KOMBINI DSHOT VERSION
Flight Controller
USER MANUAL VERSION 1.1

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Contents

Change Log ......................................................................................................................... 2
Introduction .......................................................................................................................... 3
WHAT’S NEW KOMBINI DSHOT VERSION? ................................................................. 3
Features ............................................................................................................................... 3
Connections ......................................................................................................................... 6
  Connect with Receiver ....................................................................................................... 6
    ❖ Using SPD15 Receiver ............................................................................................... 6
    ❖ Using LR1000D Receiver .......................................................................................... 7
    ❖ Using XSR FrSky Receiver ....................................................................................... 8
    ❖ Using Spektrum Satellite Receiver ............................................................................ 8
  Connect with Video Transmitter ..................................................................................... 9
    ❖ Using Tramp HV ....................................................................................................... 9
    ❖ Using TBS Unify Pro ............................................................................................... 11
    ❖ Using FX FX799T .................................................................................................... 13
  Connect with stack Mnova and Runcam ........................................................................ 15
  Connect with other devices ............................................................................................ 16
  Connect with ESC 4 in 1 .............................................................................................. 17
    ❖ Using Aikon SEFM 30A ......................................................................................... 17
    ❖ Using Cicada 35x4 35A ........................................................................................... 18
    ❖ Using T-Motor F 35A 4IN1-4S ................................................................................ 19
Basic setup .......................................................................................................................... 20
Tips ..................................................................................................................................... 21
  How to configure your Spektrum RX with your Flight Controller .................. 21
  How to turn on bind mode ......................................................................................... 23
  Guideline configuration OSD with TRUE VISION CONFIGURATOR V1.0 .... 24
  How to open VTX/OSD menu by Transmitter ...................................................... 25
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:**

<table>
<thead>
<tr>
<th>Port Identifier</th>
<th>Configuration</th>
<th>Serial Rx</th>
<th>Telemetry Output</th>
<th>Sensor Input</th>
</tr>
</thead>
<tbody>
<tr>
<td>USB VCP</td>
<td>MSP 115200</td>
<td></td>
<td>Disabled ▶ AUTO ▶</td>
<td>Disabled ▶ AUTO ▶</td>
</tr>
<tr>
<td>UART1</td>
<td>MSP 115200</td>
<td></td>
<td>Disabled ▶ AUTO ▶</td>
<td>Disabled ▶ AUTO ▶</td>
</tr>
<tr>
<td>UART2</td>
<td>MSP 115200</td>
<td></td>
<td>SmartPort ▶ AUTO ▶</td>
<td>Disabled ▶ AUTO ▶</td>
</tr>
<tr>
<td>UART3</td>
<td>MSP 115200</td>
<td></td>
<td>Disabled ▶ AUTO ▶</td>
<td>Disabled ▶ AUTO ▶</td>
</tr>
</tbody>
</table>

You can buy SPD15 Receiver right here: [https://goo.gl/FTnrpR](https://goo.gl/FTnrpR)
Using LR1000D Receiver:

You can buy LR1000D Receiver right here: [https://goo.gl/4Cr0Hl](https://goo.gl/4Cr0Hl)

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

```shell
set sbus_inversion = OFF
save
```
Using XSR FrSky Receiver:

<table>
<thead>
<tr>
<th>Port Identifier</th>
<th>Configuration</th>
<th>Serial Rx</th>
<th>Telemetry Output</th>
<th>Sensor Input</th>
</tr>
</thead>
<tbody>
<tr>
<td>USB VCP</td>
<td>MSP</td>
<td>115200</td>
<td>Serial RX</td>
<td>Disabled</td>
</tr>
<tr>
<td>UART1</td>
<td>MSP</td>
<td>115200</td>
<td>Serial RX</td>
<td>Disabled</td>
</tr>
<tr>
<td>UART2</td>
<td>MSP</td>
<td>115200</td>
<td>Serial RX</td>
<td>Disabled</td>
</tr>
<tr>
<td>UART3</td>
<td>MSP</td>
<td>115200</td>
<td>Serial RX</td>
<td>Disabled</td>
</tr>
</tbody>
</table>

Using Spektrum Satellite Receiver:

<table>
<thead>
<tr>
<th>Port Identifier</th>
<th>Configuration</th>
<th>Serial Rx</th>
<th>Telemetry Output</th>
<th>Sensor Input</th>
</tr>
</thead>
<tbody>
<tr>
<td>USB VCP</td>
<td>MSP</td>
<td>115200</td>
<td>Serial RX</td>
<td>Disabled</td>
</tr>
<tr>
<td>UART1</td>
<td>MSP</td>
<td>115200</td>
<td>Serial RX</td>
<td>Disabled</td>
</tr>
<tr>
<td>UART2</td>
<td>MSP</td>
<td>115200</td>
<td>Serial RX</td>
<td>Disabled</td>
</tr>
<tr>
<td>UART3</td>
<td>MSP</td>
<td>115200</td>
<td>Serial RX</td>
<td>Disabled</td>
</tr>
</tbody>
</table>
Connect with Video Transmitter:

- **Using Tramp HV:**
  - With Piggy V2 OSD
• With Only Camera
Using TBS Unify Pro:

- With Piggy V2 OSD
• With Only Camera

Ports:

<table>
<thead>
<tr>
<th>Port Identification</th>
<th>Configuration</th>
<th>Serial Rx</th>
<th>Telemetry Output</th>
<th>Screen Input</th>
<th>Peripheral</th>
</tr>
</thead>
<tbody>
<tr>
<td>USB MCP</td>
<td>_UART</td>
<td>Serial Rx</td>
<td>Disabled</td>
<td>AUTO</td>
<td></td>
</tr>
<tr>
<td>UART1</td>
<td>_UART</td>
<td>Serial Rx</td>
<td>Disabled</td>
<td>AUTO</td>
<td></td>
</tr>
<tr>
<td>UART2</td>
<td>_UART</td>
<td>Serial Rx</td>
<td>Disabled</td>
<td>AUTO</td>
<td></td>
</tr>
<tr>
<td>UART3</td>
<td>_UART</td>
<td>Serial Rx</td>
<td>Disabled</td>
<td>AUTO</td>
<td></td>
</tr>
</tbody>
</table>

Notice: Not all combinations are valid. When the flight controller firmware updates the serial port configuration will be reset. Always use the default configuration if you are unsure. You may need to reconfigure if you change these settings.

![Diagram of FPV system components]
Using FX FX799T:

- With Piggy V2 OSD
• With Only Camera
Connect with stack Mnova and Runcam:

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

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](https://goo.gl/TXwSwI)
Connect with ESC 4 in 1:

- Using Aikon SEFM 30A:

You can buy ESC Aikon SEFM 30A 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:

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.

*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

**STEP 4:** Select Serial-based receiver in Receiver Mode
If you are using SBus, iBus or a Spektrum Satellite, you will need to pick your Serial Receiver Provider. Follow this table:

<table>
<thead>
<tr>
<th>RX Type</th>
<th>Serial Receiver Provider</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSM2 1024bit/22ms</td>
<td>SPEKTRUM1024</td>
</tr>
<tr>
<td>DSM2 2048bit/11ms</td>
<td>SPEKTRUM2048</td>
</tr>
<tr>
<td>DSMX 1024bit/22ms</td>
<td>SPEKTRUM1024</td>
</tr>
<tr>
<td>DSMX 2048bit/11ms</td>
<td>SPEKTRUM2048</td>
</tr>
<tr>
<td>FrSky RX</td>
<td>SBUS</td>
</tr>
<tr>
<td>Futaba RX</td>
<td>SBUS</td>
</tr>
<tr>
<td>FlySky RX</td>
<td>IBUS</td>
</tr>
<tr>
<td>Turnigy RX</td>
<td>IBUS</td>
</tr>
</tbody>
</table>

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**.

<table>
<thead>
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</tr>
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<td>SPEKTRUM2048</td>
</tr>
<tr>
<td>DSMX 1024bit/22ms</td>
<td>SPEKTRUM1024</td>
</tr>
<tr>
<td>DSMX 2048bit/11ms</td>
<td>SPEKTRUM2048</td>
</tr>
</tbody>
</table>

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_autorst=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:

- 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)
- Statsistics (Fly Time, mAH Used, Max Amps, Voltage)
Thanks for using our product