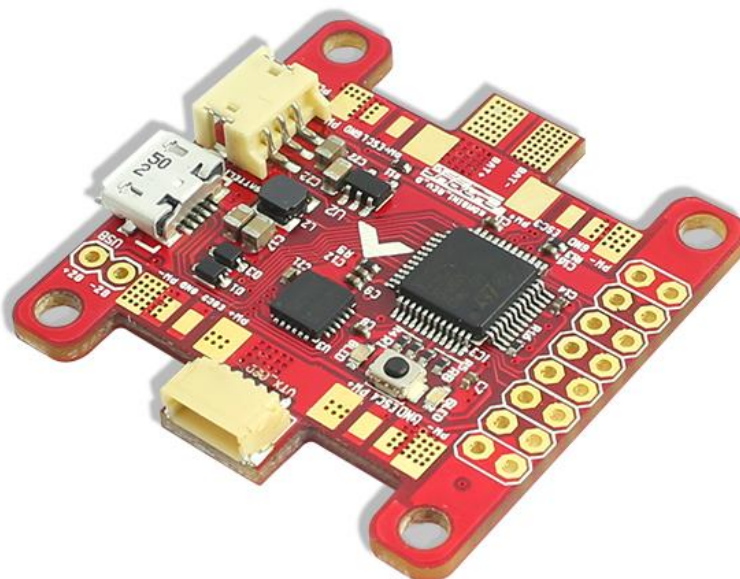




KOMBINI DSHOT VERSION

Flight Controller

USER MANUAL VERSION 1.1



Please contact us if you need further assistance:

Tech support: tech@furiousfpv.com

Sales support: sales@furiousfpv.com

Website: <http://furiousfpv.com/>



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Change Log

v1.1

- Add guideline configuration OSD with TRUE VISION CONFIGURATOR V1.0
- New OSD Menu Index

Introduction

Designed nothing short of revolutionary, the Furious KOMBINI Flight Controller steps up the competition with feature packed insanity that is ready to alter your FPV world.

Unlike any other system available today, the Furious KOMBINI provides an all in one solution that brings forth the ultimate in simplified sophistication. This all-encompassing FC solution utilizes industry leading technology that has never been seen in a system this compact and powerful - the ultimate end game for high powered FPV flight.

Cluttered & complex wiring? Never again. With an industry 1st gold plated PDB that is integrated within, the KOMBINI FC provides the ultimate in soldering ease with the highest grade of connectivity, allowing direct soldering points for motors, VTx, Receiver and FPV Camera. Rated with 150A of current protection @ 5S 18.5V input power, the KOMBINI is ready to push the boundaries of aggressive FPV flight.

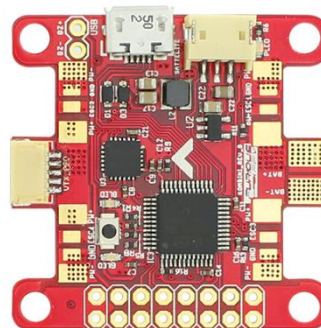
Utilizing the very latest F3 chip processor with built in BetaFlight firmware, the Furious KOMBINI utilizes industry leading components with an included LC filter for the very best in signal reception. Add the 1A 5V BEC with a built in SBUS inverter & Spektrum Satellite port, and the KOMBINI FC stand alone amongst all the rest with a potent blend of race ready madness.

Sized at 36mm x 36mm, the compact footprint of the KOMBINI FC is the perfect application of race ready aggression, providing a Flight Controller experience second to none. This adhesion of performance, capability & simplicity is the apex of FPV flight, providing the end user with a flight experience that brings everything to the table in a zero compromise design.

For the pinnacle in simplicity, performance and cutting edge capability, the Furious KOMBINI is the feature packed FC system that is ready and waiting to dominate. Get yours today, and change the way you FPV.

WHAT'S NEW KOMBINI DSHOT VERSION?

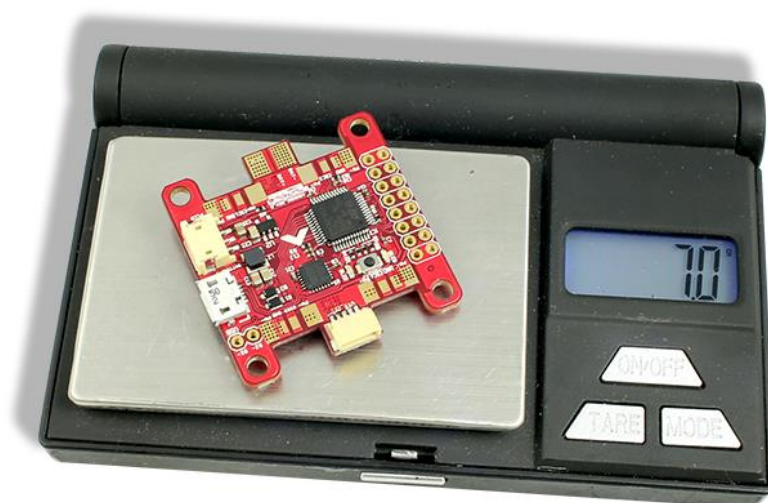
- Remove PPM pin and add TX3 pin for the pinnacle in simplicity, performance
- Ready support Dshot protocol
- New component for BEC better
- New red color for PCB



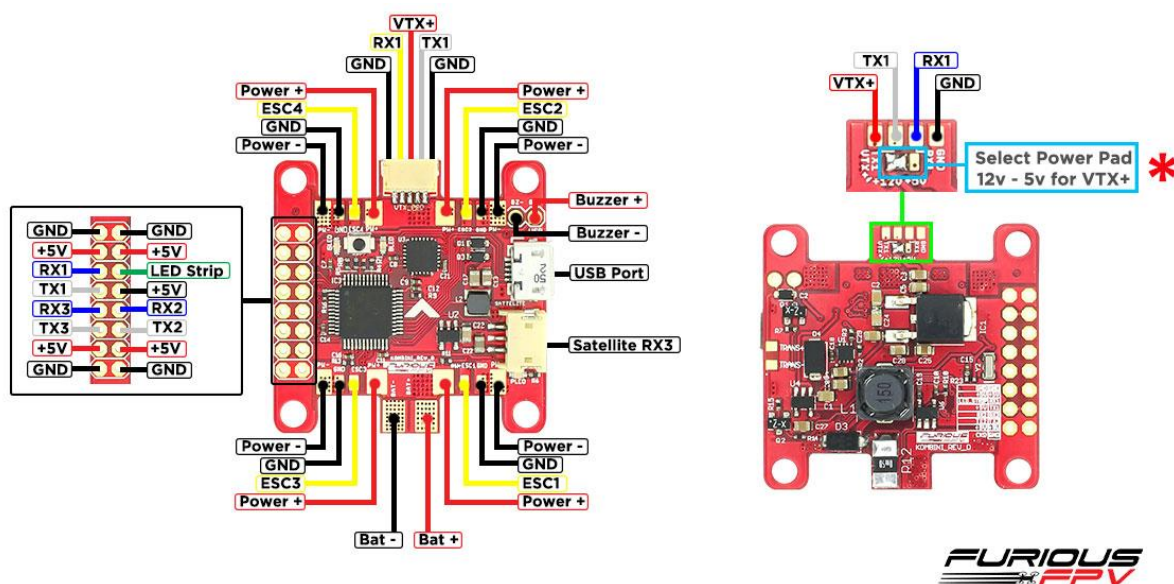
Features

- Latest Generation F3 Processor Chip
- Simplicity Defined with Built In PDB
- Massive 150A PDB Current Protection
- LC Filter & 12V
- 800mA BEC for VTX

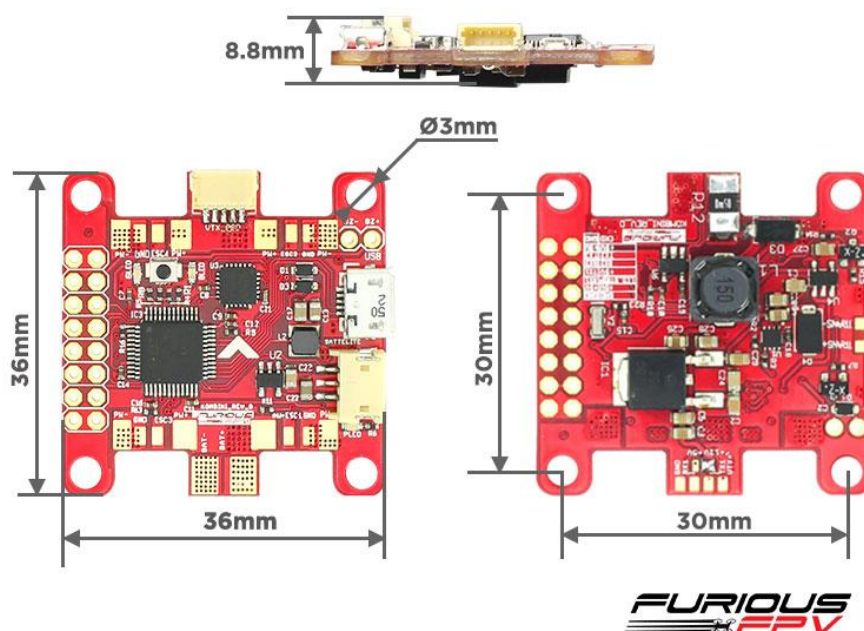
- 5S 18.5V Ready
- Heavy Duty 1.5A BEC @ 5V and 0.8A BEC @12V Output
- Ultra Compact Design for Ease of Installation
- Gold Plated Pads for the Very Best Connectivity
- Firmware Perfection via BetaFlight
- BLHeli Pass Through Setup
- Compact Sizing w/ 30.5mm x 30.5mm Mounting Holes
- Included Spektrum Satellite Port
- FrSky Telemetry, Ready & Waiting
- Full USB Support
- MPU6000 SPI Chip
- Weight: 7gr



Board Layout



Dimensions



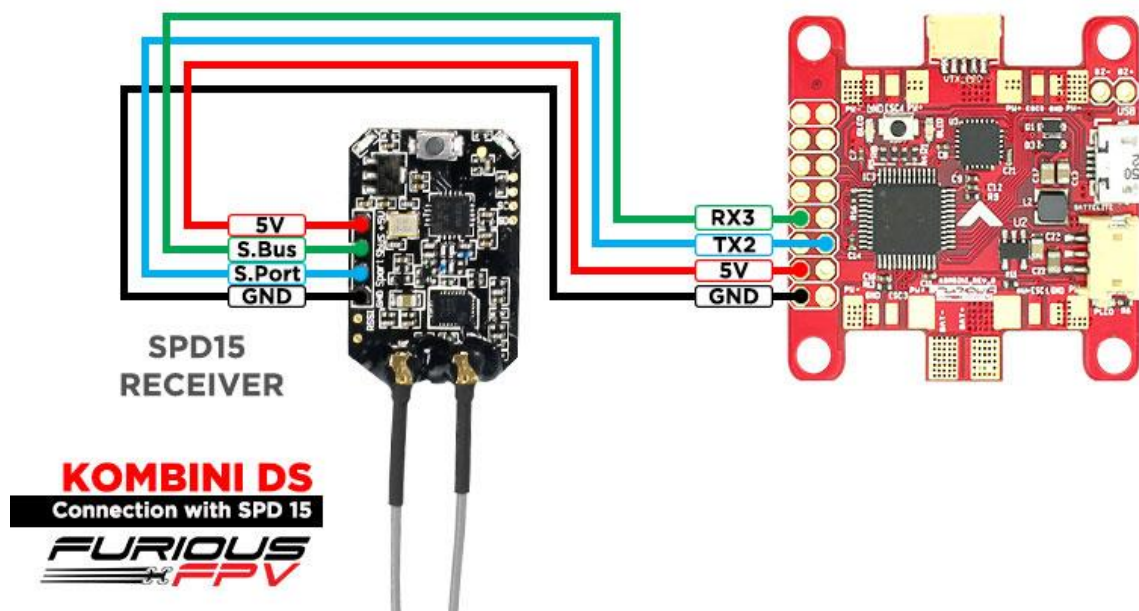
Connections

***WARNING:** Kombini DShot Version can support up to 5s Lipo battery but make sure other devices also support it.

Connect with Receiver:

❖ Using SPD15 Receiver:

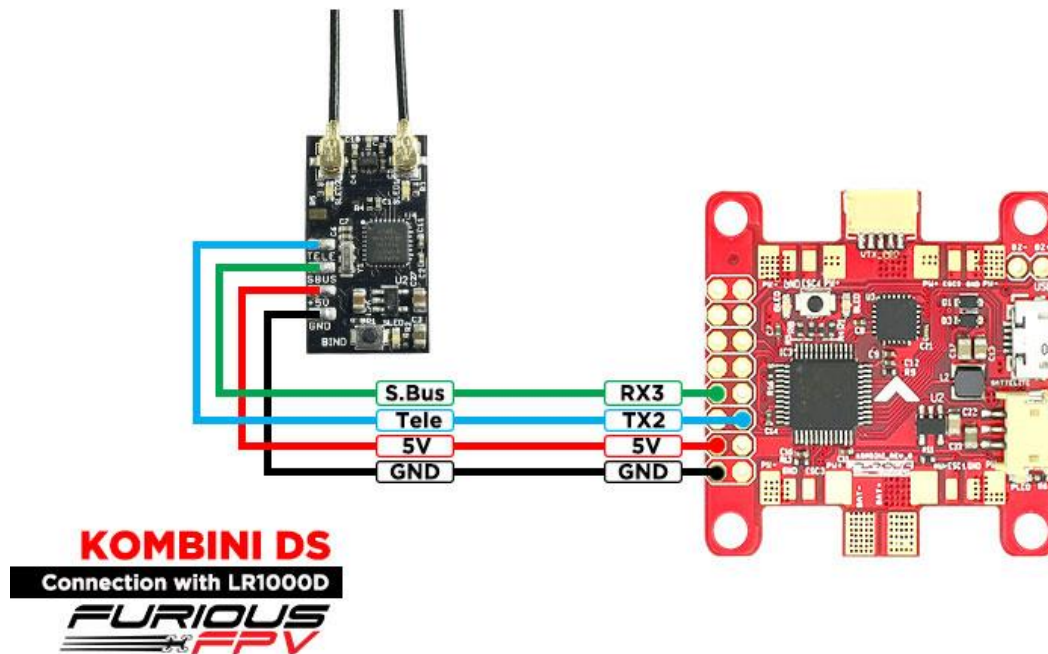
Port Identifier	Configuration	Serial Rx	Telemetry Output	Sensor Input
USB VCP	<input checked="" type="checkbox"/> MSP 115200 ▼	<input type="checkbox"/> Serial RX	Disabled ▼ AUTO ▼	Disabled ▼ AUTO ▼
UART1	<input type="checkbox"/> MSP 115200 ▼	<input type="checkbox"/> Serial RX	Disabled ▼ AUTO ▼	Disabled ▼ AUTO ▼
UART2	<input type="checkbox"/> MSP 115200 ▼	<input type="checkbox"/> Serial RX	SmartPort ▼ AUTO ▼	Disabled ▼ AUTO ▼
UART3	<input type="checkbox"/> MSP 115200 ▼	<input checked="" type="checkbox"/> Serial RX	Disabled ▼ AUTO ▼	Disabled ▼ AUTO ▼



You can buy SPD15 Receiver right here: <https://goo.gl/FTnrpR>

❖ Using LR1000D Receiver:

Port Identifier	Configuration	Serial Rx	Telemetry Output	Sensor Input
USB VCP	<input checked="" type="checkbox"/> MSP 115200 ▼	<input type="checkbox"/> Serial RX	Disabled ▼ AUTO ▼	Disabled ▼ AUTO ▼
UART1	<input type="checkbox"/> MSP 115200 ▼	<input type="checkbox"/> Serial RX	Disabled ▼ AUTO ▼	Disabled ▼ AUTO ▼
UART2	<input type="checkbox"/> MSP 115200 ▼	<input type="checkbox"/> Serial RX	SmartPort ▼ AUTO ▼	Disabled ▼ AUTO ▼
UART3	<input type="checkbox"/> MSP 115200 ▼	<input checked="" type="checkbox"/> Serial RX	Disabled ▼ AUTO ▼	Disabled ▼ AUTO ▼



You can buy LR1000D Receiver right here: <https://goo.gl/4Cr0HI>

*** NOTE:** If you use LR1000D Receiver please go to CLI and type the following commands:

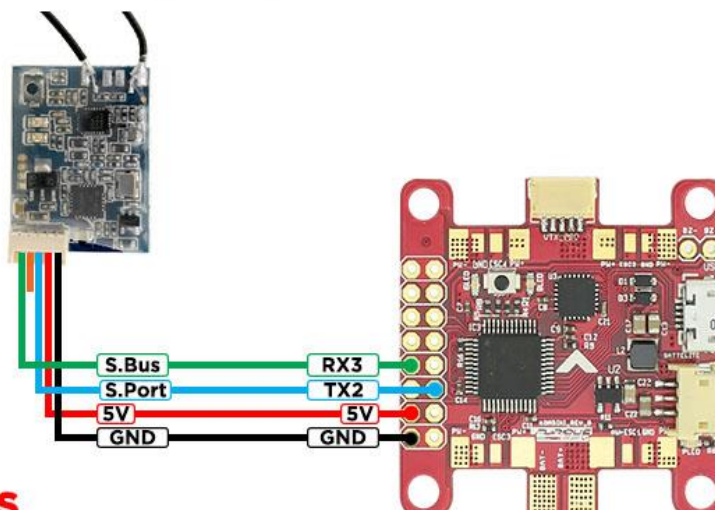
```
set sbus_inversion = OFF
```

```
save
```


❖ Using XSR FrSky Receiver:

Port Identifier	Configuration	Serial Rx	Telemetry Output	Sensor Input
USB VCP	<input checked="" type="checkbox"/> MSP 115200 ▼	<input type="checkbox"/> Serial RX	Disabled ▼ AUTO ▼	Disabled ▼ AUTO ▼
UART1	<input type="checkbox"/> MSP 115200 ▼	<input type="checkbox"/> Serial RX	Disabled ▼ AUTO ▼	Disabled ▼ AUTO ▼
UART2	<input type="checkbox"/> MSP 115200 ▼	<input type="checkbox"/> Serial RX	SmartPort ▼ AUTO ▼	Disabled ▼ AUTO ▼
UART3	<input type="checkbox"/> MSP 115200 ▼	<input checked="" type="checkbox"/> Serial RX	Disabled ▼ AUTO ▼	Disabled ▼ AUTO ▼

XSR RECEIVER

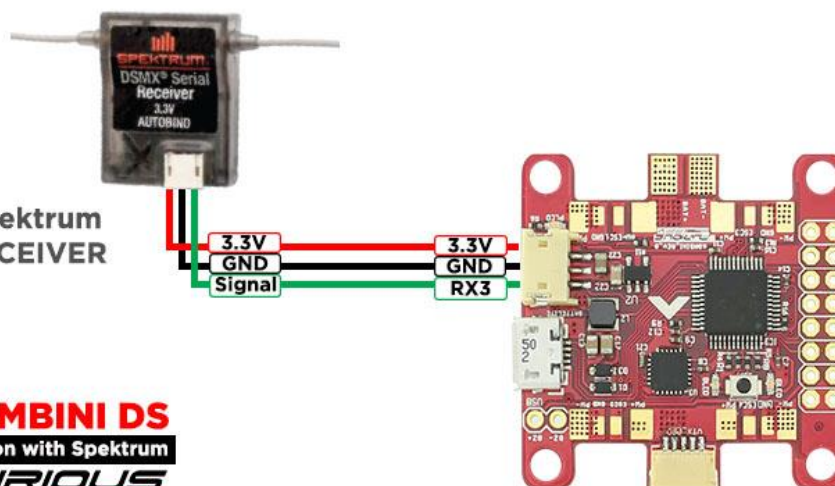


KOMBINI DS
 Connection with XSR FrSky
FURIOUS
FPV

❖ Using Spektrum Satellite Receiver:

Port Identifier	Configuration	Serial Rx	Telemetry Output	Sensor Input
USB VCP	<input checked="" type="checkbox"/> MSP 115200 ▼	<input type="checkbox"/> Serial RX	Disabled ▼ AUTO ▼	Disabled ▼ AUTO ▼
UART1	<input type="checkbox"/> MSP 115200 ▼	<input type="checkbox"/> Serial RX	Disabled ▼ AUTO ▼	Disabled ▼ AUTO ▼
UART2	<input type="checkbox"/> MSP 115200 ▼	<input type="checkbox"/> Serial RX	Disabled ▼ AUTO ▼	Disabled ▼ AUTO ▼
UART3	<input type="checkbox"/> MSP 115200 ▼	<input checked="" type="checkbox"/> Serial RX	Disabled ▼ AUTO ▼	Disabled ▼ AUTO ▼

**Spektrum
RECEIVER**



KOMBINI DS
 Connection with Spektrum
FURIOUS
FPV

- **With Piggy V2 OSD**

The diagram illustrates the connection between a **Tramp HV** transmitter and a **Furious FPV** receiver. The transmitter is a small red PCB with a yellow antenna, labeled with "TNR Tramp HV", "5.8GHz Video Tx", "6-18V", "Batch 01 V1.27", and "IMMERSION RC". The receiver is a larger red PCB with a yellow antenna, labeled with "FURIOUS FPV" and "VEX-200".

Transmitter Connections:

- Power:** The transmitter is powered by a 6V-18V battery. The "GND" pin is connected to the negative terminal, and the "12V" pin is connected to the positive terminal.
- Video:** The "VIDEO_IN" pin is connected to the "TELE" pin of the transmitter.
- Antenna:** The yellow antenna is connected to the "TX" pin.
- Other Pins:** The "OUT", "5V", and "GND" pins are also shown.

Receiver Connections:

- Power:** The receiver is powered by a 2s-5s battery. The "Bat +" pin is connected to the positive terminal, and the "Bat -" pin is connected to the negative terminal.
- Antenna:** The yellow antenna is connected to the "RX1" pin.
- Other Pins:** The "TX1", "GND", and "VEX-200" pins are also shown.

Labels and Text:

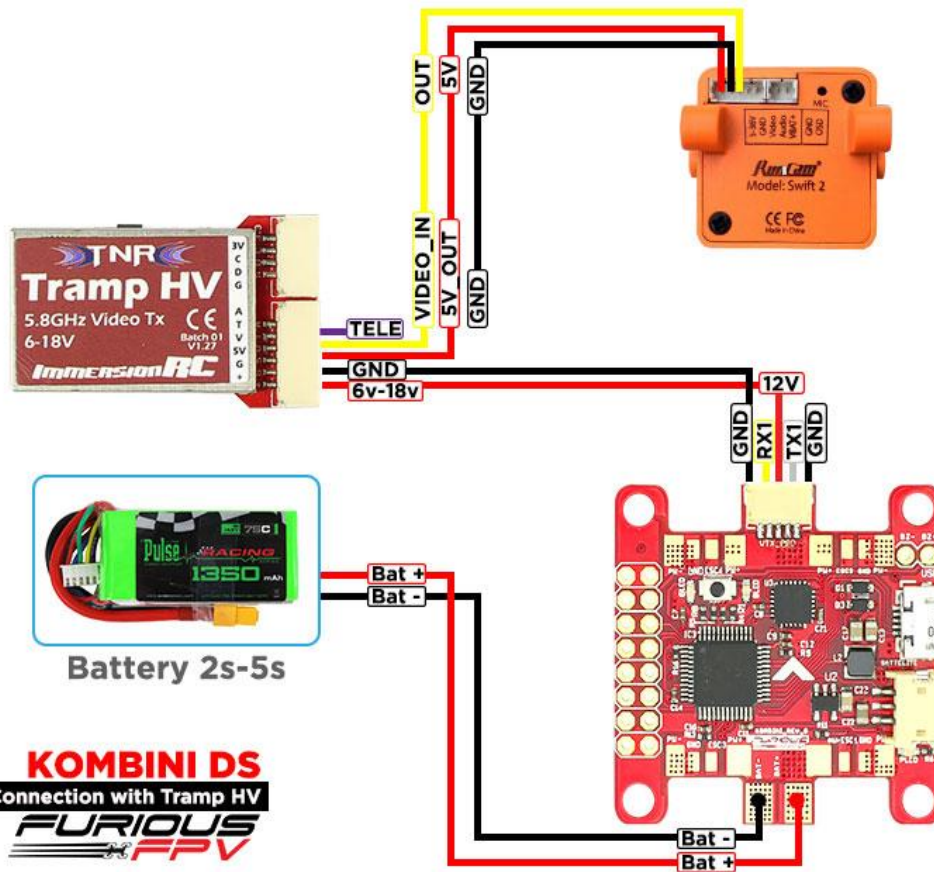
- Battery 2s-5s:** A label for the battery used in the receiver.
- KOMBINI DS:** A logo for the company.
- Connection with Tramp HV:** A label for the diagram.
- FURIOUS FPV:** A logo for the receiver.

• With Only Camera

Ports

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.

Port Identifier	Configuration	Serial Rx	Telemetry Output	Sensor Input	Peripherals
USB VCP	<input checked="" type="checkbox"/> MSP 115200	<input type="checkbox"/> Serial RX	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART1	<input type="checkbox"/> MSP 115200	<input type="checkbox"/> Serial RX	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART2	<input type="checkbox"/> MSP 115200	<input type="checkbox"/> Serial RX	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART3	<input type="checkbox"/> MSP 115200	<input type="checkbox"/> Serial RX	Disabled AUTO	Disabled AUTO	Disabled AUTO



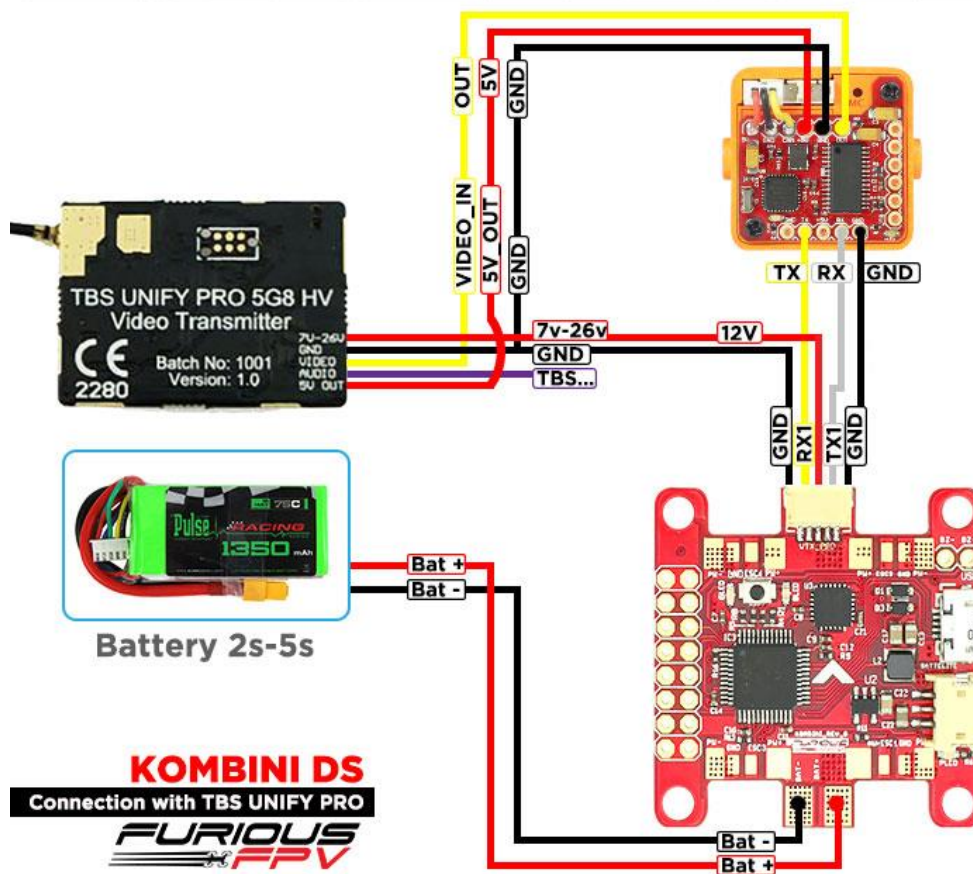
❖ Using TBS Unify Pro:

- With Piggy V2 OSD

Ports

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.

Port Identifier	Configuration	Serial Rx	Telemetry Output	Sensor Input	Peripherals
USB VCP	<input checked="" type="checkbox"/> MSP 115200	<input type="checkbox"/> Serial Rx	Disabled ▾ AUTO ▾	Disabled ▾ AUTO ▾	Disabled ▾ AUTO ▾
UART1	<input checked="" type="checkbox"/> MSP 115200	<input type="checkbox"/> Serial Rx	Disabled ▾ AUTO ▾	Disabled ▾ AUTO ▾	Disabled ▾ AUTO ▾
UART2	<input type="checkbox"/> MSP 115200	<input type="checkbox"/> Serial Rx	Disabled ▾ AUTO ▾	Disabled ▾ AUTO ▾	Disabled ▾ AUTO ▾
UART3	<input type="checkbox"/> MSP 115200	<input type="checkbox"/> Serial Rx	Disabled ▾ AUTO ▾	Disabled ▾ AUTO ▾	Disabled ▾ AUTO ▾

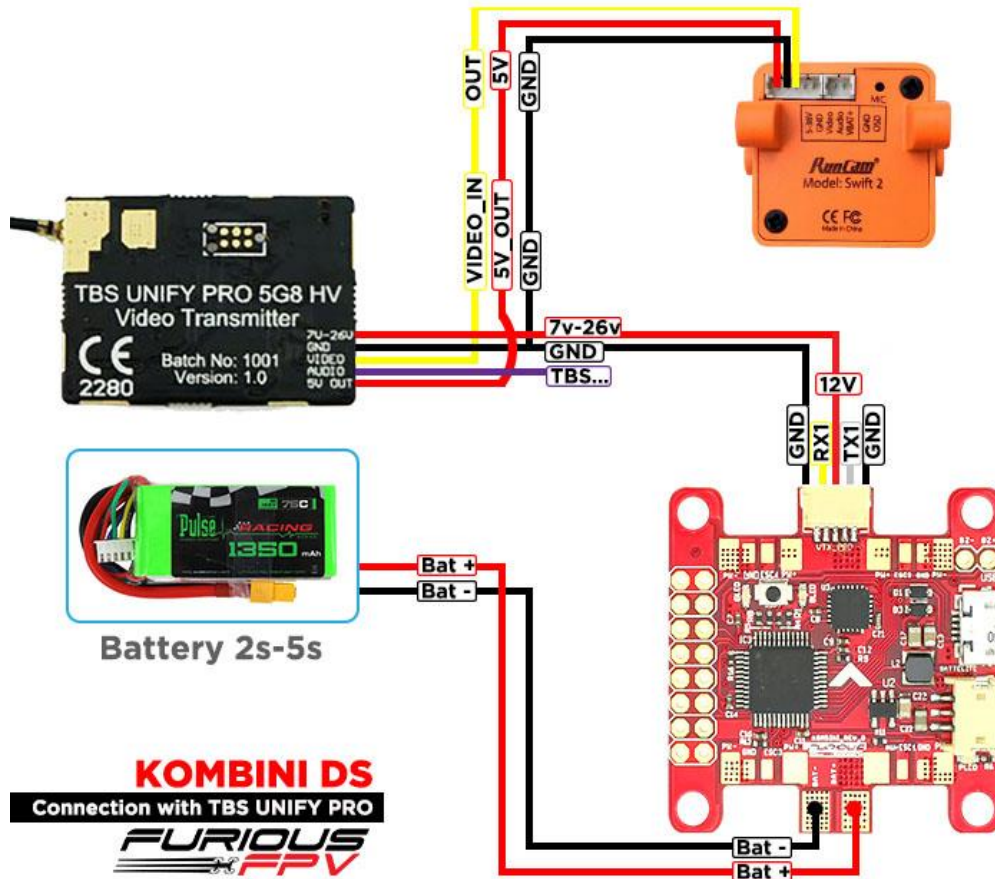


• With Only Camera

Ports

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.

Port Identifier	Configuration	Serial Rx	Telemetry Output	Sensor Input	Peripherals
USB VCP	<input checked="" type="checkbox"/> MSP 115200 ▾	<input type="checkbox"/> Serial RX	Disabled ▾ AUTO ▾	Disabled ▾ AUTO ▾	Disabled ▾ AUTO ▾
UART1	<input type="checkbox"/> MSP 115200 ▾	<input type="checkbox"/> Serial RX	Disabled ▾ AUTO ▾	Disabled ▾ AUTO ▾	Disabled ▾ AUTO ▾
UART2	<input type="checkbox"/> MSP 115200 ▾	<input type="checkbox"/> Serial RX	Disabled ▾ AUTO ▾	Disabled ▾ AUTO ▾	Disabled ▾ AUTO ▾
UART3	<input type="checkbox"/> MSP 115200 ▾	<input type="checkbox"/> Serial RX	Disabled ▾ AUTO ▾	Disabled ▾ AUTO ▾	Disabled ▾ AUTO ▾



- **With Piggy V2 OSD**

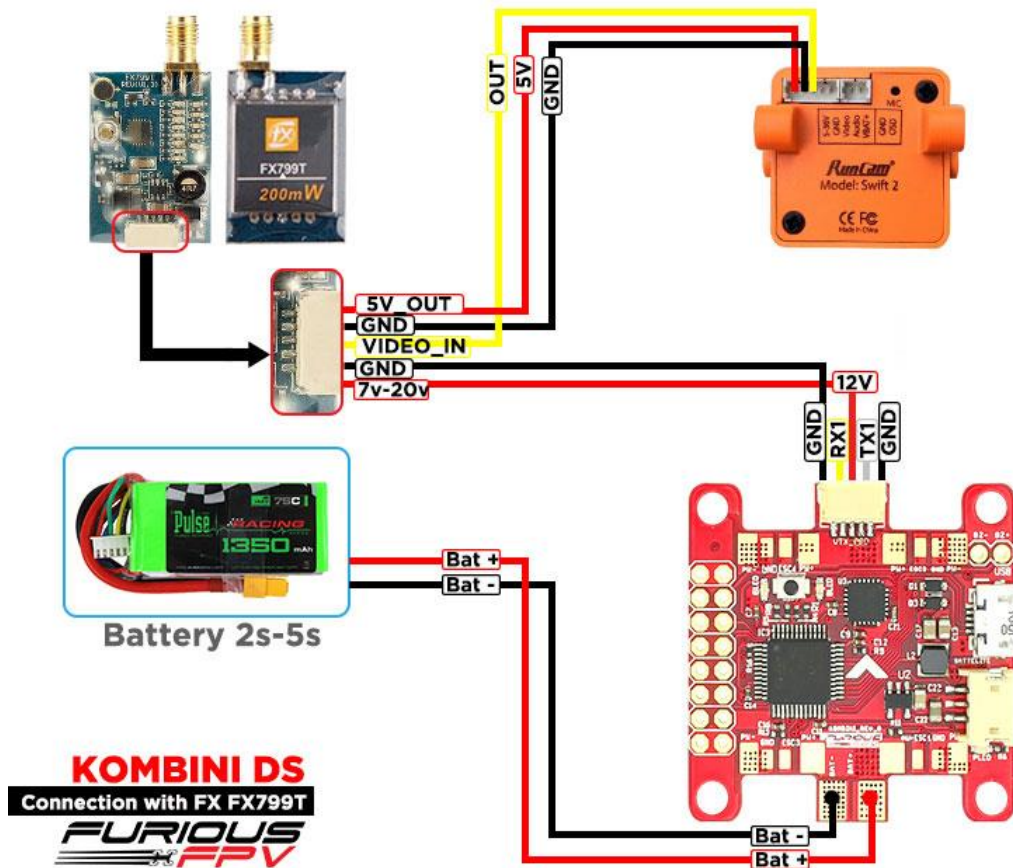
[illegible]

• With Only Camera

Ports

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.

Port Identifier	Configuration	Serial Rx	Telemetry Output	Sensor Input	Peripherals
USB VCP	<input checked="" type="checkbox"/> MSP 115200	<input type="checkbox"/> Serial RX	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART1	<input type="checkbox"/> MSP 115200	<input type="checkbox"/> Serial RX	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART2	<input type="checkbox"/> MSP 115200	<input type="checkbox"/> Serial RX	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART3	<input type="checkbox"/> MSP 115200	<input type="checkbox"/> Serial RX	Disabled AUTO	Disabled AUTO	Disabled AUTO

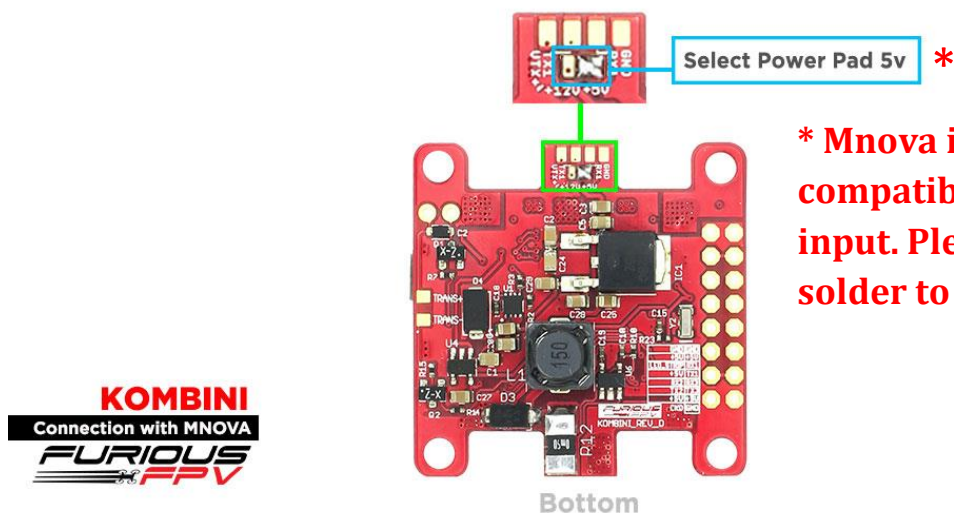
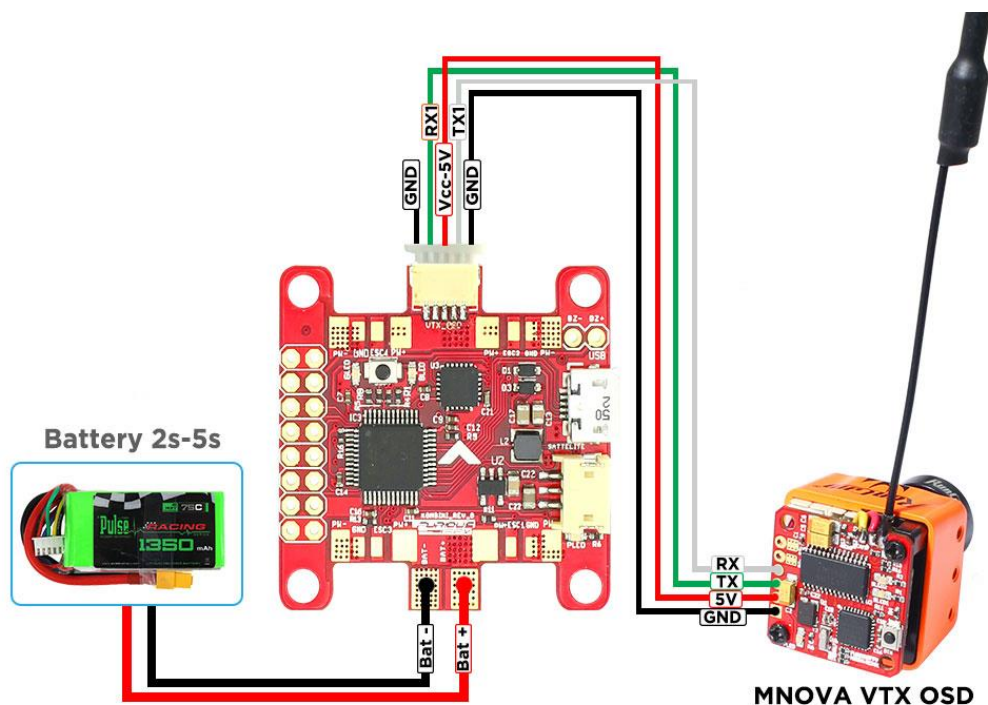


Connect with stack Mnova and Runcam :

Ports

Note: not all combinations are valid. When the flight controller is configured for UART, the MSP port is disabled.
Note: Do NOT disable MSP on the first serial port unless you are using it for telemetry.

Port Identifier	Configuration
USB VCP	<input checked="" type="checkbox"/> MSP 115200 ▼
UART1	<input checked="" type="checkbox"/> MSP 115200 ▼
UART2	<input type="checkbox"/> MSP 115200 ▼
UART3	<input type="checkbox"/> MSP 115200 ▼

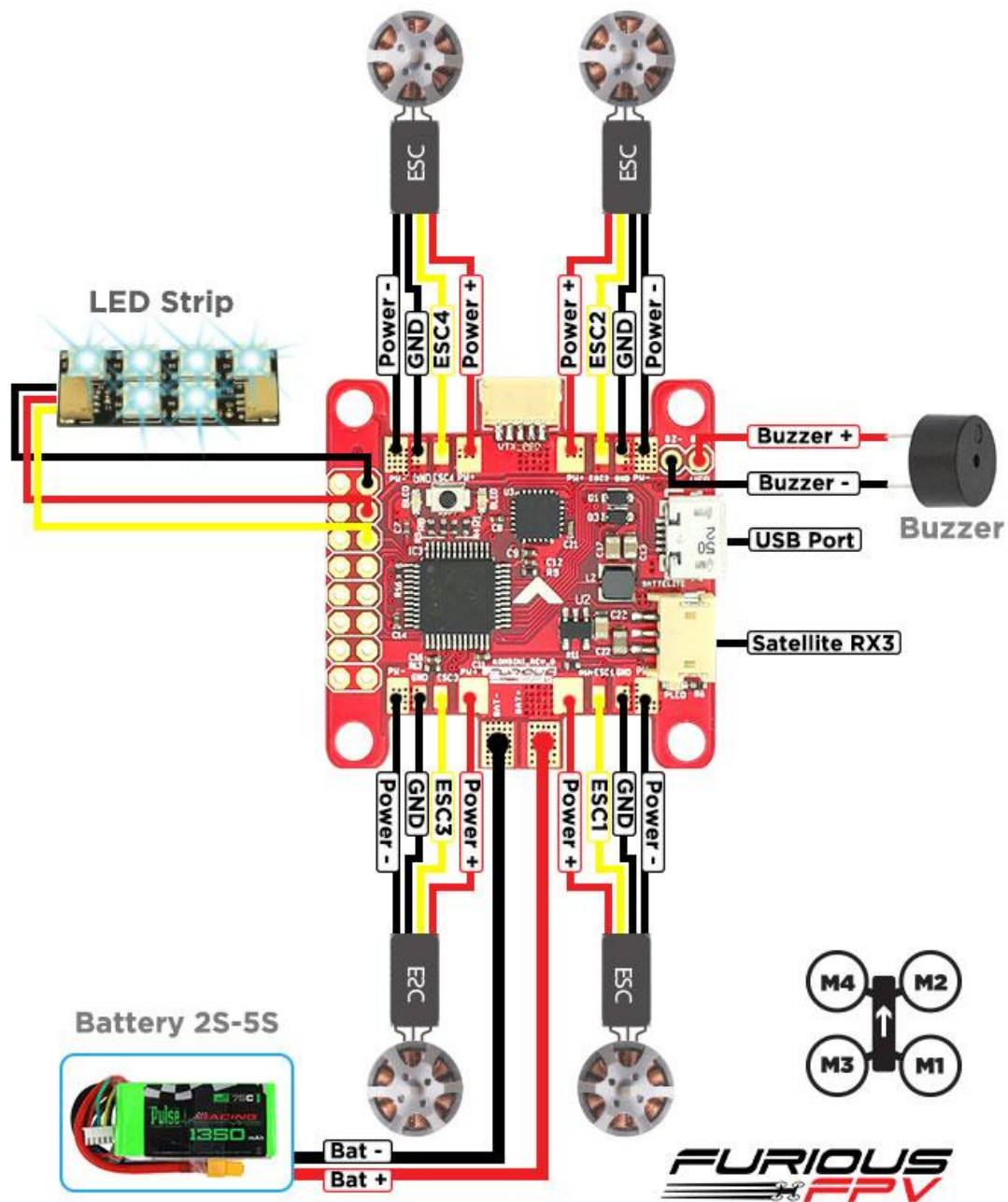


*** Mnova is only compatible with 5V input. Please only solder to 5V input**

KOMBINI
Connection with MNOVA
FURIOUS FPV

You can buy Mnova right here: <https://goo.gl/JyQnds>

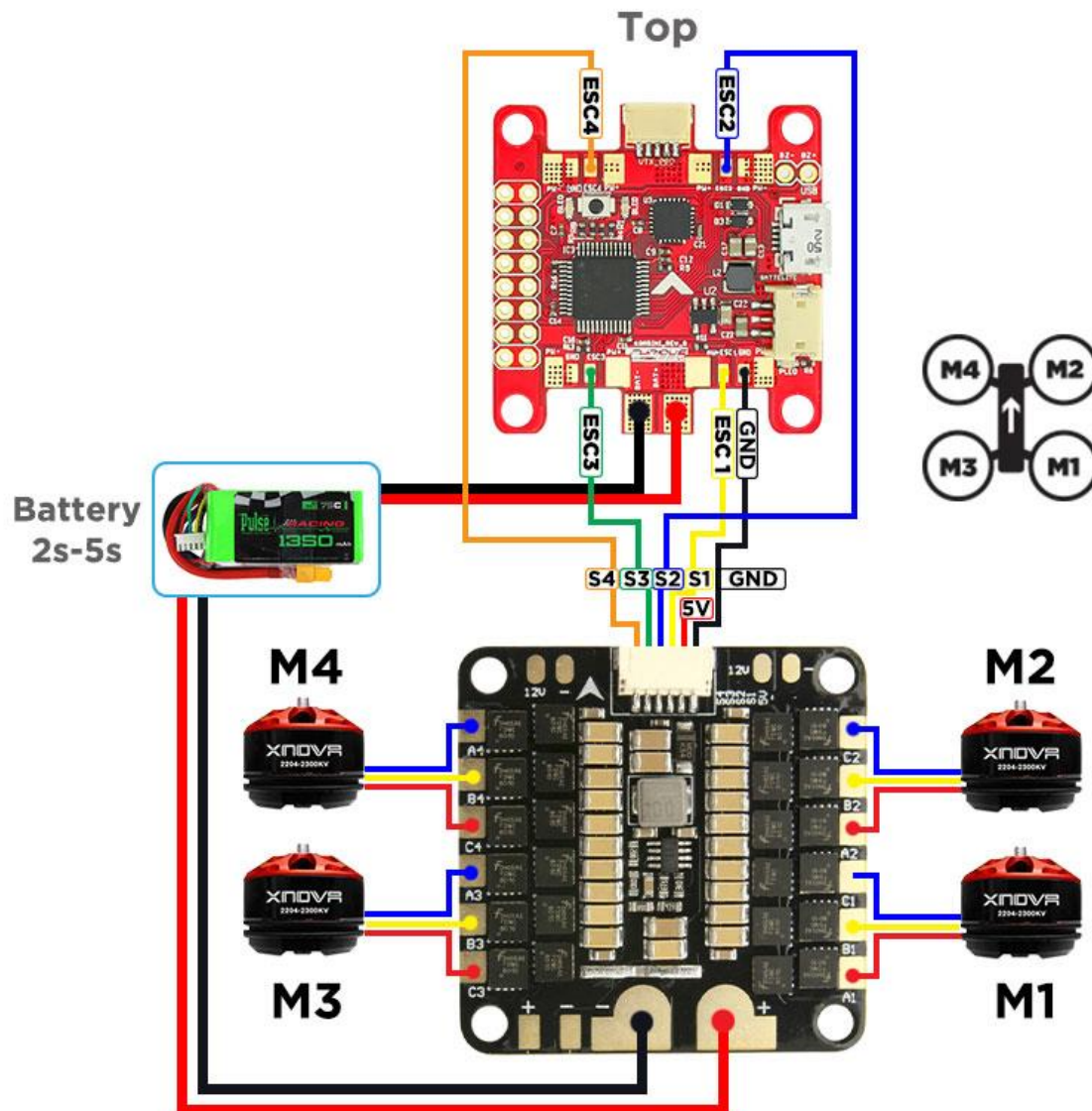
Connect with other devices:



You can buy LED STRIP right here: <https://goo.gl/TXwSwI>

Connect with ESC 4 in 1:

❖ Using Aikon SEFM 30A:

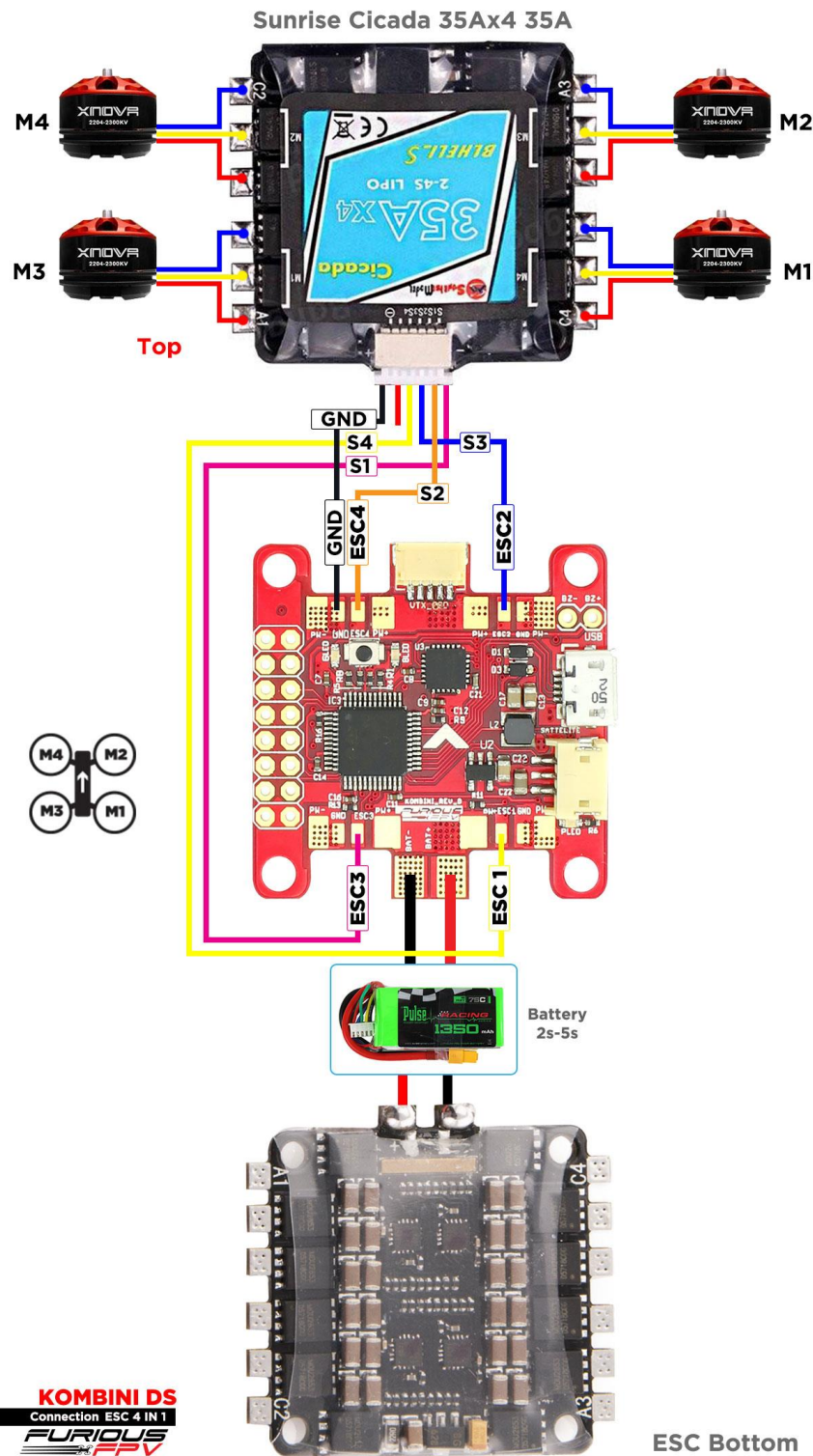


KOMBINI DS
 Connection ESC 4 IN 1
FURIOUS
 FPV

Aikon SEFM 30A 4-in-1

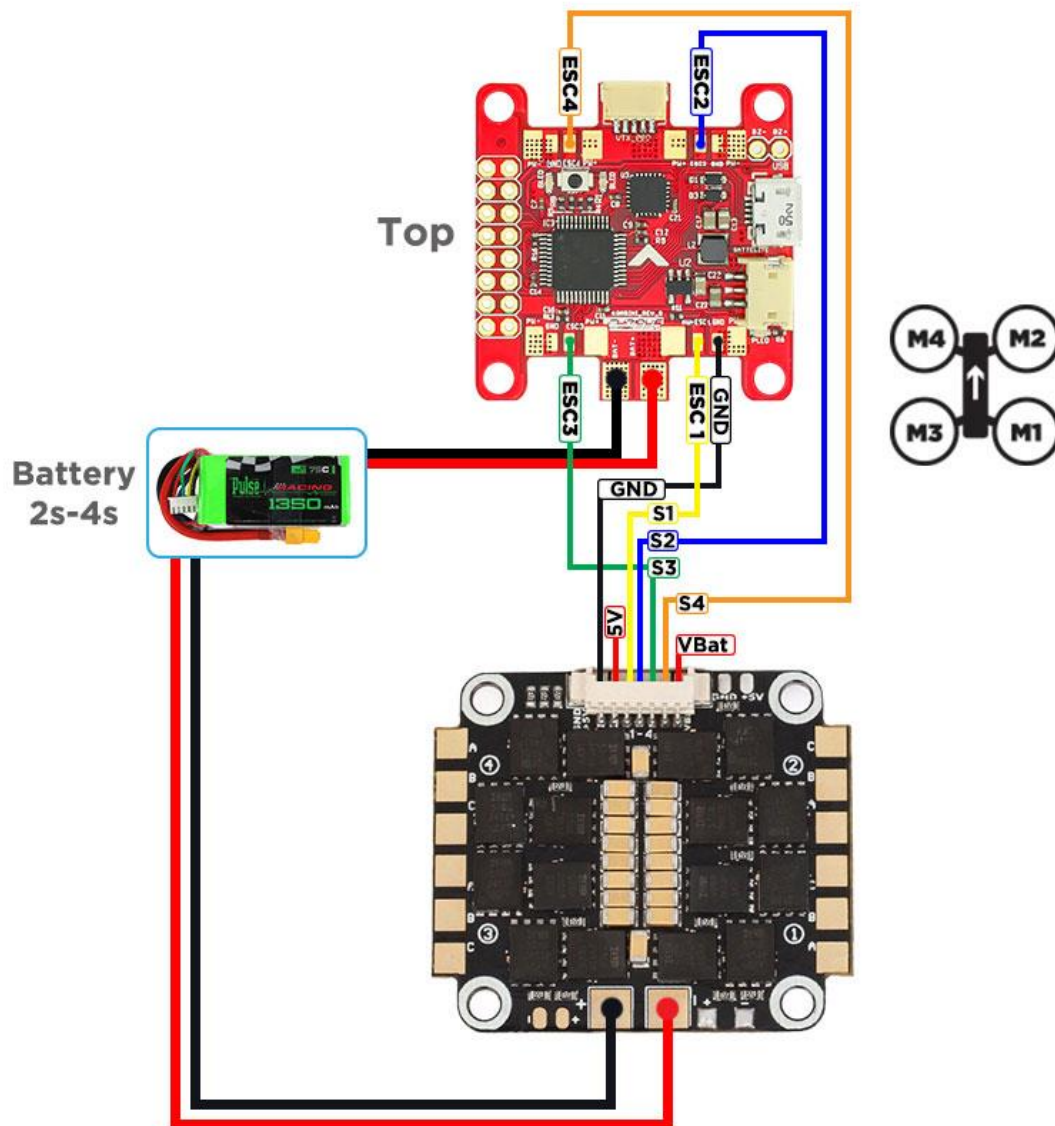
You can buy ESC Aikon SEFM 30 4 in 1 right here: <https://goo.gl/IOYBEr>

❖ Using Cicada 35x4 35A:



You can buy ESC Sunrise Cicada 35x4 35A right here: <https://goo.gl/s08OaI>

❖ Using T-Motor F 35A 4IN1-4S:



KOMBINI DS
 Connection ESC 4 IN 1
FURIOUS
 FPV

F 35A 4IN1-4S

You can buy ESC F 35A 4in1-4S right here: <https://goo.gl/QyM3eh>

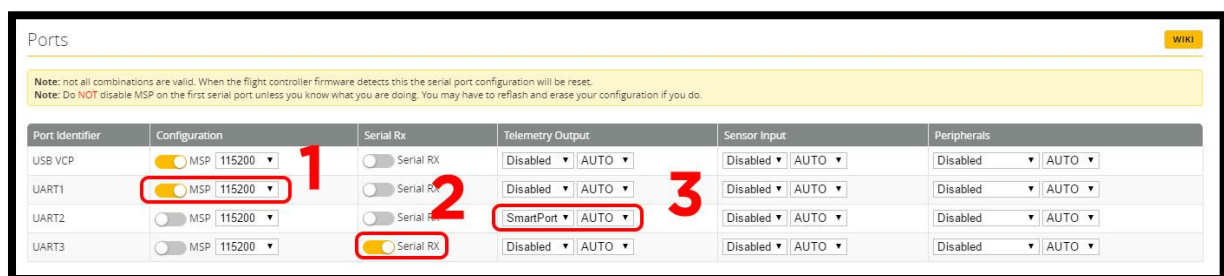
Basic setup

Please, follow carefully these next steps, and always **remove** your propellers when you're configuring your quad

STEP 1: Connect Kombini DS with the computer via **USB** cable and then **open** BetaFlight

STEP 2: Configure Ports.

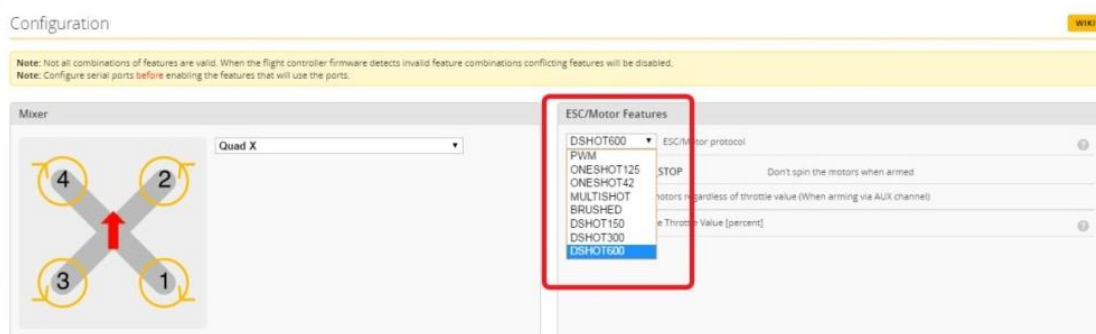
- (1) Turn on **MSP** of **UART 1** to use OSD.
- (2) Turn on **Serial Rx** of **UART 3** to use **Receiver Mode**
- (3) Select **SmartPort** of **UART 2** to use **S.Port** of Receiver.



Port Identifier	Configuration	Serial Rx	Telemetry Output	Sensor Input	Peripherals
USB VCP	<input checked="" type="checkbox"/> MSP 115200	<input type="checkbox"/> Serial RX	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART1	<input checked="" type="checkbox"/> MSP 115200	<input type="checkbox"/> Serial RX	Disabled AUTO	Disabled AUTO	Disabled AUTO
UART2	<input type="checkbox"/> MSP 115200	<input type="checkbox"/> Serial RX	SmartPort AUTO	Disabled AUTO	Disabled AUTO
UART3	<input type="checkbox"/> MSP 115200	<input checked="" type="checkbox"/> Serial RX	Disabled AUTO	Disabled AUTO	Disabled AUTO

*** Note:** Please make sure that all the connections are correct.

STEP 3: Go to Configuration tab and choose ESC/Motor protocol in ESC/Motor Features



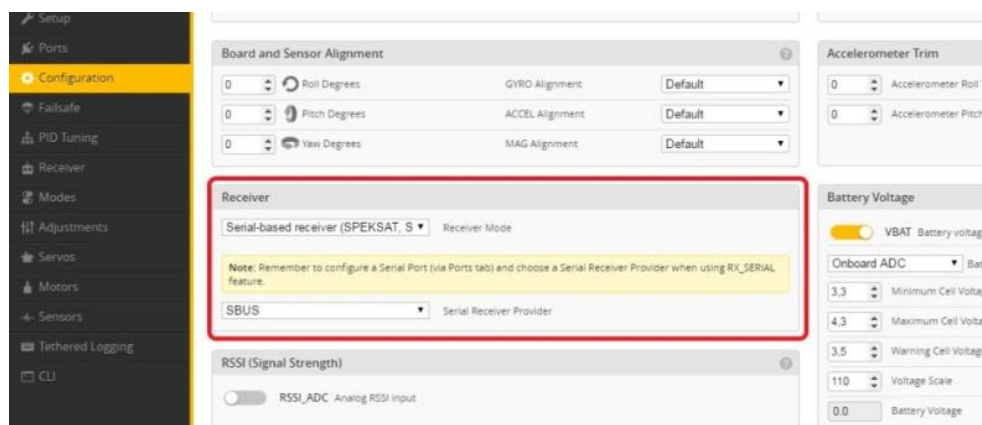
Configuration

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

ESC/Motor Features: DSHOT600

STEP 4: Select Serial- based receiver in Receiver Mode



Setup

Ports

Configuration

Failsafe

PID Tuning

Receiver

Modes

Adjustments

Servos

Motors

Sensors

Tethered Logging

CU

Board and Sensor Alignment

Roll Degrees: 0 | GYRO Alignment: Default

Pitch Degrees: 0 | ACCEL Alignment: Default

Yaw Degrees: 0 | MAG Alignment: Default

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

RSSI (Signal Strength)

RSSI_ADC Analog RSSI input

Accelerometer Trim

Accelerometer Roll: 0

Accelerometer Pitch: 0

Battery Voltage

VBAT Battery voltage

Onboard ADC | Bat

Minimum Cell Voltage: 3.3

Maximum Cell Voltage: 4.3

Warning Cell Voltage: 3.5

Voltage Scale: 110

Battery Voltage: 0.0

If you are using SBus, iBus or a Spektrum Satellite, you will need to pick your Serial Receiver Provider. Follow this table:

RX Type	Serial Receiver Provider
DSM2 1024bit/22ms	SPEKTRUM1024
DSM2 2048bit/11ms	SPEKTRUM2048
DSMX 1024bit/22ms	SPEKTRUM1024
DSMX 2048bit/11ms	SPEKTRUM2048
FrSky RX	SBUS
Futaba RX	SBUS
FlySky RX	IBUS
Turnigy RX	IBUS

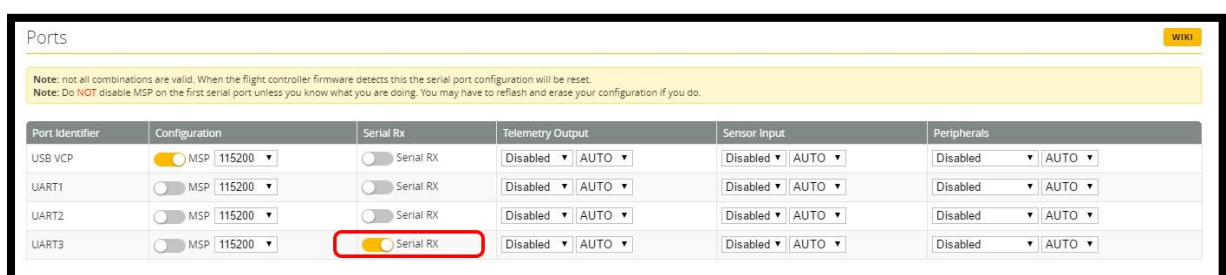
Click **“Save and Reboot”**.

Tips

How to configure your Spektrum RX with your Flight Controller

In Betaflight Configurator:

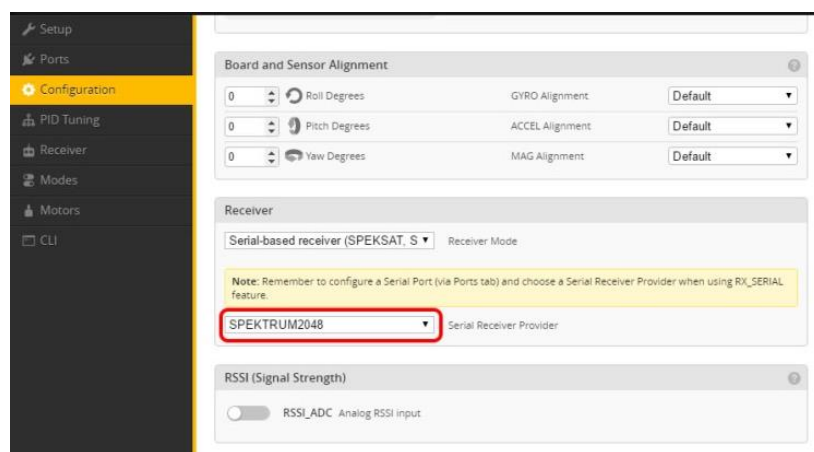
- Go to the **Ports** tab
- Enable **“Serial RX”** on the UART 3



Click **“Save”**.

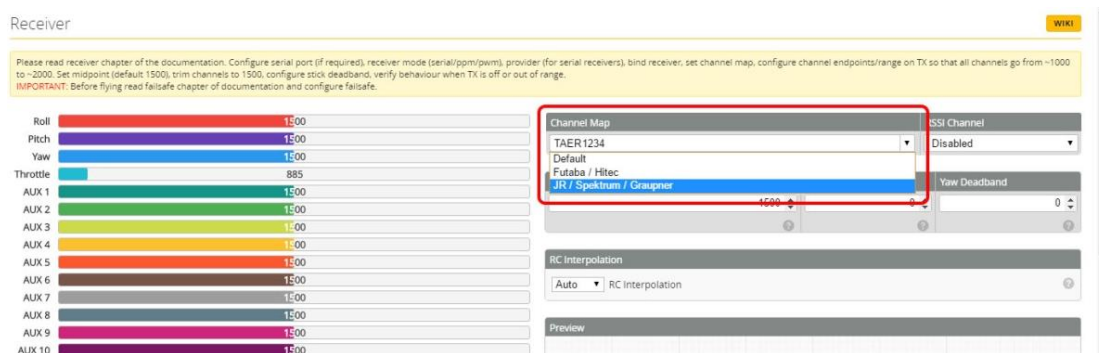
Then go to the **Configuration** tab. Under the section labeled “**Receiver**”, pick **Serial Receiver Provider** compare with your **RX Type**.

RX Type	Serial Receiver Provider
DSM2 1024bit/22ms	SPEKTRUM1024
DSM2 2048bit/11ms	SPEKTRUM2048
DSMX 1024bit/22ms	SPEKTRUM1024
DSMX 2048bit/11ms	SPEKTRUM2048



Click “**Save**”.

Finally, go to the **Receiver** tab. Pull down the drop down that says “**Channel Map**” and select the “**JR / Spektrum / Graupner**” option.

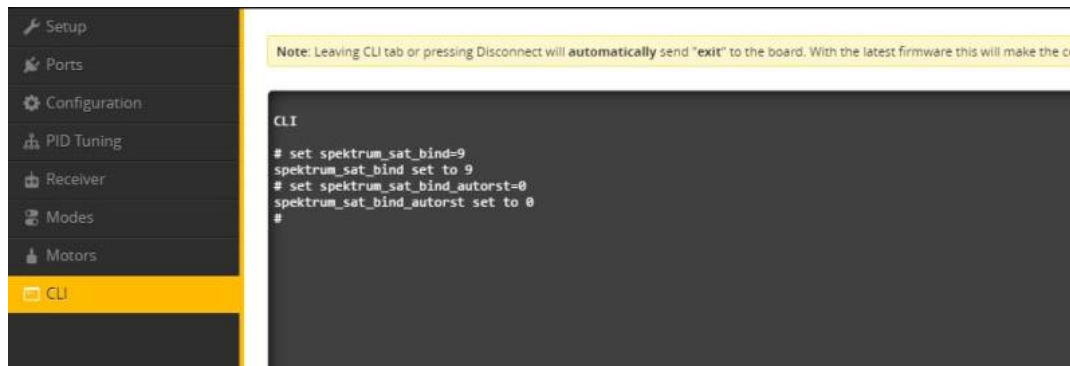


Once again, click “**Save**”.

How to turn on bind mode

NOTE: Plug battery to the quad during setup.

Connect quadcopter to the computer and go to Command-line interface (CLI) tab.



Remember to type “**save**” and hit **enter** after these commands have been executed.

Type in the commands as pictured above, or copy and paste them from below:

```
set spektrum_sat_bind=9
```

```
set spektrum_sat_bind_aurorst=0
```

```
save
```

NOTE – if you are using a **DSM2 receiver**, change “**set spektrum_sat_bind=9**” to

“**set spektrum_sat_bind=5**”

Reboot your Flight Controller by unplugging the Flight Controller from your PC then plugging it back in.

Your RX should go into bind mode by now as the LED on the RX will be blinking rapidly.

Guideline configuration OSD with TRUE VISION CONFIGURATOR V1.0

Serial Pass Through don't need CLI in Betaflight

DOWNLOAD: [Guideline install and configuration TRUE VISION CONFIGURATOR](#)

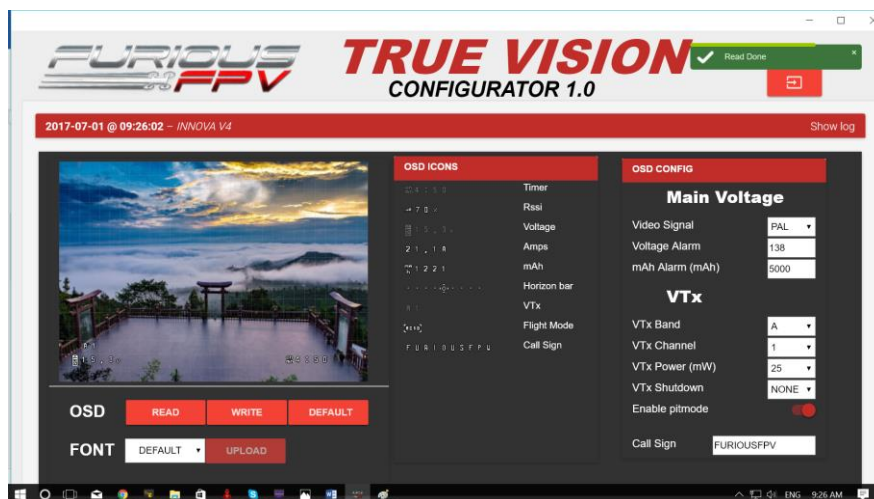
STEP 1: Connect Kombini DS (connected with VTX/OSD) with PC via USB cable. Then plug battery for FC.

STEP 2: Open True Vision Configurator on google chrome.

STEP 3: Please select **Port COM (1)** correlative with your device, then select **UART 1 (2)** using for OSD.



STEP 4: Plug Battery for Kombini DS, then click **Connect icon** on True Vision interface to connect and configuration OSD layout and setting.



STEP 5: After configuration device please click **WRITE** to save your configuration.

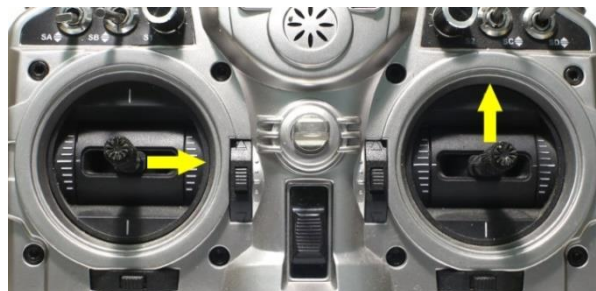
How to open VTX/OSD menu by Transmitter

To access the in-built OSD menu in MW-OSD, disarm your quadcopter first.

- THROTTLE MIDDLE
- YAW RIGHT
- PITCH FULL

To navigate through menu in the OSD:

- **PITCH/ROLL** sticks are used to navigate
- **YAW** stick is used to **adjust / change** values



OSD Menu Index:

<p>WARNING</p> <p>INNOVA-V4 IS LOCKED, ENTER CALLSIGN TO UNLOCK, VTX POWER CAN ONLY BE CHANGED ONCE UNLOCKED</p>	PID CONFIG/PROFILE 1			
		P	I	D
	ROLL	44	40	30
	PITCH	58	50	35
VTX CONFIG	YAW	70	45	20
	PIT MODE			ON
	VTX POWER			25
	VTX SHUTDOWN			NONE
	VTX BAND			A
	VTX CHANNEL			1
	EXIT	SAVE+EXIT> <PAGE>		

- PID Config/Profile 1/2 or 3:
 - Roll/Pitch/Yaw PID for many flight modes
- VTx Config:
 - Pit mode: On/Off
 - VTx Power: 25/200
 - VTx Shutdown: None/AUX1/AUX2/AUX3/AUX4
 - VTx Band: A/B/E/F/C/U/O/L/H
 - VTx Channel: 1/2/3/4/5/6/7/8
- RC Tuning (RC Rate, RC Expo, Pitch/Roll Rate, Yaw Rate, TPA (Throttle PID Att), Throttle Mid, Throttle Expo, TPA Breakpoint, Yaw RC Expo)
- OSD Config (Display Main Volts, Display Amps, Display mAH, Display RSSI, Horizon, Main Volts Alarm, mAH X100, Callsign)
- Statistics (Fly Time, mAH Used, Max Amps, Voltage)



Thanks for using our product