INNOVA V4

VTX – OSD Board

USER MANUAL VERSION 1.0

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Introduction

Refining the powerful INNOVA VTx was no small task, but we did it anyway - introducing new updates & technologies that continue to push the cutting edge in FPV VTX design.

With the powerful functionality already built into the original INNOVA, we took the best system available and made it so much better, adding all new sophisticated features & functionalities that make the all new INNOVA V4 simply brilliant in every way.

Ultra small, light in weight and packed with full of FPV goodness, the INNOVA V4 adds Adjustable Power Output to the mix, allowing racers to vary VTx power from 0.1mW / 25mW / 200mW. The ultra-low 0.1mW Pit Mode functionality allows for calibration and tuning while you gear up for the next race. Further this with Stealth Mode power up, you can set your fears aside when powering up your machine, keeping your VTx offline while you system comes up to speed.

Incorporating our proprietary in-house True Vision system, True Vision can run via Chrome, and unlike most complex MWOSD software systems, True Vision is ultra-simple, supporting VTx setup, connecting through BetaFlight Serialpassthrough, FTDI, and more.

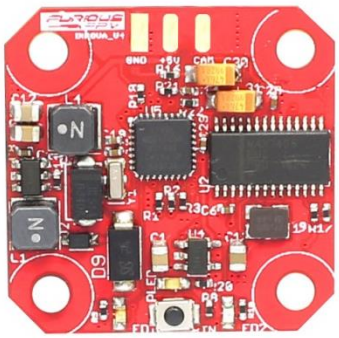
Simplification is the key and functionality is the game. With the INNOVA V4, adjustability is at your fingertips, allowing VTx power up & shut down via your transmitter, and the ability to select power, band, and channel with a press of a button. Combine this with features like a built-in LC Filter, RaceBand, and InRush Voltage Protection Input / Output via Transient Voltage Suppressor, the INNOVA V4 is the VTx that blows the competition out of the skies.

When it comes to VTx power, functionality and absolute brilliance, Furious FPV provides the next step in ultimate user friendliness with insane feature pack that you won't want to live without when it comes to FPV.

Don't settle for anything less - the Furious FPV INNOVA V4 is ready to rock your FPV and push your flight to the next level.

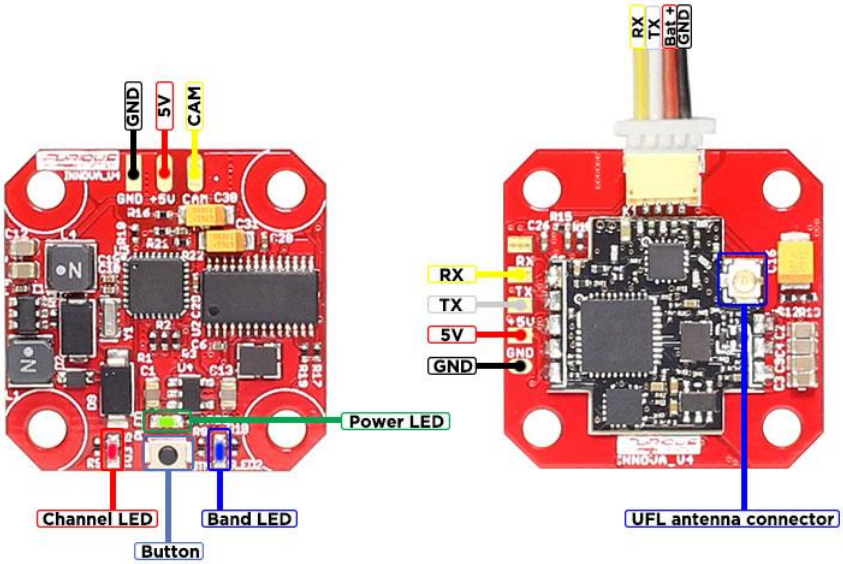
Features

- Mini Size: 27mm x 27mm w/ 20mm x 20mm Mounting Holes
- Stackable w/ PikoBLX FC, PikoF4 FC & All 20mm x 20mm FC's
- Adjustable VTX Power Output - 0.1mw / 25mW / 200mW
- Race Ready w/ 25mW Raceband Functionality
- 0.1mW Pit Mode for Worry Free Flight Line Tuning
- Stealth Mode Power Up
- Power On & Off VTX via Transmitter
- Integrated MWOSD Functions
- PID Tuning Capable
- 72 Channel / 9 Band 5.8GHz Frequency Range

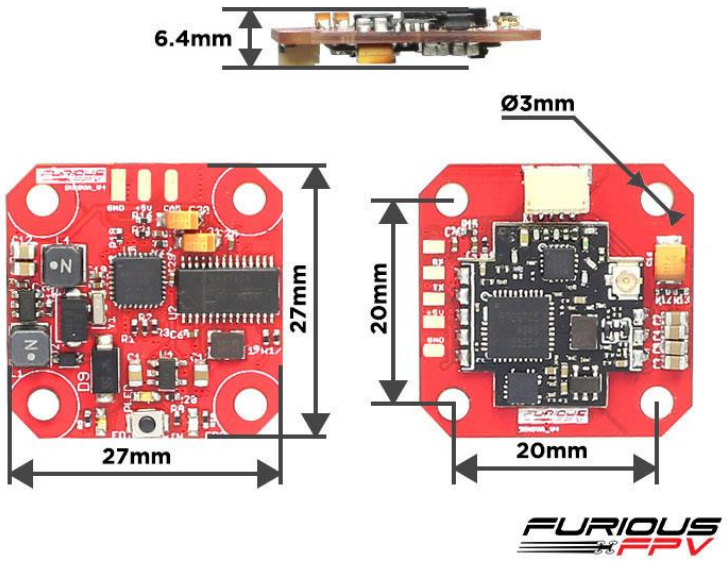


- Select Power / Band / Channel at a Touch of a Button
- HV Input Voltage from 2S 7.4V - 5S 18.5V
- Built-in LC filter for video clarity
- FuriousFPV TRUE VISION software
- Inrush Voltage Protection Input and Output by Transient Voltage
- Weight: 3.6gr

Board Layout



Dimensions



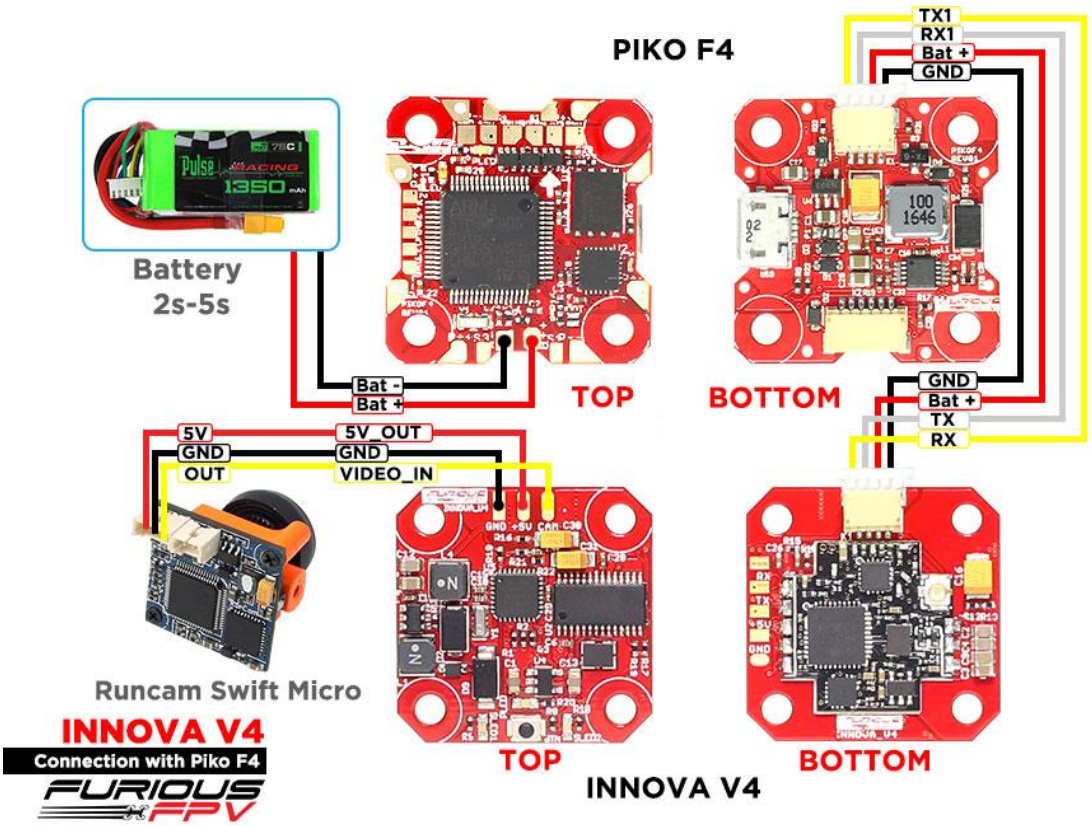
Connections

❖ Using Piko F4:

Ports

Note: not all combinations are valid. When the flight controller firmware detects this the serial port cont
Note: Do NOT disable MSP on the first serial port unless you know what you are doing. You may have to

Port Identifier	Configuration	Serial Rx
USB VCP	MSP 115200	Serial RX
UART1	MSP 115200	Serial RX
UART3	MSP 115200	Serial RX
UART6	MSP 115200	Serial RX



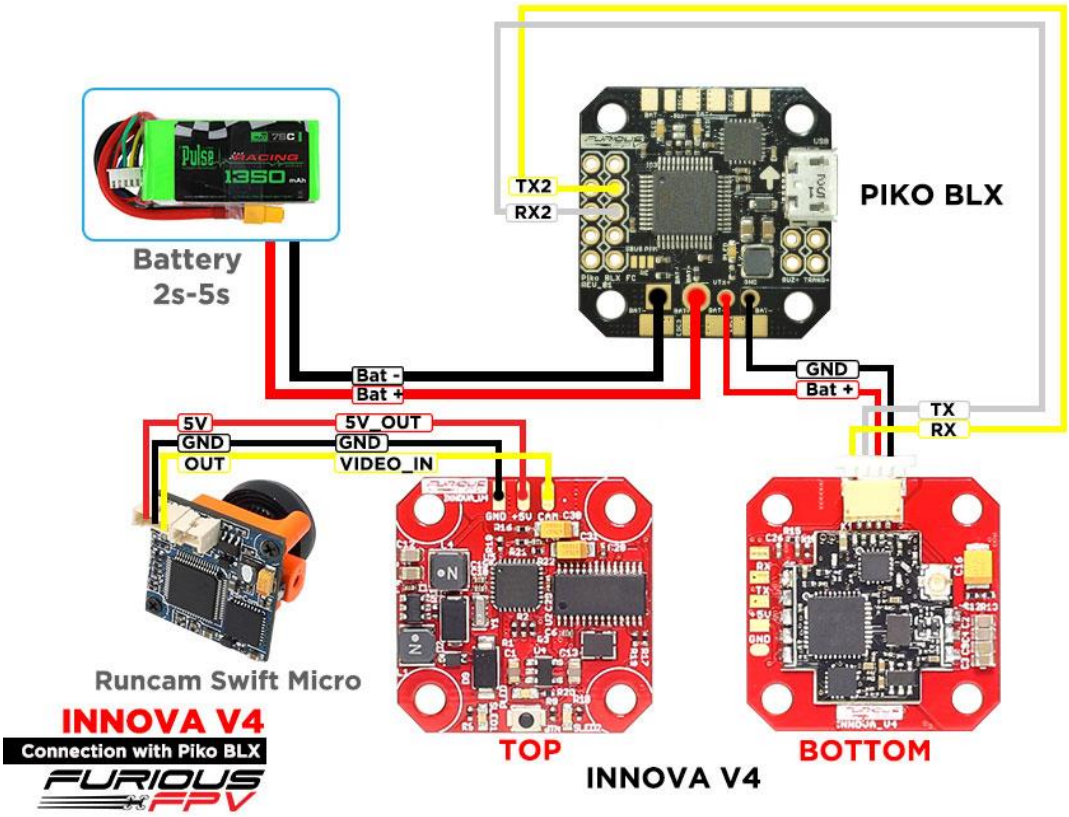
You can buy Piko F4 right here: https://goo.gl/RzdPWK

❖ Using Piko BLX:

Ports

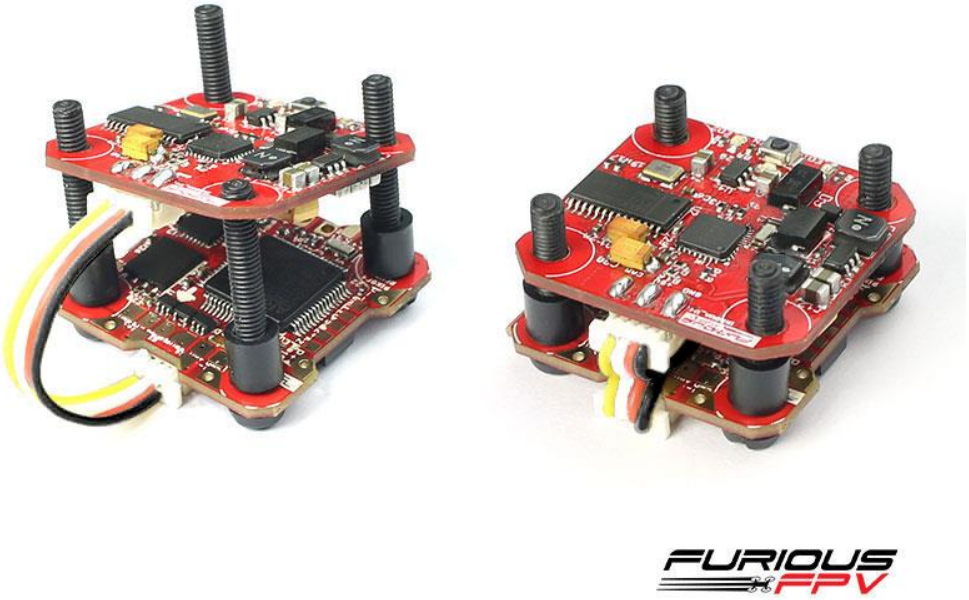
Note: not all combinations are valid. When the flight controller firmware detects this the serial po
Note: Do NOT disable MSP on the first serial port unless you know what you are doing. You may

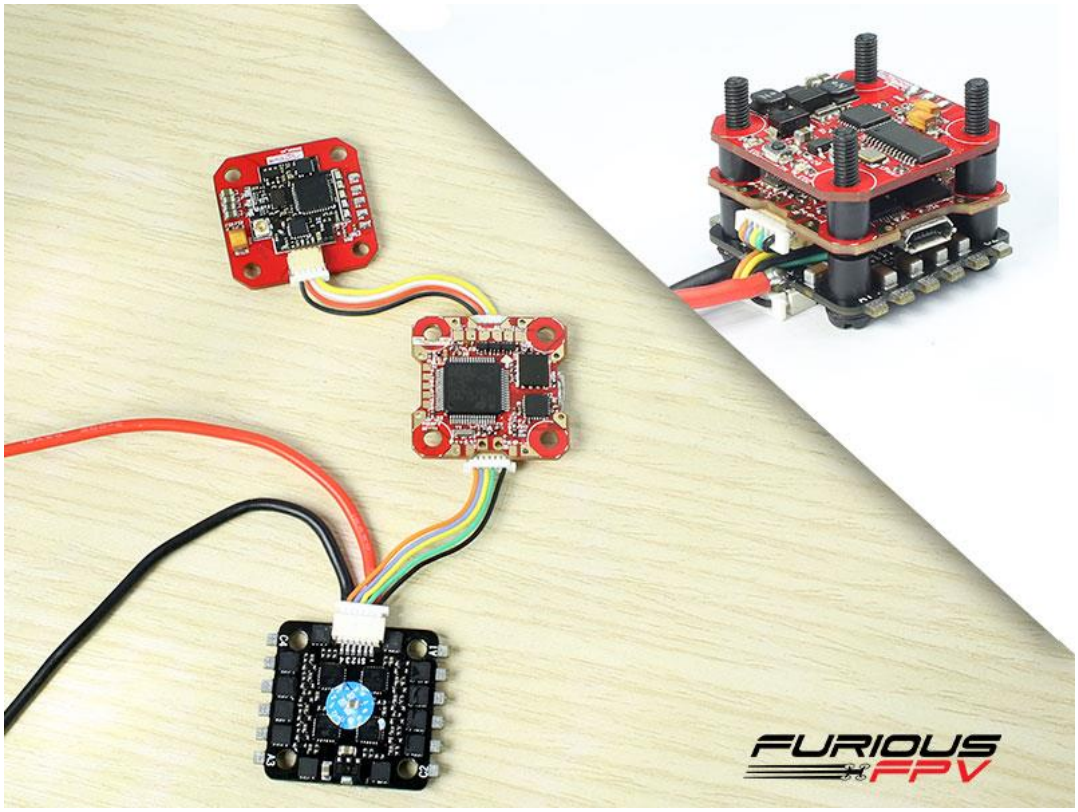
Port Identifier	Configuration	Serial Rx
USB VCP	MSP 115200	Serial RX
UART1	MSP 115200	Serial RX
UART2	MSP 115200	Serial RX
UART3	MSP 115200	Serial RX



Combo Innova V4 with Piko F4 and ESC 4 in 1:

***RECOMMEND:** **Use plastic spacers with a minimum height of 5mm**





Tips

Guideline configuration for Innova V4 VTX/OSD with TRUE VISION CONFIGURATOR V1.0

Serial Pass Through does not require CLI in Betaflight

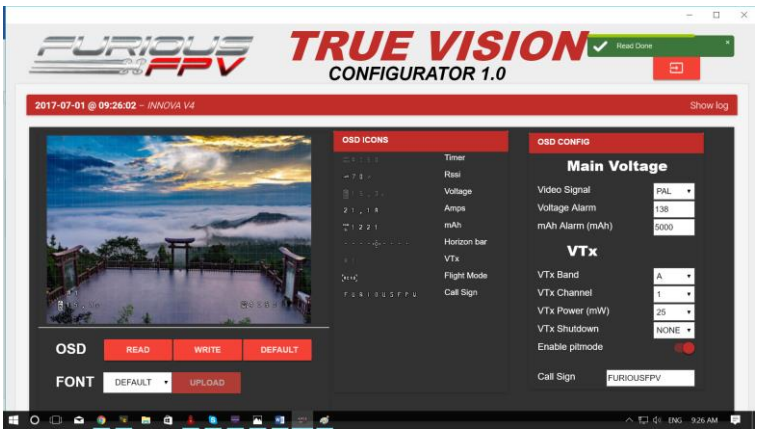
DOWNLOAD: [TRUE VISION CONFIGURATOR app and guideline document]

STEP 1: Connect PIKO F4 (**connected** with Innova V4) 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: Click **Connect icon** on True Vision interface to connect and configure OSD layout and setting.



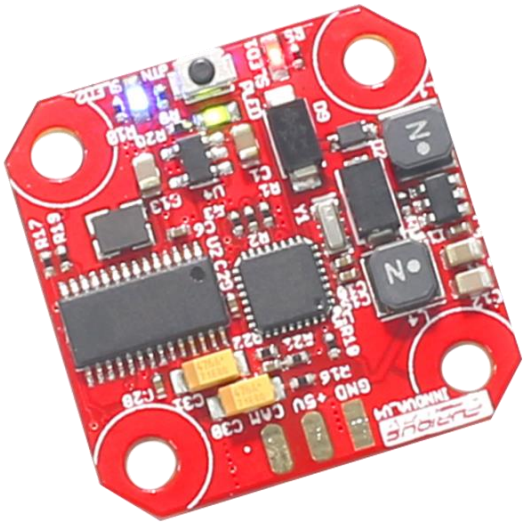
Step 5: After configure the device please click **WRITE** to save your configuration.

LED Flash Codes for Channel, Band and Power

The FuriousFPV Innova V4 VTX/OSD signals selected channel, band using a startup sequence of LED codes. The same sequence is also repeated in the menu to make it unified. First the RED LED flashes to indicate the channels.

Subsequently, the BLUE LED indicates the bands.

Red LED:	**Indicate Channels**
Blue LED:	**Indicate Bands**



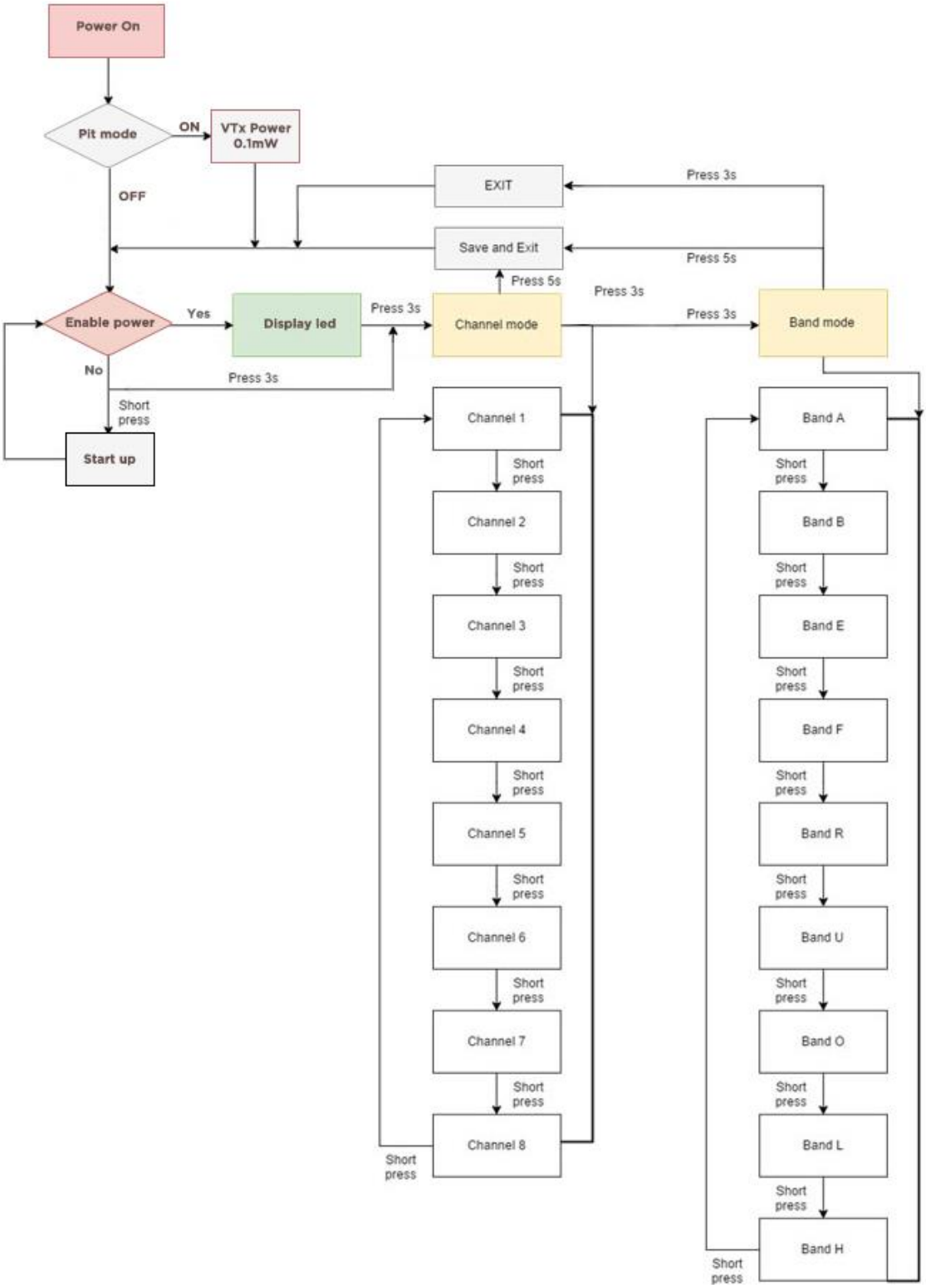
For example, Channel 1, Band A will have the following startup LED code:

- 1x Red and 1x Blue = Channel 1 and Band A – 5.865Ghz.
- 2x Red and 2x Blue = Channel 2 and Band B – 5.752Ghz.

Band	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 E	5705	5685	5665	5645	5885	5905	5925	5945
Band F	5740	5760	5780	5800	5820	5840	5860	5880
Band R	5658	5695	5732	5769	5806	5843	5880	5917
Band U	5325	5348	5366	5384	5402	5420	5438	5456
Band O	5474	5492	5510	5528	5546	5564	5582	5600
Band L	5362	5399	5436	5473	5510	5547	5584	5621
Band H	5653	5693	5733	5773	5813	5853	5893	5933

Configure frequency by button

To set frequency on Innova V4 please see diagram:



Set frequency by button's Innova V4 via OSD

If you are not connecting the Innova V4 with FC to transfer data, you can still set frequency with OSD on screen.

STEP1: **Plug battery** and **Wait** 3 second to start up.

STEP2: **Open** your screen/goggles and **connect** with frequency using (see **LED code** on Innova V4 with check it at **LED Flash Codes for Channel, Band and Power**)

STEP3: **Short press** button on start up VTX.

STEP4: **Press** and **hold** button 5s to **open menu**.

Please use button to configure.

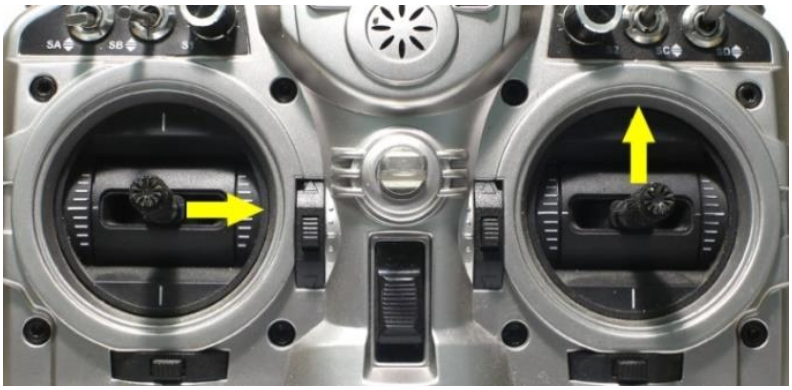
No	Button	Action
1	Short press	to move cursor or change value
2	Press and hold 5s	To go to enter/exit menu, enter functions.

STEP5: Select **Save + Exit** in menu to save and out menu OSD or **Exit** to out menu.

How to open Innova V4 VTX/OSD menu by Transmitter

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

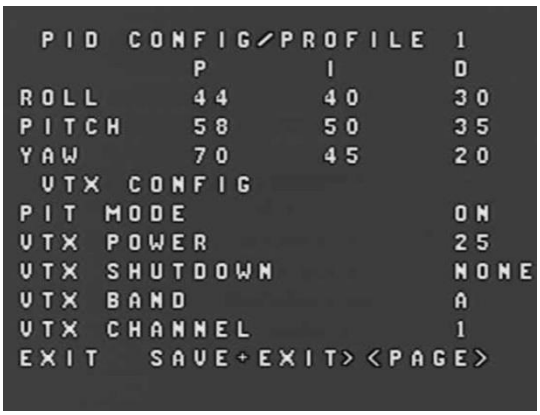
- THROTTLE MIDDLE
- YAW RIGHT
- PITCH FULL



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:



- PID Config/Profile 1/2 or 3:
  - Roll/Pitch/Yaw PID for many flight modes
- VTx Config:
  - Pit mode: On/Off *(If select ON, When you turn off VTX by Transmitter VTX will go to Pit Mode with 0.1mW to configure your quad. If select OFF – when you turn off VTX by Transmitter, Innova V4 will shut down power)*
  - VTx Power: 25/200

- VTx Shutdown: None/AUX1/AUX2/AUX3/AUX4 *(Use Stick on TX to on/off VTX Power)*
- 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)
- Statsistics (Fly Time, mAH Used, Max Amps, Voltage)

How to set up CMS CANVAS mode on BetaFlight

CMS activation:

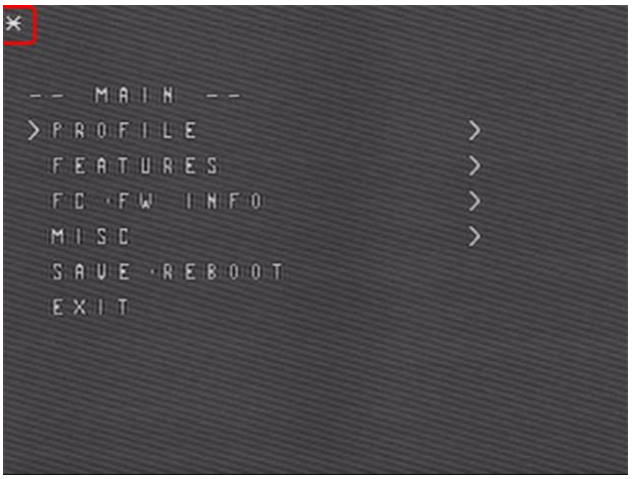
- Stick command to activate the BetaFlight CMS is **THROTTLE MIDDLE + YAW LEFT** + **PITCH FULL.**
- (Notice that MWOSD menu activation is **THROTTLE MIDDLE + YAW RIGHT + PITCH FULL**).

OOS (Out-Of-Sync):

MWOSD is very stable, and so is the canvas mode support.

However, since the canvas mode protocol is simplex from FC to MWOSD, CMS on FC and MWOSD may get out-of-sync in a rare case, such as resetting or power cycling the MWOSD while the CMS is active.

You can tell the out-of-sync state by:



1. If you power cycle or reset MWOSD while in CMS, then MWOSD may not get out of opening screen.
2. You may see an asterisk character ('*') at upper left corner of your screen when this happens.

3. You may also see cursor character move as you input navigational stick commands.
4. Other erratic text displayed (not a screen full of random characters).

There are numbers of ways to get out of this state.

1. Enter a stick command that causes page redraw, such as menu back. (It is not a wise move to enter a stick command that causes item selection.)
2. Blindly navigate to BACK or EXIT menu item and select it.
   Reset or power cycle your flight controller.

Troubleshooting

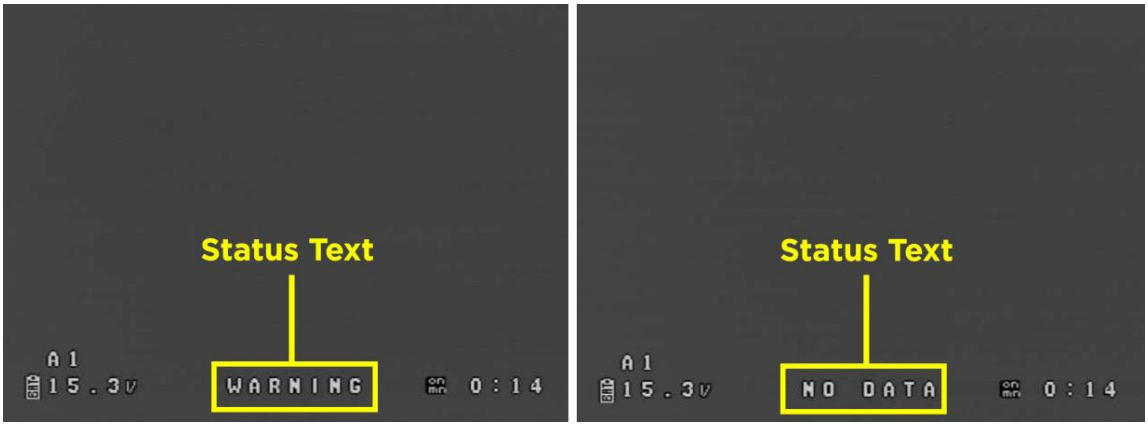
How to know if OSD is working or not?

Step 1: Remove camera cable.

Step 2: Plug **battery** to your quad.

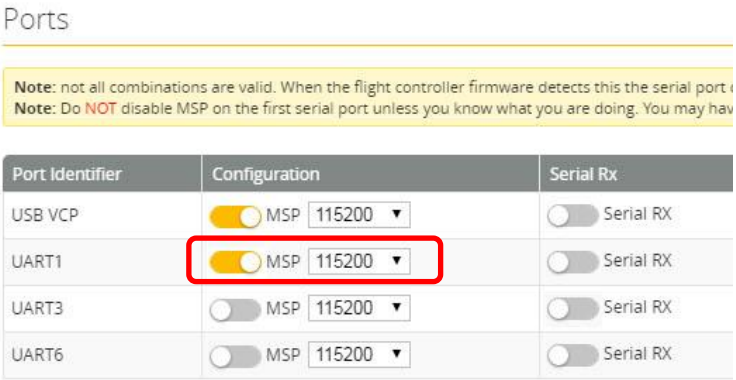
Step 3: Open **goggle/display** and check **information** on display.

If you see your display look like below picture, please check:



Status text blinks and switches **WARNING** to **NO DATA**

Case 1: the MSP of UART port is **not** turned on– Please **turn on MSP** UART using for OSD.



Case 2: Connection of wire is **incorrect** (UART – TX/RX) – Please **swap TX and RX wire** to fix.

And this is the display demonstrates OSD connecting with FC successfully.

Thanks for using our product