad [Non-inverter]
*Default is SBUS

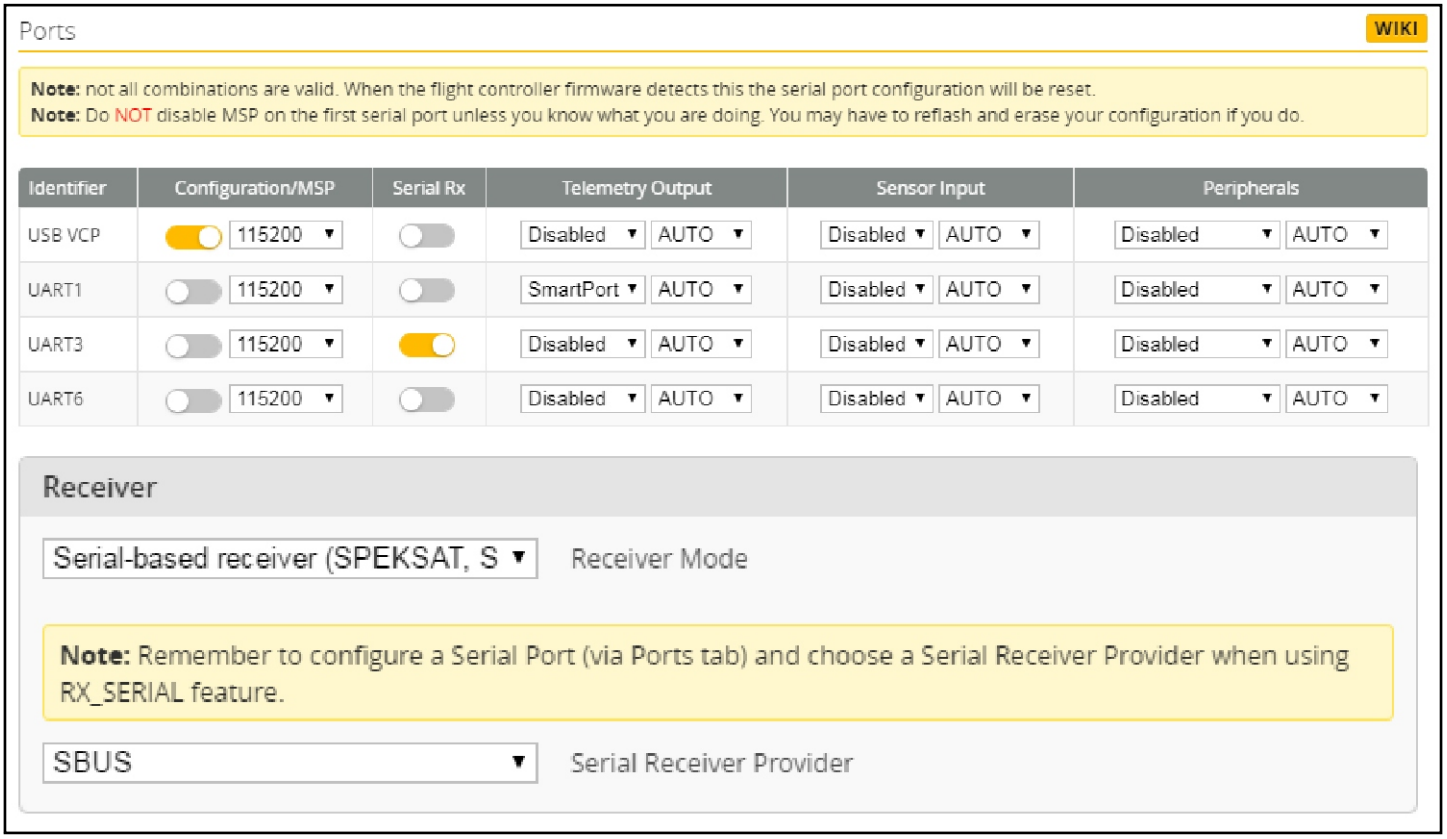
2. RSSI PWM / ANALOG select bridge pads[Bridge Pads2]
Create a solder bridge between TWO PADS ONLY to select the function of the INPUT pad.
a) bridge ▲and■to use the "RSSI" pad for ANALOG RSSI - for 0 - 3.3v Analog Signals.
b) bridge▼and■to use the "RSSI" pad for PWM RSSI - for 0 - 5v PWM signals.

3. Voltage output select bride pads [Bridge pads3]
Create a solder bridge between TWO PADS ONLY to select the voltage output for the RAM Pad
a)bridge◀and ■ to get Lipo voltage output without LC filter for the camera
b)bridge■and▶to get +5v output with LC filter for the camera
*Default is +5v

Receiver configuration:

1.SBUS Receiver:

Connect your SBUS receiver to [SER RX, +5V, GND] port; Enable Serial_RX for UART3 from the Port tab in Betaflight configurator, then select SERIAL-based receiver from the RECEIVER Mode and set the Serial Receiver Provider to be SBUS in Betaflight Configurator. Don't forget to bridge the▲and■from the Bridge pads1 to get signal inverter.



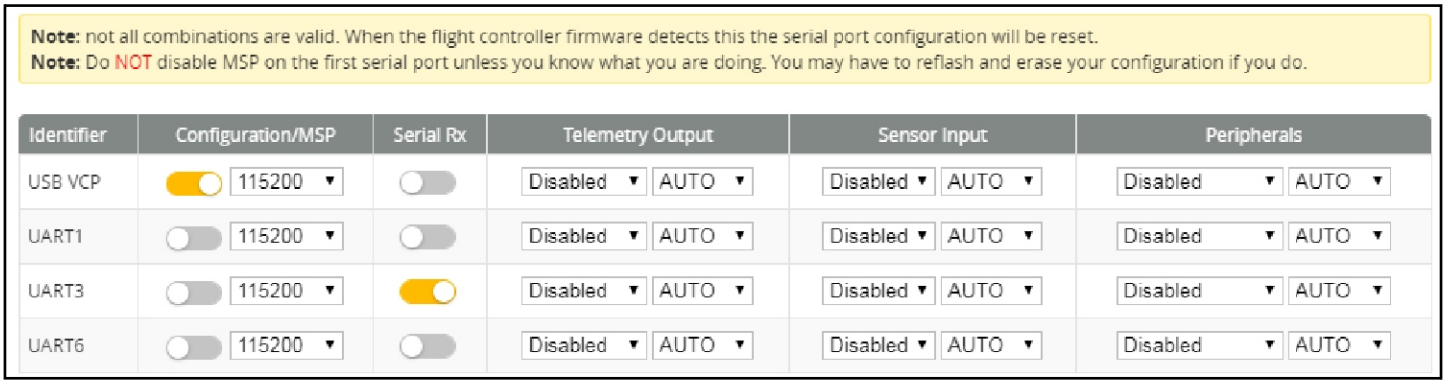
2.PPM Receiver:

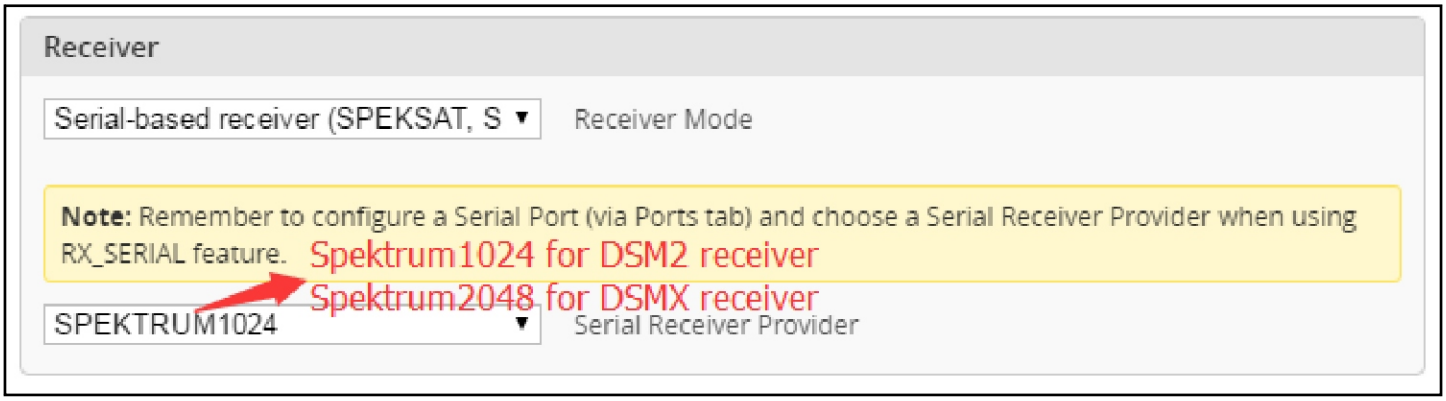
Connect your PPM receiver to [PPM,+5V,GND] port and then set the Receiver Mode to RX_PPM from the configuration in Betaflight configurator.

3.DSM2/DSMX Receiver:

Connect your DSM2/DSMX receiver to [Ser RX,+3.3V,GND] port, Enable Serial_RX for UART3 from the Port tab in Betaflight configurator, then select SERIAL-based receiver from the RECEIVER Mode and Select SPEKTRUM1024 for DSM2 Radio; Select SPEKTRUM2048 for DSMX Radio in Betaflight Configurator.

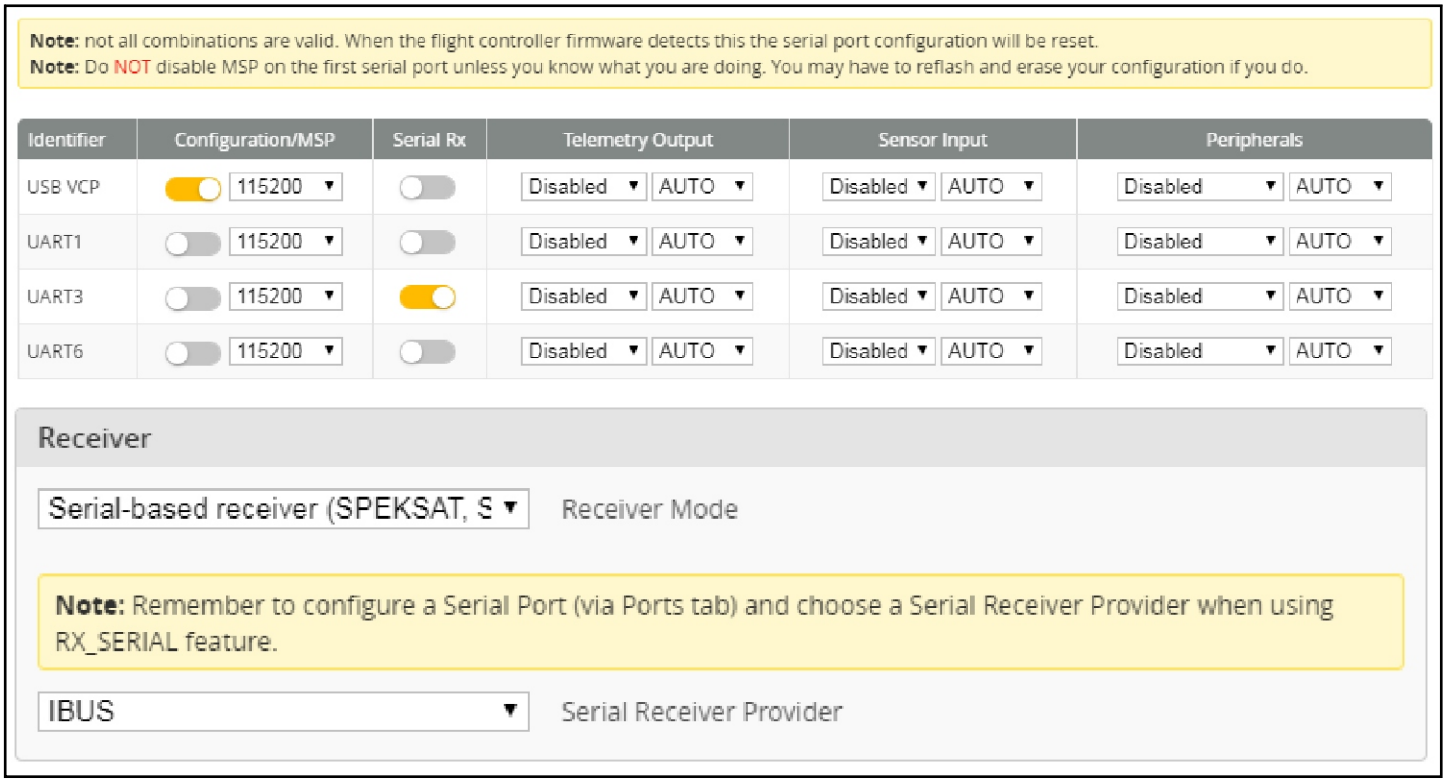
Don't forget to bridge▼and ■ from the Bridge pads1 to get Signal Non-inverter.





4.Flysky IBUS Receiver:

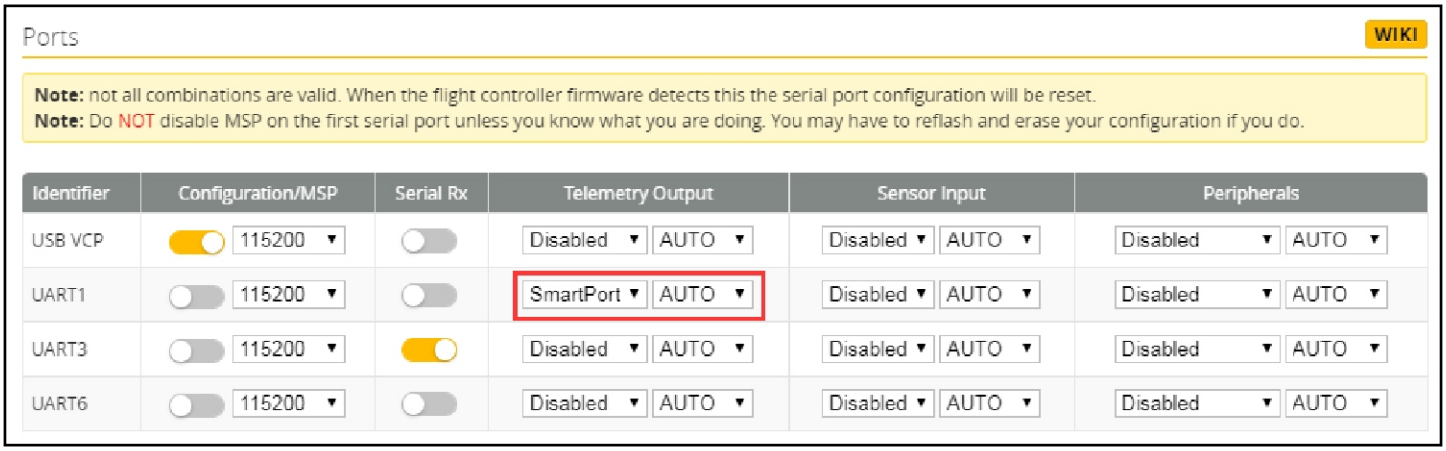
Connect your IBUS receiver to [Ser RX,+5V,GND] port, Enable Serial_RX for UART3 from the Port tab in Betaflight configurator, then select SERIAL-based receiver from the RECEIVER Mode and Select IBUS in Betaflight Configurator. Don't forget to bridge▼and ■ from the Bridge pads1 to get Signal Non-inverter.



Frsky Smart port Configurations:

1.Connect the S.port signal of the Frsky receiver to the TLM pin of the flight controller.

2.Enable SmartPort from the Telemetry Output tab for UART1.

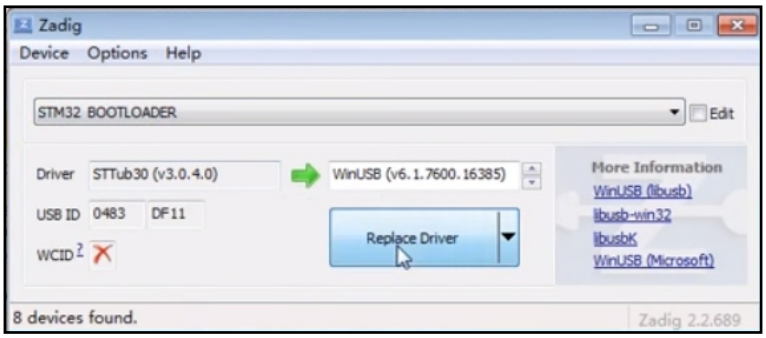


3.Enable Telemetry from the Configuration tab.

4.Go to the CLI Mode and type “set tlm_halfduplex = OFF” then Save.

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 “FISHDRONEF4”,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 comuper 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.

Notes:

The Fishdronef4 firmware does not support Current meter, We release a customize Stack-X F4 Firmware based on Fishdronef4 that can support Current meter, if you want to try it please download from our website.

How to change VTX Power/Band/Channel

1.Connect the Stack-X F4 flight controller to Computer and go to the CLI tab
2.Type “Set VTX_Power = 0” to get high power and Type “Set VTX_Power = 1” to get low power, don’t forget

3.Type “Set VTX_Band=1/2/3/4/5” to choose Band and Type “Set VTX_Channel=1/2/3/4/5/6/7/8” to choose Channel, please set the band and the channel according to the following table, all the set should type save in the CLI command

VTX_BAND	Brand	VTX_Channel							
		1	2	3	4	5	6	7	8
1	BoscamA	5865	5845	5825	5805	5785	5765	5745	5725
2	BoscamB	5733	5752	5771	5790	5809	5828	5847	5866
3	BoscamE	5705	5685	5665	5645	5885	5905	5925	5945
4	FatShark	5740	5760	5780	5800	5820	5840	5860	5880
5	RaceBand	5658	5695	5732	5769	5806	5843	5880	5917